JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

PATTERNS OF SCREEN-BASED MEDIA USE AND THEIR ASSOCIATION WITH EXECUTIVE FUNCTIONING AMONG KINDERGARTEN LEARNERS IN AN IDENTIFIED PUBLIC SCHOOL IN CORDOVA

Elizabeth J. Sanchez
Master of Arts in Education, Major in Early Childhood Education
Graduate Teacher Education, College of Education
Cebu Technological University – Main Campus
M.J. Cuenco Ave., Cebu City, 6000, Philippines
Email: sanchellie65@gmail.com

ABSTRACT

This study examined the patterns of screen-based media use and their association with executive functioning among kindergarten learners at Cordova Central Elementary School, Cordova, Cebu, during School Year 2026–2027. A quantitative, non-experimental, cross-sectional descriptive-correlational design was employed. Using proportionate stratified random sampling, 80 of the 172 kindergarten learners were selected as participants. Parents or primary caregivers completed a researcher-prepared profile questionnaire and the ScreenQ, while kindergarten teachers rated the learners' everyday executive functioning using the Childhood Executive Functioning Inventory (CHEXI) of Thorell and Nyberg. Findings revealed that access to screen-based media was prevalent among the learners, with smartphones as the most commonly used primary device (63.75%) and most learners (48.75%) spending two to less than four hours on screens daily. Teacher ratings indicated executive-function difficulties across all four CHEXI domains (overall mean = 3.44), with inhibition (3.59) and regulation (3.41) receiving the highest ratings. The correlation between average daily screen time and overall executive-function difficulties was very weak and positive but not statistically significant ($r = 0.153$, $p = 0.176$); hence, the null hypothesis was not rejected. This result does not suffice to justify attributing executive-function difficulties to screen time alone. Nonetheless, a Home–School Screen Media Guidance and Executive Function Development Plan was proposed to reinforce responsible screen-based media use and to develop the learners' executive functioning.

Keywords: *Early Childhood Education, Screen-Based Media, Executive Function, CHEXI, Descriptive-Correlational Design, Cebu Technological University, Philippines*

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

INTRODUCTION

Background of the Study

Digital technology has become an increasingly integral part of young children's everyday lives. Smartphones, tablets, televisions, computers, and other internet-enabled devices are now commonly used at home for entertainment, communication, and educational activities. As these technologies continue to influence children's daily experiences, questions have emerged regarding their possible implications for early learning and development. Swider-Cios et al. (2023) emphasized that children's engagement with digital media involves several factors, including access to devices, frequency of use, type of content, and adult participation. These considerations suggest that understanding screen-based media use requires more than simply determining how much time children spend in front of screens. Attention must also be given to what children watch, how they interact with digital content, and the extent to which parents or caregivers guide their experiences.

The growing presence of screen-based media is particularly relevant during early childhood, a period when children develop essential cognitive and behavioral skills that prepare them for formal learning. Among these skills are executive functions, which enable children to remember instructions, manage their behavior, control impulses, and respond appropriately to different situations. Muir et al. (2023) and Londono et al. (2025) described executive functions as important cognitive processes involved in attention, working memory, self-regulation, and goal-directed behavior. In classroom settings, these abilities allow young learners to follow directions, complete activities, organize tasks, and participate in routines that require patience and self-control. Savina (2021) further emphasized the importance of executive functioning in children's classroom participation and behavioral regulation, while Turnbull et al. (2024) highlighted its contribution to school readiness and everyday learning. Considering the developmental significance of these skills, examining their possible association with children's screen-based media experiences becomes an important concern in early childhood education.

Screen-based media provides children with opportunities to access information, engage in educational activities, and explore digital learning materials. However, the nature of these experiences may differ depending on the content and circumstances of use. Hutton et al. (2020) developed the ScreenQ as a multidimensional measure that considers screen access, frequency, content, and co-viewing, recognizing that children's digital experiences cannot be adequately described by screen duration alone. Similarly, Mallawaarachchi et al. (2024), in a systematic review and meta-analysis involving 100 studies and 176,742 children younger than six years, found that different screen-use contexts were associated with different developmental outcomes. Their findings indicated that program viewing and background television were negatively associated with cognitive outcomes, while caregiver co-use showed a positive association. Namazi and Sadeghi (2024) also noted that characteristics of television content, particularly pacing and fantasy, may influence preschool children's attention and executive-function performance. These findings underscore the importance of considering not only the amount of screen exposure but also the quality of content and the involvement of adults in children's digital activities.

Despite the growing interest in children's digital experiences, research findings concerning the relationship between screen-based media use and executive functioning remain inconsistent. Jusienė et al. (2020) reported no significant associations between time spent using several screen devices and core executive abilities among typically developing preschool children from relatively low-risk backgrounds. In contrast, McHarg et al. (2020) found that screen time at two years of age predicted less favorable executive-function development between ages two and three, although concurrent associations were not significant. Portugal et al. (2023) likewise observed lower working-memory and cognitive-flexibility performance among preschoolers with higher touchscreen use, but the association became weaker after background television was considered. More recent studies by Fitzpatrick et al. (2025) and Lakicevic et al. (2025) further suggest that associations between screen exposure and children's development may differ according to the timing, form, and context of media use. These varying findings indicate that screen-based media should not be viewed as entirely beneficial or harmful. Rather, its relationship with children's executive functioning needs to be examined with consideration of the conditions under which digital media is used.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

In the Philippine educational setting, understanding children's screen-based media experiences is relevant to both parents and teachers, particularly as digital devices become part of household routines and early learning activities. Although existing studies have contributed to understanding children's screen exposure and developmental outcomes, their findings may not necessarily reflect the circumstances of kindergarten learners in individual school communities. At Cordova Central Elementary School, limited school-specific evidence is available regarding children's patterns of screen-based media use and their association with executive functioning. Learners may have different experiences depending on the availability of digital devices at home, the frequency and purpose of screen use, the content they encounter, and the guidance provided by their parents or caregivers. These differences make it important to examine the actual screen-use practices of learners within their family and educational environments. Establishing local evidence may help teachers and parents better understand the digital experiences of children and identify areas where appropriate guidance and support may be needed.

Given these concerns, there remains a need to investigate the association between patterns of screen-based media use and executive functioning among kindergarten learners at Cordova Central Elementary School. While previous investigations have examined screen exposure and children's cognitive development, findings remain varied, particularly when different aspects of media use are considered. The present study therefore sought to describe the learners' demographic and household characteristics and to examine their screen-based media practices in terms of access, frequency, content, and co-viewing. It also aimed to assess their executive functioning through the Childhood Executive Functioning Inventory (CHEXI), particularly in the domains of working memory, planning, regulation, and inhibition. Furthermore, the study intended to determine whether a significant relationship exists between patterns of screen-based media use, as measured by the ScreenQ, and executive functioning, as assessed through the CHEXI. Through this investigation, the researcher sought to provide a clearer understanding of how children's everyday digital experiences relate to the executive-function skills needed in kindergarten learning.

The findings of this study served as the basis for developing a proposed action plan responsive to the needs of kindergarten learners, parents, and teachers. The proposed plan may include parent education on appropriate screen-use practices, guidance in selecting age-appropriate digital content, caregiver involvement during screen activities, and learning experiences that strengthen children's working memory, planning, regulation, and inhibition. It may also encourage closer collaboration between the school and families in promoting balanced screen-use routines at home. Ultimately, the study seeks to contribute local evidence that can guide practical and developmentally appropriate approaches to supporting children's executive functioning in an increasingly digital environment.

Theoretical and Conceptual Framework

The present study is grounded in theoretical, legal, and empirical foundations that explain the association between young children's screen-based media use and executive functioning. Screen use is viewed as a multidimensional experience involving access, frequency, content, and co-viewing, while executive functioning includes working memory, planning, regulation, and inhibition. The study is primarily anchored in Bronfenbrenner's Ecological Systems Theory, Vygotsky's Sociocultural Theory, and Diamond's Executive Function Framework, with Cognitive Load Theory (Sweller, 1988) supporting the explanation of screen content. Figure 1 presents the theoretical and conceptual framework of the study.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

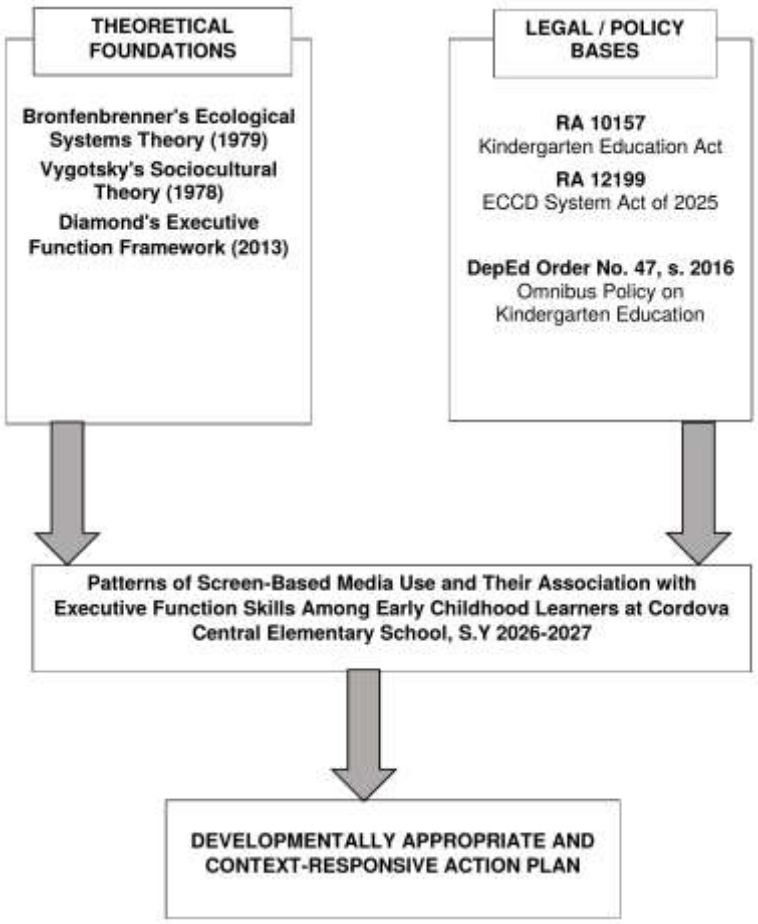


Figure 1. Theoretical/Conceptual Framework

Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's Ecological Systems Theory provides an important foundation for understanding screen-based media use within the broader environments in which children develop. Bronfenbrenner (1979) proposed that child development occurs through continuing interactions between the developing child and a set of interconnected environmental systems. Of particular relevance to early childhood are the microsystem, which includes immediate settings such as the home and school, and the mesosystem, which involves relationships among these immediate environments.

Applied to the present study, children's screen-based media use does not occur independently of their family and learning environments. Access to digital devices, internet connectivity, family resources, parental educational attainment, and household routines may influence the opportunities children have to use screens and the circumstances surrounding such use. Likewise, caregiver practices may influence how frequently screens are used, what content children encounter, and whether media use occurs independently or with adult participation. These contextual characteristics provide a theoretical basis for describing the respondents' learner and family profiles as specified in the statement of the problem.

Bronfenbrenner's theory is therefore particularly relevant to the access and frequency dimensions of screen-based media use while also helping explain the broader context of content selection and co-viewing. However, the theory does not imply that a particular family characteristic or level of device access directly causes stronger or weaker executive functioning. Rather, it supports the study's view that children's digital experiences are embedded within their immediate developmental environments and should be interpreted in relation to those contexts.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Vygotsky's Sociocultural Theory

Vygotsky's Sociocultural Theory further explains how children's development is shaped through social interaction, language, cultural tools, and guidance from more knowledgeable others. Vygotsky (1978) emphasized that learning is socially mediated and that children develop cognitive abilities through meaningful interactions with adults and more capable peers. Within this perspective, digital media may be viewed as a cultural tool whose developmental significance may depend partly on the social context in which it is used.

Recent empirical evidence supports the importance of this social context. Mallawaarachchi et al. (2024), in a systematic review and meta-analysis of early childhood screen-use contexts, reported a positive pooled association between co-use and cognitive outcomes. Such findings are compatible with Vygotsky's emphasis on socially mediated learning. Nevertheless, co-viewing should not be interpreted as automatically beneficial in every circumstance because the quality of adult–child interaction, the appropriateness of content, and the purpose of media use may also matter. In the present study, co-viewing is therefore examined as one component of children's screen-use patterns rather than as an assumed protective factor.

Diamond's Executive Function Framework

Diamond's Executive Function Framework provides the principal cognitive foundation for the outcome variable of the study. Diamond (2013) identifies three core executive functions: working memory, inhibitory control, and cognitive flexibility. These processes enable individuals to regulate thoughts and behavior in pursuit of goals and support the development of more complex executive abilities such as planning, reasoning, and problem-solving.

Working memory enables children to hold information in mind and use it while completing a task. Inhibitory control allows them to resist impulsive responses, ignore distractions, and regulate their behavior. Cognitive flexibility enables children to shift attention, adjust to changing demands, and consider alternative ways of responding. More complex skills such as planning depend on the coordinated use of these fundamental executive processes.

These functions are particularly important during early childhood because they support everyday classroom behaviors such as following multistep instructions, remembering rules, organizing activities, waiting for turns, controlling impulses, completing tasks, and adapting to changes in routines. Executive functioning is consequently important not only to cognitive performance but also to children's school readiness and participation in learning.

In the present study, Diamond's framework provides the conceptual basis for executive functioning, while the Childhood Executive Functioning Inventory (CHEXI) developed by Thorell and Nyberg (2008) provides its operational measurement. The CHEXI includes four subscales, namely working memory, planning, regulation, and inhibition, which are commonly organized under the broader Working Memory and Inhibition factors. Thus, the CHEXI subscales used in the statement of the problem are conceptually consistent with Diamond's description of core and higher-order executive processes.

The CHEXI is framed in terms of observable executive-function difficulties in everyday settings. Consequently, higher raw scores represent greater difficulties rather than stronger executive functioning. This distinction is important in interpreting the study findings. Although the study refers broadly to "executive function skills," the statistical interpretation of CHEXI scores retained the instrument's original direction.

Integration of the Theoretical Foundations

Taken together, the theoretical foundations correspond directly with the variables of the study. Bronfenbrenner explains the environmental context surrounding device access, frequency, and family characteristics; Vygotsky explains the social mediation involved in co-viewing; Cognitive Load Theory provides a supporting lens for understanding differences in screen content; and Diamond provides the principal foundation for working memory, planning, regulation, and inhibition. Collectively, these theories support examining screen-based media use as a

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

multidimensional experience and investigating its statistical association with executive functioning without presuming causality.

Legal and Policy Bases

The present study is further supported by Philippine laws and Department of Education policies that emphasize developmentally appropriate learning, holistic child development, family involvement, and educational environments responsive to the needs of young children. These legal and policy foundations establish the educational relevance of the study but are not treated as variables or statistical predictors.

Republic Act No. 10157, otherwise known as the Kindergarten Education Act, institutionalized Kindergarten education as an integral and compulsory component of Philippine basic education. The law recognizes Kindergarten as an important preparation for formal schooling and emphasizes educational experiences responsive to children's developmental needs. This policy is relevant to the present study because executive functions such as working memory, planning, regulation, and inhibition contribute to children's readiness to participate in structured learning experiences. Likewise, as digital technologies become part of children's home and learning environments, examining their screen-use practices in a developmentally appropriate manner supports the broader objective of providing educational experiences suited to young learners.

Republic Act No. 12199, or the Early Childhood Care and Development System Act of 2025, further strengthens the policy basis of the study. The law recognizes ages zero to eight as the first crucial stage of educational development and emphasizes children's holistic well-being, developmentally appropriate experiences, and nurturing environments. It also recognizes parents and parent-substitutes as children's primary caregivers and first teachers and assigns the Department of Education responsibility for supporting children in the formative years from ages five to eight.

DepEd Order No. 47, s. 2016, or the Omnibus Policy on Kindergarten Education, provides standards relating to Kindergarten curriculum, instruction, assessment, learning resources, learning environments, and monitoring and evaluation. The policy reinforces the principle that educational experiences and resources provided to young children should be developmentally appropriate. Its relevance to the study lies in the need to understand contemporary learning resources and experiences within the broader developmental environment of children. Digital media may serve educational, recreational, or communicative purposes, but its appropriateness cannot be determined by exposure alone. The content, context, purpose, and adult involvement surrounding screen use are likewise important. Findings regarding children's screen-use patterns and executive functioning may therefore provide evidence that can support teachers and families in promoting developmentally appropriate practices.

Review of Related Literature

Research published from 2020 to 2025 demonstrates that the relationship between screen-based media use and children's developmental and executive-function outcomes is complex. Rather than showing a single uniform effect, recent findings vary according to duration, device type, content, social context, developmental stage, and the manner in which executive functioning is measured. This body of evidence supports the present study's decision to examine screen use as a pattern of behaviors rather than relying solely on daily screen duration.

Screen Duration and Executive Functioning

Studies emphasizing screen duration have produced mixed findings. Jusienė et al. (2020), studying 190 preschool children, found no significant association between time spent using television, smartphones, tablets, and computers and the executive abilities of inhibitory control, working memory, and set shifting among typically developing preschoolers from relatively low-risk backgrounds. In contrast, McHarg et al. (2020), in a longitudinal investigation of 193 British toddlers, reported no concurrent association between screen time and executive functioning but found that screen exposure at age two was associated with less favorable development of executive function from ages two to three. More recently, Lakicevic et al. (2025), studying 1,016 children aged five to six years, reported weak associations between greater screen-time exposure and several measures of executive

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

functioning. Considered together, these studies indicate that duration alone does not consistently explain executive functioning and that developmental timing, sample characteristics, and measurement approaches may influence observed relationships.

Device Type and Manner of Use

Evidence concerning device type and manner of use further demonstrates the need for a multidimensional perspective. Portugal et al. (2023) found that preschool children classified as higher touchscreen users performed less favorably on a combined measure of working memory and cognitive flexibility; however, the association weakened after background television was considered. This suggests that broader media exposure may be relevant when interpreting the effects attributed to a particular device. Similarly, Mortimer et al. (2024) examined concurrent and longitudinal touchscreen use and emphasized the importance of distinguishing active touchscreen activities from passive consumption. Their findings did not support a simple conclusion that greater touchscreen use was uniformly associated with poorer executive functioning. Together, these studies illustrate that the developmental meaning of screen use may depend on what children do with the device rather than on device ownership or duration alone.

Content and Social Context

Research examining content and social context offers further support for the present study's ScreenQ-based approach. Hutton et al. (2020) developed the ScreenQ as a composite parent-report measure reflecting recommendations concerning screen access, frequency, content, and co-viewing. Their findings supported the usefulness of considering these dimensions collectively rather than reducing children's media experiences to screen hours alone. Axelsson et al. (2022) similarly examined screen exposure in relation to content type, time of day, and whether preschool children used screens with another person. Their results connected greater overall exposure with less favorable outcomes in areas including communication, problem solving, and attention, highlighting the importance of contextual information surrounding screen use.

The characteristics of screen content may also influence children's immediate cognitive performance. Namazi and Sadeghi (2024) systematically reviewed experimental studies examining television-program pacing and fantasy among children aged approximately two to seven years. The evidence showed that the effects of these characteristics were not uniform across all studies or cognitive outcomes. Nevertheless, the review demonstrated that what children watch, including the pace and degree of fantasy in the material, can be relevant when examining attention and executive functioning. This supports retaining content as an important conceptual dimension in the present investigation.

Broader reviews further strengthen the argument for a contextualized approach. Mallawaarachchi et al. (2024), in a systematic review and meta-analysis of 100 studies involving 176,742 children from birth to younger than six years, found that different screen-use contexts were associated with different developmental outcomes. Program viewing and background television showed negative associations with cognitive outcomes, whereas co-use showed a positive association with cognitive outcomes. The authors emphasized the importance of considering content, type, purpose, co-use, and family media practices alongside duration. Bal et al. (2024) reached a related conclusion in a systematic review examining screen time in relation to language development and executive functioning during early childhood. Across the literature, contextual elements such as content, parent–child interaction, and active versus passive screen engagement emerged as important considerations. Together with Mallawaarachchi et al. (2024), this synthesis indicates that a simple measure of total screen time may overlook meaningful differences in how media is accessed and experienced.

Executive Functioning as Everyday Behavior

Evidence involving everyday behavioral manifestations of executive functioning is also relevant to the present use of the CHEXI. Likhitweerawong et al. (2024) examined excessive screen time, executive dysfunction, and problematic behaviors among preschool children and found that executive dysfunction statistically mediated part of the association between screen exposure and behavioral difficulties. Although such observational findings do

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

not establish causation, they demonstrate the value of assessing executive functioning as behavior expressed in everyday settings rather than relying exclusively on laboratory-based cognitive tasks. This perspective is consistent with the CHEXI, which allows adults familiar with the child to rate difficulties related to working memory, planning, regulation, and inhibition.

Across these international studies, three patterns are evident. First, the literature does not consistently support the assumption that screen duration alone determines executive-function outcomes. Second, content, device type, social context, and the broader family media environment appear relevant to understanding children's experiences. Third, associations are frequently modest, variable across executive-function domains, and dependent on research design and measurement. These findings justify an approach that examines screen-use patterns while maintaining cautious interpretation of statistical associations.

Evidence from the Philippine Context

Within the Philippine context, evidence remains comparatively limited. Dy et al. (2023) examined Filipino children aged 24 to 36 months and found that higher levels of screen exposure were associated with poorer receptive and expressive language outcomes at higher levels of use. The study also found that excessive screen use was less likely when children co-viewed with adults, siblings, or other children and when parents had lower levels of screen exposure themselves. These findings demonstrate the relevance of family and co-viewing contexts among Filipino children.

However, Dy et al. (2023) focused on younger toddlers and on developmental outcomes centered largely on language and adaptive functioning rather than the everyday executive-function domains of working memory, planning, regulation, and inhibition. Thus, although the study provides important national evidence, it does not directly answer how multidimensional screen-use patterns are associated with CHEXI-rated executive functioning among school-enrolled early childhood learners. This gap in the literature is the focus of the present study.

Objectives of the Study

This research aimed to examine the patterns of screen-based media utilization and their association with executive functioning among kindergarten learners at Cordova Central Elementary School during School Year 2026–2027. Specifically, the study sought to answer the following questions:

1. What is the profile of the learner-participants in terms of:
   - 1.1 age;
   - 1.2 gender;
   - 1.3 number of screen-based devices or gadgets available at home;
   - 1.4 internet connectivity;
   - 1.5 average daily time allocated to screen-based media use;
   - 1.6 primary device used;
   - 1.7 socioeconomic status; and
   - 1.8 parents' educational attainment?

2. How may the patterns of screen-based media use of the learner-participants be described in terms of:
   - 2.1 access;
   - 2.2 frequency;
   - 2.3 content; and
   - 2.4 co-viewing?

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

3. What is the level of executive-function difficulties of the learner-participants in terms of:
   3.1 working memory;
   3.2 planning;
   3.3 regulation; and
   3.4 inhibition?

4. Is there a significant association between the overall pattern of screen-based media use and the executive functioning of kindergarten learners?

5. Based on the findings of the study, what developmentally appropriate and context-responsive action plan may be proposed?

Statement of the Null Hypothesis

The null hypothesis was tested at the 0.05 level of significance.

> **H_0**: There is no significant relationship between the learners' screen-based media usage and their executive function.

Significance of the Study

This study aimed to provide a better understanding of the association between screen-based media use and executive functioning among kindergarten learners. The findings may serve as a basis for developing appropriate interventions that support children's learning and development. The study may benefit the following:

Department of Education (DepEd) Officials. The findings may provide relevant information that can guide the development of educational programs promoting responsible screen-based media use and supporting executive functioning among young learners.

School Administrators. This study may assist school administrators in planning school-based programs and parent education activities that promote appropriate screen use and support children's cognitive development.

Teachers. The findings may help teachers understand the association between children's screen-based media practices and executive functioning. These may also guide them in preparing classroom activities that strengthen working memory, planning, regulation, and inhibition.

Parents and Caregivers. This study may help parents become more aware of their children's screen-based media practices. The findings may guide them in establishing appropriate screen routines and selecting age-appropriate content while encouraging active parental involvement.

Kindergarten Learners. The learners may benefit from the proposed activities and recommendations that promote balanced screen use and strengthen executive functioning skills essential for classroom participation and daily learning.

The Researcher. This study may deepen the researcher's understanding of screen-based media use and executive functioning in early childhood. It may also enhance the researcher's skills in educational research and contribute to professional growth as an early childhood educator.

Future Researchers. The findings may serve as a reference for future studies involving screen-based media use and executive functioning. They may also provide baseline information for further investigations involving other learners and educational settings.

Definition of Terms

For clarity and consistency, the following terms are defined as they are used in the study:

Access. Refers to the availability and opportunity of the Kindergarten learner to use screen-based devices such as televisions, smartphones, tablets, and computers.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Childhood Executive Functioning Inventory (CHEXI). Refers to the rating instrument developed by Thorell and Nyberg (2008) and completed by teachers in this study to assess everyday executive-function difficulties.

Co-viewing. Refers to the participation of a parent, caregiver, or other person while the child uses or views screen-based media.

Content. Refers to the type and nature of screen-based material viewed or used by the child, including educational and entertainment content.

Developmentally Appropriate and Context-Responsive Action Plan. Refers to the proposed output of the study developed from the findings to guide appropriate screen-use practices and activities that may support executive functioning among early childhood learners.

Early Childhood Learners. Refers to the Kindergarten learners enrolled at Cordova Central Elementary School during School Year 2026–2027 who served as the units of analysis in the study.

Executive Function Skills. Refer to cognitive and self-regulatory processes that support goal-directed behavior. In this study, these were examined through working memory, planning, regulation, and inhibition as assessed using the CHEXI.

Frequency. Refers to how often or how regularly a child engages in screen-based media use.

Inhibition. Refers to the learner's ability to control impulsive or inappropriate responses and behaviors.

Patterns of Screen-Based Media Use. Refer to the child's screen-media practices examined in terms of access, frequency, content, and co-viewing.

Planning. Refers to the learner's ability to organize and carry out actions needed to accomplish a task or goal.

Regulation. Refers to the learner's ability to manage and control behavior appropriately according to the demands of a situation.

ScreenQ. Refers to the parent-report instrument developed by Hutton et al. (2020) used to assess children's screen-based media practices involving access, frequency, content, and co-viewing.

Working Memory. Refers to the learner's ability to hold information in mind and use it while completing a task or following instructions.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

METHODS

This section presents the methodology used in the study, including the research design, the flow of the study, the research locale, the respondents and sampling procedure, the research instruments and their scoring, the translation, validation, and reliability of the instruments, the data-gathering procedure, the data analysis, and the ethical considerations.

Research Design

This study employed a quantitative, non-experimental, cross-sectional descriptive-correlational research design to examine patterns of screen-based media use and their association with executive functioning among kindergarten learners at Cordova Central Elementary School during School Year 2026–2027. The descriptive component covered the learners' profile in terms of age, gender, number of screen-based devices at home, internet connectivity, average daily screen-media use, primary device, socioeconomic status, and parents' educational attainment. It also described screen-based media use in terms of access, frequency, content, and co-viewing, and executive functioning in terms of working memory, planning, regulation, and inhibition. The correlational component determined whether a significant association exists between the two variables. This design was appropriate because the variables were examined as they naturally occur, without manipulation or intervention (Creswell & Creswell, 2023).

The study was conducted at Cordova Central Elementary School, with a target population of 172 kindergarten learners from ten morning and afternoon sections. A minimum of 80 learners were selected through proportionate stratified random sampling, with each section serving as a stratum. The parent or primary caregiver completed the ScreenQ developed by Hutton et al. (2020) to report the child's screen-based media practices, while the kindergarten teacher completed the Childhood Executive Functioning Inventory (CHEXI) developed by Thorell and Nyberg (2008) based on the child's classroom behavior. Parents and teachers served as informants, while the kindergarten learner remained the primary unit of analysis.

Data were gathered through both printed and electronic questionnaires to provide accessible modes of participation for the respondents. The ScreenQ was used to assess screen-based media practices related to access, frequency, content, and co-viewing, while the CHEXI assessed everyday executive-function difficulties involving working memory, planning, regulation, and inhibition. The original content and scoring procedures of the instruments were retained, while Cebuano translations were provided to facilitate comprehension among respondents. The translated versions were subjected to appropriate language and content review to maintain clarity and consistency with the original instruments. Only learner cases with informed parental or guardian consent and complete matched ScreenQ and CHEXI responses were included in the final analysis.

All gathered data underwent appropriate descriptive and correlational statistical treatment. Descriptive statistics summarized the learners' profile and described their patterns of screen-based media use and executive functioning. An appropriate correlation coefficient then determined the strength, direction, and statistical significance of the association between the ScreenQ and CHEXI measures, with the specific correlational test chosen according to the level of measurement, the distribution of the data, and the relevant statistical assumptions. The results were presented in tables for clarity and served as the basis for developing a developmentally appropriate and context-responsive action plan for learners, parents, teachers, and school stakeholders.

Flow of the Study

This research made use of the Input–Process–Output (IPO) approach to present the systematic flow of the study, as shown in Figure 2. The Input phase consisted of the learner and family profile, the patterns of screen-based media use, and the executive function skills of kindergarten learners. Screen-based media use was examined in terms of access, frequency, content, and co-viewing, while executive functioning was assessed in terms of working memory, planning, regulation, and inhibition. The research also determined whether a significant association exists between patterns of screen-based media use and executive function skills.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

The Process phase began with securing the necessary approvals and permissions from the concerned institution and school authorities, followed by obtaining informed consent from the parents or legal guardians of the learner-participants. The ScreenQ and CHEXI were prepared in their original English versions with researcher-prepared Cebuano translations to facilitate respondent comprehension. The translated versions were then reviewed for clarity, language appropriateness, and consistency with the meaning of the original items. A minimum of 80 kindergarten learners from the population of 172 were selected through proportionate stratified random sampling, with the kindergarten sections serving as strata. Parents or primary caregivers completed the ScreenQ, while teachers completed the CHEXI for the corresponding learners. The questionnaires were administered through printed or electronic forms. Researcher-generated learner codes were employed to match the parent and teacher responses while maintaining confidentiality. Lastly, the completed data were checked, coded, organized, tabulated, and subjected to appropriate descriptive and correlational statistical analyses.

The Output phase consisted of a Developmentally Appropriate and Context-Responsive Action Plan based on the findings of the study. The proposed action plan intends to provide practical guidance for learners, parents, teachers, and school stakeholders regarding appropriate screen-use routines, age-appropriate content, meaningful caregiver co-viewing, and activities that may support working memory, planning, regulation, and inhibition. Consistent with the descriptive-correlational design, the action plan was based on the identified patterns and associations rather than on assumptions of prediction or causation.

INPUT	PROCESS	OUTPUT
➢ Learner and Family Profile ➢ Patterns of Screen-Based Media Use ➢ Executive Function Skills ➢ Significant association Between Screen-Based Media Use and Executive Function Skills	➢ Securing of Approvals and Permissions ➢ Parent/Guardian Informed Consent ➢ Preparation of Research Instruments ➢ Review of Translated Instruments ➢ Selection of Learner-Participants ➢ Administration of Questionnaires ➢ Coding and Matching of Responses ➢ Data Checking, Organization, and Tabulation ➢ Statistical Analysis ➢ Interpretation and Synthesis of Findings	DEVELOPMENTALLY APPROPRIATE AND CONTEXT-RESPONSIVE ACTION PLAN

Figure 2. Flow of the Study

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Research Locale

This research was conducted at Cordova Central Elementary School, Division of Cebu Province, a public elementary school located in the Municipality of Cordova, Province of Cebu (Figure 3). As a public basic education institution, the school serves learners from the local community and provides formal elementary education, including kindergarten classes, which is the focus of this research.



Figure 3. Location Map of the Research Locale

The school was deemed an appropriate research environment since it directly represents the educational setting in which the target learner-participants were enrolled during School Year 2026–2027. In addition, the school was chosen because it satisfied the following factors. First, it has a sufficient number of kindergarten learners and maintains an organized school structure that allowed the researcher to gather the needed data from both parents or caregivers and teachers. Second, its kindergarten population made the school suitable for examining the patterns of screen-based media use and executive function skills of young learners in a school-based early childhood context. Third, the school's relevance is aligned with the objectives of the research, and its proximity provided accessibility to the researcher. Lastly, the school environment allowed the researcher to coordinate with teachers and parents or guardians for the administration of the ScreenQ and CHEXI, making it a suitable and practical locale for the conduct of the study.

Respondents and Sampling Procedure

This research involved kindergarten-level learners enrolled at Cordova Central Elementary School during School Year 2026–2027. Based on the school enrollment record of the said school year, the kindergarten population consisted of 172 learners distributed across ten morning and afternoon sections. Each section was treated as a stratum, and the number of participants selected from each section was determined according to its proportion in the total population. Learners within each section were then selected randomly.

For the learners to be included in the final statistical analysis, they had to satisfy the following conditions. First, they were officially enrolled in kindergarten at Cordova Central Elementary School during the school year.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Second, they were selected through the prescribed sampling procedure and had informed consent provided by a parent or legal guardian. Lastly, each included learner had a completed ScreenQ from the parent or primary caregiver and a corresponding CHEXI rating from the teacher.

Table 1. Distribution of Learner-Participants

Kindergarten Section	Population	Sample	Percentage (%)
Calm – AM	19	9	11.25
Calm – PM	15	7	8.75
Firm – AM	19	9	11.25
Firm – PM	17	8	10.00
Friendly – AM	17	8	10.00
Friendly – PM	13	6	7.50
Generous – AM	22	10	12.50
Generous – PM	14	6	7.50
Fair – AM	19	9	11.25
Fair – PM	17	8	10.00
Total	**172**	**80**	**100.00**

Table 1 presents the proportional distribution of the learner-participants across the ten Kindergarten sections. The allocation ensured that each section was represented according to its share of the total Kindergarten population.

Research Instruments

This study utilized a three-part survey instrument consisting of a researcher-prepared learner and family profile, the ScreenQ developed by Hutton et al. (2020), and the Childhood Executive Functioning Inventory (CHEXI) developed by Thorell and Nyberg (2008). These instruments were selected as they directly correspond with the variables identified in the objectives of the study. The parents or primary caregivers provided information on the learner's profile and screen-based media use, while the kindergarten teachers rated the learner's executive functioning based on behaviors observed in the classroom.

Part I – Learner and Family Profile

The first part consisted of a researcher-prepared profile questionnaire completed by the parent or primary caregiver. It gathered general demographic information such as the learner's age, gender, number of screen-based devices available at home, internet connectivity, average daily screen-media use, primary device used, socioeconomic status, and parents' educational attainment. These variables provided descriptive information on the learner and family context and corresponded with the first research question of the study.

The items in this section used appropriate categorical and factual response formats rather than a Likert scale. The profile questionnaire was reviewed by qualified experts in early childhood education and research to determine the clarity, relevance, and appropriateness of the items before final administration.

Part II – Patterns of Screen-Based Media Use

The second part utilized the ScreenQ, a parent-report measure developed by Hutton et al. (2020) to assess screen-based media practices among young children. The original ScreenQ consists of 15 items reflecting four conceptual areas of screen-media use: access, frequency, content, and co-viewing. The instrument produces a composite score ranging from 0 to 26, with higher scores indicating greater non-adherence to recommended screen-media

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

practices. Hutton et al. (2020) reported strong psychometric properties for the instrument, including an internal-consistency coefficient of approximately 0.74.

For this research, the ScreenQ was completed by the parent or primary caregiver, since screen access, duration and frequency of use, content exposure, and caregiver co-viewing occur largely within the home environment. Its items were organized conceptually according to access, frequency, content, and co-viewing to describe the learners' patterns of screen-based media use. The validated ScreenQ composite score served as the primary overall measure of screen-media practices for the association analysis.

However, the ScreenQ does not use one uniform Likert scale because its items contain different response formats and scoring weights. Therefore, the original scoring procedure was retained rather than converting all items into a researcher-made Likert scale. Lower ScreenQ scores indicate greater adherence to recommended screen-media practices, while higher scores indicate greater non-adherence, with a possible total score of 0 to 26. No arbitrary categories such as "low," "moderate," or "high" screen use were imposed on the total ScreenQ score because the original instrument does not establish validated categorical cut-off points. The composite score was primarily treated as a continuous measure to preserve the original scoring of the instrument.

Part III – Executive Function Skills

The third part utilized the CHEXI developed by Thorell and Nyberg (2008). The CHEXI is a 24-item parent- or teacher-report instrument designed to assess everyday executive-function difficulties in children. For this research, the teacher-report version was used since teachers were able to observe the learners' executive functioning during classroom activities and routines.

The CHEXI contains four subscales: working memory (nine items), planning (four items), regulation (five items), and inhibition (six items). These subscales are also organized under two broader factors: working memory, comprising the working memory and planning subscales, and inhibition, comprising the regulation and inhibition subscales. Each CHEXI item was rated using a five-point Likert scale: 1 = Definitely Not True, 2 = Not True, 3 = Partially True, 4 = True, and 5 = Definitely True. Higher CHEXI scores indicate greater executive-function difficulties, while lower scores indicate fewer difficulties and comparatively stronger everyday executive functioning. The original CHEXI study demonstrated good test–retest reliability and supported working memory and inhibition factors using both parent and teacher ratings.

Translation and Validation of the Instruments

The original English versions of the ScreenQ and CHEXI were retained, with researcher-prepared Cebuano translations provided to facilitate comprehension among respondents. These translations were reviewed for clarity, language appropriateness, semantic equivalence, and consistency with the meaning of the original items. To ensure consistency, qualified individuals with expertise in early childhood education, research and measurement, and the Cebuano language were requested to review the translated versions. Any necessary revisions were then made before final administration. Permission to use or translate the standardized instruments was secured from the instrument developers when required by their respective terms of use.

The researcher-prepared profile questionnaire was likewise subjected to expert review to establish the relevance and clarity of its items in relation to the respondents' profile identified in the objectives of the study. The original item content, response structure, and scoring procedures of the ScreenQ and CHEXI were preserved as much as possible to avoid altering the constructs measured by the instruments.

Reliability of the Instruments

The ScreenQ and CHEXI were selected due to previous studies establishing evidence of their reliability and validity. The original ScreenQ validation reported an internal-consistency coefficient of approximately 0.74, while the original CHEXI demonstrated good test–retest reliability and a replicable factor structure for parent and teacher ratings.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Since Cebuano translations were used in the present study, the internal consistency of the translated measures was also examined using an appropriate reliability coefficient, as recommended by the statistician. Reliability results were interpreted together with the established psychometric evidence of the original instruments. The purpose of this procedure was to determine whether the translated items functioned consistently within the study population without modifying the established scoring structure of the ScreenQ and CHEXI.

Data-Gathering Procedure

The following procedures were followed in gathering the data for the study.

Preparation Stage. Before data collection, the research instruments and other required documents were prepared and submitted to the research adviser for review and approval. Upon approval, the researcher secured the necessary permissions from the Early Childhood Education program head, dean, campus director, vice-president for Academic Affairs, and other concerned university authorities. A formal letter requesting permission to conduct the study was also submitted to the appropriate school authorities of Cordova Central Elementary School. The ScreenQ and CHEXI were prepared in their original English versions with researcher-prepared Cebuano translations. The translated versions were reviewed for clarity, language appropriateness, and consistency with the meaning of the original items. After the necessary approvals had been obtained, the learner-participants were selected through proportionate stratified random sampling from the kindergarten sections.

Data Gathering Stage. Before the questionnaires were administered, informed consent was obtained from the parents or legal guardians of the selected learners. Each participating learner was assigned a researcher-generated code to maintain confidentiality and to allow the parent and teacher responses to be properly matched. Parents or primary caregivers completed the ScreenQ to provide information on the child's screen-based media use, while the corresponding Kindergarten teacher completed the CHEXI based on the learner's executive functioning as observed in the classroom. The questionnaires were distributed through printed or electronic forms, depending on the accessibility and preference of the respondents. Approximately two weeks were allotted for questionnaire distribution, completion, follow-up, and retrieval, subject to the approved school schedule. Respondents were given sufficient time to answer the questionnaires carefully and were informed that all information gathered would be treated with confidentiality and used solely for research purposes.

Post-Data Gathering Stage. After the data-gathering period, printed questionnaires were personally retrieved by the researcher, while responses submitted electronically were downloaded and securely stored. The accomplished ScreenQ and CHEXI forms were checked for completeness and matched using the assigned learner codes. Only cases with complete and properly matched parent/caregiver and teacher responses were included in the final analysis. The data were then coded, organized, encoded, and tabulated for statistical treatment. Appropriate descriptive and correlational statistical analyses were subsequently applied to describe the study variables and determine the strength, direction, and statistical significance of the association between patterns of screen-based media use and executive function skills. The analyzed findings served as the basis for the proposed action plan.

Scoring Procedure

The responses obtained through the research instruments were scored and interpreted according to the established scoring procedures of the ScreenQ and CHEXI. The researcher-prepared profile questionnaire consisted primarily of categorical and factual responses and therefore did not require a Likert-scale interpretation.

Patterns of Screen-Based Media Use (ScreenQ). The ScreenQ developed by Hutton et al. (2020) is a 15-item parent-report composite measure reflecting screen-media practices related to access, frequency, content, and co-viewing. The original scoring procedure was retained. Individual items have different response formats and scoring values; therefore, the ScreenQ was not converted into a uniform Likert scale. The individual item scores were summed to obtain an overall ScreenQ composite score ranging from 0 to 26. Higher scores reflected greater non-adherence to recommended screen-media practices, while lower scores reflected greater adherence to recommended practices. No arbitrary categories such as low, moderate, or high were assigned to the total ScreenQ score because the original instrument does not establish validated categorical cut-off points; the score was

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

therefore treated primarily as a continuous measure for statistical analysis. The four conceptual areas of access, frequency, content, and co-viewing were described using their corresponding ScreenQ items. These areas were not treated as independently validated subscale scores unless supported by an appropriate scoring and psychometric procedure.

Executive Function (CHEXI). The CHEXI, developed by Thorell and Nyberg (2008), consists of 24 items rated on a five-point scale. The teacher indicated the extent to which each statement described the learner using the following response options: 1 = Definitely Not True, 2 = Not True, 3 = Partially True, 4 = True, and 5 = Definitely True. The CHEXI scores were computed by obtaining the mean of the items belonging to each of its four subscales: working memory (items 1, 3, 6, 7, 9, 19, 21, 23, and 24), planning (items 12, 14, 17, and 20), regulation (items 2, 4, 8, 11, and 15), and inhibition (items 5, 10, 13, 16, 18, and 22). Higher scores represented greater executive-function difficulties, whereas lower scores represented fewer difficulties and comparatively stronger everyday executive functioning. For descriptive interpretation of the mean scores, the following guide was used:

1. 1.00–1.80 – Very Low Executive-Function Difficulty: the learner demonstrated very few difficulties in the executive-function domain;
2. 1.81–2.60 – Low Executive-Function Difficulty: the learner demonstrated few difficulties in the executive-function domain;
3. 2.61–3.40 – Moderate Executive-Function Difficulty: the learner demonstrated a moderate degree of difficulty in the executive-function domain;
4. 3.41–4.20 – High Executive-Function Difficulty: the learner demonstrated considerable difficulty in the executive-function domain; and
5. 4.21–5.00 – Very High Executive-Function Difficulty: the learner demonstrated substantial difficulty in the executive-function domain.

These descriptive ranges were used only to facilitate the presentation and interpretation of mean scores. They were not treated as clinical or diagnostic cut-off scores because the CHEXI measures difficulties; a higher numerical score was interpreted as greater executive-function difficulty and not as a higher level of executive-function skill. The original scoring direction of the CHEXI was retained in the statistical analysis.

Data Analysis

The data gathered were subjected to appropriate statistical analyses based on the objectives and variables of the study. IBM SPSS Statistics was used for data processing and analysis.

1. **Frequency and Percentage.** Frequency counts and percentages were used to describe the profile of the Kindergarten learners in terms of age, gender, number of screen-based devices available at home, internet connectivity, average daily screen-media use, primary device used, socioeconomic status, and parents' educational attainment. For numerical profile variables, appropriate measures of central tendency and variability were also used when necessary.
2. **Mean and Standard Deviation.** The mean and standard deviation were used to describe the learners' patterns of screen-based media use and executive functioning. For the ScreenQ, the original item-scoring procedure was followed, and the total composite score was summarized using appropriate descriptive statistics. Responses relating to access, frequency, content, and co-viewing were also presented descriptively according to their corresponding ScreenQ items. For the CHEXI, mean scores were computed for the subscales of working memory, planning, regulation, and inhibition, while the standard deviation showed the variability of teacher ratings within each domain. Since CHEXI items carried equal weight, the arithmetic mean rather than a weighted mean was used.
3. **Correlation Analysis.** An appropriate correlation coefficient was employed to determine the strength, direction, and statistical significance of the association between patterns of screen-based media use and executive functioning. Pearson's product-moment correlation coefficient (r) was used

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

when the data satisfied the relevant assumptions for parametric correlation. When these assumptions were not sufficiently met, Spearman's rank-order correlation coefficient (ρ) was used as the nonparametric alternative. The primary association analysis used the overall ScreenQ composite score and the corresponding CHEXI measures. The test of association was evaluated at the 0.05 level of significance using a two-tailed test. The null hypothesis was rejected when the computed p-value was less than 0.05 and was not rejected when the p-value was equal to or greater than 0.05. Consistent with the descriptive-correlational research design, the statistical results were interpreted in terms of association and not prediction or causation.

4. **Reliability Analysis.** Cronbach's alpha was computed, where applicable, to examine the internal consistency of the Cebuano-translated versions of the instruments within the study sample. The reliability findings were considered together with the established psychometric properties of the original ScreenQ and CHEXI instruments.

The statistical treatments were aligned with the research questions as follows: the profile of the learners and families was analyzed using frequency, percentage, and appropriate descriptive statistics; the patterns of screen-based media use using frequency, percentage, mean, and standard deviation, as appropriate to the ScreenQ scoring; executive function in terms of working memory, planning, regulation, and inhibition using the mean and standard deviation; the significant association between screen-based media use and executive functioning using Pearson's r or Spearman's ρ, based on statistical assumptions; and the proposed action plan on the basis of the synthesis and interpretation of the study findings.

Ethical Considerations

The study observed ethical standards to ensure the protection, rights, and confidentiality of the participants. Informed consent was obtained from the parents or legal guardians of the selected learners before the questionnaires were administered. Parents and guardians were informed that participation was voluntary, that they could refuse or withdraw their child's participation at any time without penalty, and that all information would be kept confidential and used only for academic research in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173).

Learners' names were not recorded in the research database. Instead, researcher-generated learner codes were used to match the parent and teacher responses while maintaining confidentiality. Permission to use or translate the standardized instruments was secured from the instrument developers when required by their respective terms of use, and the necessary approvals were obtained from the university and school authorities before data collection.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

RESULTS AND DISCUSSION

This section presents the analysis and interpretation of the data gathered in this study, namely the profile of the learner-participants, the patterns of screen-based media use in terms of access, frequency, content, and co-viewing, and the level of executive-function difficulties in terms of working memory, planning, regulation, and inhibition. The association between screen-based media use and executive-function difficulties among kindergarten learners is also presented. The results and findings are based on the data gathered using the ScreenQ and the Childhood Executive Functioning Inventory (CHEXI), and the proposed action plan developed from these findings is presented at the end of the section.

Profile of the Respondents

This part presents the demographic profile of the respondents in terms of age, gender, number of screen-based devices available at home, household internet connectivity, average daily time allocated to screen-based media use, primary device used, socioeconomic status, and parents' educational attainment. The tabulation of the overall profile serves to ensure that the respondents themselves are within the desired parameters that this study aims to observe.

Age and Gender

The age and gender of the learner-participants are presented in Table 2. Of the 80 learners, 40 (50.00%) were female and another 40 (50.00%) were male. Seventy-one learners (88.75%) were five to six years old, comprising 35 females and 36 males. Meanwhile, nine learners (11.25%) were three to four years old, consisting of five females and four males. The results show that most of the learner-participants belonged to the five-to-six-year-old age group, with an equal distribution of males and females in the overall sample.

Table 2. Age and Gender of the Learner-Participants (n = 80)

Age in Years	Female	Male	Frequency	Percentage
5–6	35	36	71	88.75
3–4	5	4	9	11.25
Total	**40**	**40**	**80**	**100.00**

The age and gender of the learner-participants provide an important background for understanding their screen-based media use and executive functioning. In this study, most of the learners were five to six years old, with an equal number of males and females. This indicates that the respondents were predominantly within the typical kindergarten age group, a developmental period when attention, working memory, and self-regulation continue to develop. Jusienė et al. (2020), in their study involving preschool children, found no significant association between time spent using different screen-based devices and executive abilities such as working memory, inhibitory control, and cognitive flexibility. Similarly, Lakicevic et al. (2025), in their study involving children aged five to six years, reported weak associations between screen-time exposure and several measures of executive functioning. These studies highlight the importance of examining screen-based media use within the developmental stage of young learners rather than assuming that screen exposure alone determines their cognitive abilities. Overall, the age and gender distribution of the learner-participants provides a relevant demographic background for interpreting their screen-based media experiences and executive-function difficulties.

Number of Screen-Based Devices Available at Home

The number of screen-based devices available at home for the respondents is presented in Table 3. A combined 75% of the respondents had one or two devices at home: 36 respondents had two devices, while 24 had only one. A total of 19 respondents (23.75%) had at least three devices.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Table 3. Number of Screen-Based Devices Available at Home (n = 80)

Number of Screen-Based Devices	Frequency	Percentage
8	2	2.50
6	1	1.25
5	2	2.50
4	6	7.50
3	8	10.00
2	36	45.00
1	24	30.00
0	1	1.25
Total	**80**	**100.00**

It is evident in Table 3 that almost all learner-participants had access to screen-based devices at home. Of the 80 respondents, 36 (45.00%) reported having two devices, while 24 (30.00%) had one device. This indicates that most households had one or two screen-based devices available for family use. The availability of these devices is relevant to the study as it provides children with opportunities to engage in digital activities for learning, entertainment, and communication. Hutton et al. (2020), in their development of the ScreenQ, identified access to screen-based devices as an important dimension in understanding children's media-use practices. Their study emphasized the need to examine children's digital environments beyond the amount of time spent using screens. Similarly, Swider-Cios et al. (2023) highlighted that digital technologies have become part of children's everyday environments, with their use shaped by family routines and the circumstances surrounding media exposure. Portugal et al. (2023) also examined touchscreen use among preschool children and found that its association with cognitive performance became weaker after accounting for background television exposure. This suggests that the broader screen-media environment should be considered when examining children's executive functioning. Overall, the findings indicate that screen-based devices were widely accessible in the respondents' households.

Household Internet Connectivity

The household internet connectivity of the learner-participants is presented in Table 4. Among the 80 respondents, 39 (48.75%) had access to both mobile data and Wi-Fi/broadband connections, 22 (27.50%) relied solely on mobile data, while 19 (23.75%) used Wi-Fi/broadband connections only. The results show that all learner-participants had access to internet connectivity at home, with most households utilizing both mobile data and Wi-Fi/broadband connections.

Table 4. Household Internet Connectivity (n = 80)

Household Internet Connectivity	Frequency	Percentage
Mobile data only	22	27.50
Wi-Fi/Broadband	19	23.75
Both mobile and Wi-Fi	39	48.75
Total	**80**	**100.00**

Most of the learner-participants in this study had access to both mobile data and Wi-Fi/broadband connections at home. Household internet connectivity is relevant to screen-based media use, as it provides children with opportunities to access online educational materials, entertainment, and other digital content. Swider-Cios et al. (2023) emphasized that digital technologies have become part of children's everyday environments, with their use influenced by family routines and the circumstances surrounding media exposure. Similarly, Hutton et al. (2020),

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

in their development of the ScreenQ, highlighted the importance of examining children's access to screen-based media alongside frequency, content, and co-viewing to better understand their digital experiences. Mallawaarachchi et al. (2024) also found that the context of screen-based media use, particularly the type of content and caregiver involvement, was associated with differences in children's cognitive and psychosocial outcomes. These findings suggest that internet connectivity should be considered alongside how children use digital devices and the guidance they receive at home. Overall, household internet connectivity provides an important background for understanding the screen-based media experiences of kindergarten learners, although access alone does not determine their screen-use habits or executive functioning.

Primary Screen Device Used by the Learner

The primary screen device used by the learner-participants is presented in Table 5. Fifty-one learners (63.75%) primarily used smartphones, followed by 21 (26.25%) who mainly used television. Six (7.50%) used tablets, and two (2.50%) used laptops or desktop computers. Smartphones were therefore the most commonly reported primary screen device.

Table 5. Primary Screen Device Used by the Learner (n = 80)

Primary Screen Device Used by the Learner	Frequency	Percentage
Television	21	26.25
Smartphone	51	63.75
Tablet	6	7.50
Laptop/Desktop	2	2.50
Total	**80**	**100.00**

The prominence of smartphones indicates the importance of understanding what children do on portable screens rather than assuming that all devices are used in the same way. Portugal et al. (2023) observed differences in working-memory and cognitive-flexibility performance among preschoolers with higher touchscreen use, but the association weakened when background television was considered. Mortimer et al. (2024) likewise distinguished different forms of touchscreen engagement and did not support a uniform interpretation of higher use as harmful. These studies provide a relevant comparison while cautioning against drawing a developmental conclusion from device preference alone. For the present group, smartphone predominance points to the usefulness of practical parent guidance on content selection and screen routines.

Approximate Monthly Household Income

The approximate monthly household income of the learner-participants is presented in Table 6. Forty-four households (55.00%) reported incomes of ₱10,000–₱19,999. Nineteen (23.75%) earned ₱20,000–₱39,999, while 12 (15.00%) reported incomes below ₱10,000. Four (5.00%) earned ₱40,000 or more, and one (1.25%) did not provide a usable numeric response. The ₱10,000–₱19,999 bracket was the most frequently reported category.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Table 6. Approximate Monthly Household Income (n = 80)

Approximate Monthly Household Income	Frequency	Percentage
Below ₱10,000	12	15.00
₱10,000–₱19,999	44	55.00
₱20,000–₱39,999	19	23.75
₱40,000 or more	4	5.00
Not reported / non-numeric	1	1.25
Total	**80**	**100.00**

Household income helps describe the resources available to families; it serves only as an indirect indicator of family circumstances and should not be taken as a direct measure of caregiving quality or children's developmental outcomes. Dy et al. (2023), in their Philippine study of younger children, considered family characteristics when examining excessive screen exposure and showed the importance of household media practices. Hutton et al. (2020) likewise placed screen-based media behaviors within a broader framework that includes parenting practices and backgrounds. These studies support examining family context in relation to media use, consistent with Bronfenbrenner's perspective. The present table, however, does not directly test whether any income category is associated with screen duration or executive functioning, although income may be one of the factors influencing the acquisition of screen devices.

Mother's Highest Educational Attainment

The mothers' highest educational attainment is presented in Table 7. Forty mothers (50.00%) were reported in the junior or senior high school category, while 20 (25.00%) reached college level. Fifteen (18.75%) were college graduates, four (5.00%) were in the elementary category, and one (1.25%) reached postgraduate education. Junior or senior high school was the most common reported category.

Table 7. Mother's Highest Educational Attainment (n = 80)

Mother's Highest Educational Attainment	Frequency	Percentage
Elementary	4	5.00
Junior/Senior HS	40	50.00
College level	20	25.00
College graduate	15	18.75
Postgraduate	1	1.25
Total	**80**	**100.00**

The finding that many mothers reported secondary schooling or some college education is significant for the design of parent information materials. Caregivers have an important role in selecting content, setting routines, and discussing media with young children, so school guidance should be clear and useful regardless of formal educational attainment. Hutton et al. (2020) treated co-viewing and household media practices as essential parts of understanding children's screen experiences. Dy et al. (2023) also reported that shared viewing with another person was associated with a lower likelihood of excessive screen exposure among young Filipino children. In line with Bronfenbrenner's Ecological Systems Theory, the present finding directs attention to the child's immediate family environment.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Father's Highest Educational Attainment

The fathers' highest educational attainment is presented in Table 8. Out of the 80 respondents, seven (8.75%) finished or at least attained elementary education, 47 (58.75%) attained junior or senior high school level, 18 (22.50%) attained college level, seven (8.75%) finished college, and one (1.25%) finished or attained postgraduate level.

Table 8. Father's Highest Educational Attainment (n = 80)

Father's Highest Educational Attainment	Frequency	Percentage
Elementary	7	8.75
Junior/Senior HS	47	58.75
College level	18	22.50
College graduate	7	8.75
Postgraduate	1	1.25
Total	**80**	**100.00**

Most of the fathers of the learner-participants in this study had attained junior or senior high school education. The educational attainment of fathers is relevant to the study as it provides an understanding of the family background in which children's screen-based media practices develop. Parents play an important role in establishing screen-use routines, selecting appropriate digital content, and guiding children's use of technology at home. Bronfenbrenner (1979), through his Ecological Systems Theory, emphasized that children's development is influenced by their immediate environments, particularly the family, where parental characteristics and everyday practices shape their experiences. Swider-Cios et al. (2023) described digital media as part of children's everyday family environments. Dy et al. (2023), in their study involving Filipino children, also found that caregiver screen-use practices and co-viewing were relevant to children's screen-media exposure. These studies emphasize the importance of parental involvement in understanding children's digital experiences. Overall, the educational attainment of fathers provides relevant socioeconomic background for the study and highlights the importance of providing accessible information and parental guidance on responsible screen-based media use, regardless of educational background.

Patterns of Screen-Based Media Use

This part describes the tabulated responses to the second part of the questionnaire, namely the patterns of screen-based media use. It specifically details how learners access the internet through screen-based devices, the frequency of usage, behaviors during usage, and how learners use these devices in the presence of their parents.

Access

The access and everyday situations of screen-based media use are presented in Table 9. The table shows how learners accessed the internet using various types of screen-based devices, as well as their usage at certain times, such as mealtimes, idle times, and school nights. Screen use while waiting was reported 43 times, followed by use on school nights with 37 responses and during meals with 33 responses. Twenty-seven responses indicated ownership of a portable screen device. Bedroom-based access included television in 16 responses, tablet in 10, an internet-connected computer in four, and a video-game system in one.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Table 9. Access to Screen-Based Media

Access	Frequency
Television in bedroom	16
Video-game system in bedroom	1
Tablet in bedroom	10
Internet-connected computer in bedroom	4
Own portable screen device	27
Screen use during meals	33
Screen use on school nights	37
Screen use while waiting	43

It is evident in Table 9 that screen-based media use has become part of the daily routines of the kindergarten learners, particularly during waiting periods, school nights, and mealtimes. Among the reported practices, screen use while waiting obtained the highest frequency, followed by screen use on school nights and during meals. These findings indicate that children are exposed to screen-based media in different settings and situations at home. Access to screen-based media is an important aspect of the study because it reflects how digital devices are incorporated into children's everyday experiences and how their availability may influence opportunities for learning, entertainment, and social interaction. According to Hutton et al. (2020), access is one of the essential dimensions of screen-based media use, as the availability and placement of digital devices can help explain children's patterns of media exposure. Similarly, Swider-Cios et al. (2023) emphasized that digital technologies have become embedded in children's everyday environments, making family routines and the circumstances surrounding screen use important considerations. Mallawaarachchi et al. (2024) also found that different screen-use contexts, including background television, caregiver screen use during routines, and shared media experiences, were associated with varying cognitive and psychosocial outcomes among young children. These findings highlight the importance of examining the means of access through which these devices are used. Overall, the results emphasize the significance of establishing appropriate screen-use routines and encouraging parental guidance to ensure that digital media experiences complement children's developmental needs and other executive-function skills.

Frequency

The frequency of daily screen-based media use is presented in Table 10. The table displays how long learners spent using screen-based devices per day, whether in a single session or in increments within a day. Of the 80 learners, 39 (48.75%) reportedly used screens for two to less than four hours a day. Twenty-two (27.50%) used screens for one to less than two hours, while 12 (15.00%) spent four hours or more. Only seven (8.75%) used screens for less than one hour. The largest group therefore reported a daily screen duration of two to less than four hours.

Table 10. Frequency of Daily Screen-Based Media Use (n = 80)

Daily Screen Time	f	%
Less than 1 hour	7	8.75
1 to <2 hours	22	27.50
2 to <4 hours	39	48.75
4 hours or more	12	15.00
Total	**80**	**100.00**

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

As presented in Table 10, most of the kindergarten learners spent two to less than four hours daily using screen-based media, indicating that digital devices have become a regular part of their everyday activities. The frequency of screen-based media use is an important consideration in early childhood development, as the amount of time children spend using digital devices may influence their daily routines and opportunities to engage in other meaningful learning experiences. Spending considerable time on screens may limit opportunities for physical play, social interaction, storytelling, and hands-on activities, particularly when digital engagement replaces these experiences. Such activities are essential in early childhood as they provide opportunities for children to develop attention, working memory, self-regulation, and other executive-function skills necessary for learning and school readiness.

Jusienė et al. (2020), in their study involving preschool children, found no significant association between the amount of time spent using different screen-based devices and executive abilities such as working memory, inhibitory control, and cognitive flexibility. Their findings suggest that screen-use duration alone may not sufficiently explain differences in children's executive functioning. Meanwhile, Lakicevic et al. (2025), in their investigation involving children aged five to six years, reported weak associations between greater screen-time exposure and selected measures of executive functioning. Their findings indicate that screen exposure may be associated with certain aspects of cognitive development, although the relationship varies across executive-function domains. Furthermore, Mallawaarachchi et al. (2024) emphasized that children's developmental outcomes are associated not only with the duration of screen exposure but also with the type of content viewed, the circumstances surrounding screen use, and the involvement of caregivers. These studies highlight the importance of considering both the quantity and quality of children's screen-based media experiences.

The findings of the present study emphasize the importance of establishing balanced screen-use routines that allow children sufficient opportunities to participate in developmentally appropriate activities. Thus, understanding the frequency of screen-based media use provides a practical basis for strengthening home–school collaboration and promoting responsible digital habits.

Age When Screen-Media Use Began

The age at which the learner-participants first began using screen-based media is presented in Table 11. Nineteen learners (23.75%) reportedly began at three to less than four years, while 18 (22.50%) began at one to less than two years. Seventeen learners (21.25%) began at two to less than three years, another 17 at four years or older, and nine (11.25%) before turning one. Thus, learners were introduced to screen-based media at different stages of early childhood.

Table 11. Age When Screen-Media Use Began (n = 80)

Age When Screen-Media Use Began	f	%
Before 1 year	9	11.25
1 to <2 years	18	22.50
2 to <3 years	17	21.25
3 to <4 years	19	23.75
4 years or older	17	21.25
Total	**80**	**100.00**

The spread of reported starting ages, including exposure during infancy, makes the timing of children's first screen experiences relevant to early parent guidance. Families often establish digital routines before children enter kindergarten, so information about the age of first use can help schools address habits that began earlier in childhood. McHarg et al. (2020) found that screen exposure at age two was associated with subsequent executive-function development, although concurrent associations were not significant. Jusienė et al. (2020) reported no

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

significant associations between several screen-duration measures and core executive abilities in their preschool sample. The differing results highlight the importance of developmental timing and context. In the present study, the findings support sharing age-appropriate media guidance with parents of younger children and encouraging early routines that include interaction and play; the table itself describes only recalled starting ages.

Selected Screen Practices

Selected screen practices at home are presented in Table 12. Forty-one parents reported that bedtime screen viewing occurred sometimes, while 35 selected rarely or never and four selected often. Using screens to calm the child was reported as sometimes by 37 parents. Fighting or shooting content was rated rarely or never by 58 parents, while 46 said their children sometimes selected programs or applications independently. Occasional viewing and child-led selection were therefore common responses.

Table 12. Selected Screen Practices at Home (n = 80)

Selected Screen Practices	Often	Sometimes	Rarely/Never
Screen viewing at bedtime	4	41	35
Screens used to calm child	5	37	38
Fighting/shooting content	1	21	58
Child selects programs/apps	15	46	19

The reports of occasional bedtime viewing, screen use for calming, and children choosing their own programs reveal specific situations where caregiver decisions can shape media experiences. These are meaningful practices because they concern transitions, emotions, and daily routines that families manage repeatedly. Axelsson et al. (2022) examined children's screen exposure in relation to content, timing, and other characteristics of everyday use. Mallawaarachchi et al. (2024) also identified the importance of screen-use context and caregiver practices when considering early-childhood outcomes. The present findings therefore give parents and teachers concrete topics for discussion: establishing predictable bedtime routines, preparing non-screen ways to comfort children, and checking programs before children watch them. The low frequency of fighting or shooting content is also a useful starting point for strengthening age-appropriate content selection.

Content

The types of screen-media content viewed by the learner-participants are presented in Table 13. Sixty-five learners (81.25%) were reported to view mostly slower-paced programs featuring talking or singing. Fifteen (18.75%) primarily watched fast-paced or action-oriented content. Slower-paced content was therefore more commonly reported.

Table 13. Content of Screen-Based Media Viewed (n = 80)

Content	f	%
Slower-paced/talking/singing	65	81.25
Fast-paced/action	15	18.75
Total	**80**	**100.00**

The predominance of slower-paced programs featuring talking or singing is relevant because it identifies the kind of material most learners were reported to encounter. Content characteristics may affect how much information children must process at one time, making content selection an important part of guidance for families. Namazi and Sadeghi (2024) reviewed experimental studies showing that pacing and fantasy characteristics can be relevant to children's immediate attention and executive-function performance, although results varied. Mallawaarachchi

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

et al. (2024) likewise found that different types and contexts of media exposure were associated with different early-childhood outcomes. Sweller's Cognitive Load Theory (1988) offers a supporting explanation for why the presentation of information may matter when working memory is still developing. The finding supports encouraging clear, developmentally suitable programs and meaningful adult discussion.

Primary Purpose of Screen-Media Content

The primary purpose of screen-media content is presented in Table 14. Forty-four learners (55.00%) reportedly used screens mainly for educational purposes, while 35 (43.75%) used them primarily for entertainment. One response (1.25%) was not reported. Educational use was slightly more common than entertainment use in the participating households.

Table 14. Primary Purpose of Screen-Media Content (n = 80)

Category	f	%
Education	44	55.00
Entertainment	35	43.75
Not reported	1	1.25
Total	**80**	**100.00**

As reflected in Table 14, most of the kindergarten learners used screen-based media primarily for educational purposes, while a considerable number engaged with digital content for entertainment. This finding indicates that screen-based media has become a learning resource in many households, providing children with opportunities to access educational videos. Hutton et al. (2020) identified content as a distinct component of young children's screen-use environments. Mallawaarachchi et al. (2024) also demonstrated that content and the social context of use are relevant when considering cognitive and psychosocial outcomes. These studies support asking what skills a program encourages, whether it matches the child's age, and whether adults extend the experience through conversation or play.

Adult Co-viewing of Television/Videos

Adult co-viewing of television and videos is presented in Table 15. Fifty-eight learners (72.50%) reportedly watched with an adult, whereas 22 (27.50%) watched by themselves. The majority of learners therefore had an adult present during television or video viewing.

Table 15. Adult Co-viewing of Television/Videos (n = 80)

Adult Co-viewing of Television/Videos	f	%
With adult	58	72.50
By self	22	27.50
Total	**80**	**100.00**

As shown in Table 15, the high level of adult co-viewing of television and videos represents an existing family practice that a school-based action plan can build upon. Shared viewing creates opportunities for adults to explain unfamiliar words, ask questions, and relate screen content to children's everyday experiences. Mallawaarachchi et al. (2024) reported a positive pooled association between co-use and cognitive outcomes in early childhood, while Dy et al. (2023) found that excessive screen use was less likely when young Filipino children watched with another person. These findings are compatible with Vygotsky's Sociocultural Theory (1978), which emphasizes learning through guided social interaction. Rather than merely encouraging adults to sit beside children, the practical implication is to promote active co-viewing through questions, explanations, and short conversations.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

The present table establishes that adult presence is common, providing a useful foundation for improving the quality of those interactions.

Adult Co-viewing of Video Games/Applications

Adult co-viewing of video games and applications is presented in Table 16. Fifty-six learners (70.00%) reportedly used video games or applications with an adult, while 24 (30.00%) used them independently. Adult accompaniment was therefore reported more often than independent use of interactive screen media.

Table 16. Adult Co-viewing of Video Games/Applications (n = 80)

Adult Co-viewing of Video Games/Applications	f	%
With adult	56	70.00
By self	24	30.00
Total	**80**	**100.00**

As reflected in Table 16, the frequent accompaniment of children during games and application use is important because interactive media can provide opportunities for shared decision-making, problem-solving, and guidance. This finding gives parents a starting point for turning game time into an activity that involves conversation about instructions, choices, and appropriate limits. Mortimer et al. (2024) emphasized that different touchscreen activities should not be treated as developmentally identical, while Mallawaarachchi et al. (2024) identified co-use as a meaningful aspect of children's broader screen-use context. Vygotsky's Sociocultural Theory (1978) further explains why adult guidance may matter when children engage with cultural tools such as digital applications. For this group, school guidance can demonstrate how to choose suitable games, take turns, and ask children to explain their choices. The finding identifies an opportunity for active engagement.

Adult Discussion During Screen Viewing

The frequency of adult discussion during screen viewing is presented in Table 17. Forty-eight parents (60.00%) reported sometimes talking with their children while they watched, while 28 (35.00%) reported doing so often. Four (5.00%) rarely or never discussed the content during viewing. Most households therefore reported at least occasional conversation while screens were in use.

Table 17. Adult Discussion During Screen Viewing (n = 80)

Adult Discussion During Screen Viewing	f	%
Sometimes	48	60.00
Often	28	35.00
Rarely/Never	4	5.00
Total	**80**	**100.00**

As presented in Table 17, the prevailing pattern of parents who sometimes discuss content while their children watch indicates that dialogue is already part of many families' viewing routines. Its educational importance lies in the opportunity to strengthen occasional conversation into more purposeful interaction through questions, explanations, and connections to real-life experiences. Dy et al. (2023) reported that shared viewing with another person was associated with a lower likelihood of excessive screen exposure among young Filipino children. Mallawaarachchi et al. (2024) also found a positive association between co-use and cognitive outcomes across early-childhood studies. These findings align with Vygotsky's Sociocultural Theory (1978), which places adult–child interaction at the center of learning. For parents, practical prompts such as "What happened?", "Why did the character do that?", and "What would you do?" can make screen viewing more participatory.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Adult Discussion After Screen Viewing

Adult discussion after screen viewing is presented in Table 18. Forty-four parents (55.00%) reported that they sometimes discussed what their child viewed, while 36 (45.00%) reported doing so often. No response fell under the rarely or never category. All participating households therefore reported at least occasional post-viewing discussion.

Table 18. Adult Discussion After Screen Viewing (n = 80)

Adult Discussion After Screen Viewing	f	%
Sometimes	44	55.00
Often	36	45.00
Total	**80**	**100.00**

It is evident in Table 18 that discussing content after viewing, as reported by the parents, is valuable because follow-up conversations provide a natural occasion for children to remember, explain, and reflect on what they watched. Such exchanges can connect digital experiences with language-rich activities at home and can be encouraged without requiring additional technology. Mallawaarachchi et al. (2024) identified social context and co-use as important when interpreting young children's screen experiences, while Dy et al. (2023) emphasized the relevance of family involvement in screen exposure among young Filipino children. The finding is also consistent with Vygotsky's Sociocultural Theory (1978), which views learning as socially mediated. Parent guidance can therefore model simple post-viewing activities, such as retelling a story or explaining a character's decision.

Level of Executive-Function Difficulties

The following tables present the executive-function difficulties reported through the Childhood Executive Functioning Inventory (CHEXI). Higher mean ratings indicate greater agreement with statements describing difficulties.

Working Memory

The level of executive-function difficulties in terms of working memory is presented in Table 19. The aggregate mean was 3.39, verbally interpreted as "Moderately Agree." The highest mean was recorded for difficulty finding another way to solve a problem when stuck (3.60), followed by difficulty keeping information in mind while doing something else (3.58). Difficulty remembering lengthy instructions also received a mean of 3.56. These responses indicate reported challenges involving the retention and use of information during classroom tasks.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Table 19. Executive-Function Difficulties in Terms of Working Memory

Statements	Mean	SD	Verbal Description
1. Has difficulty remembering lengthy instructions.	3.56	1.12	Agree
3. Has difficulty remembering what he/she is doing in the middle of an activity.	3.26	1.17	Moderately Agree
6. When asked to do several things, he/she only remembers the first or last.	3.50	1.08	Agree
7. Has difficulty coming up with a different way of solving a problem when he/she gets stuck.	3.60	1.03	Agree
9. Easily forgets what he/she is asked to fetch.	3.04	1.15	Moderately Agree
19. Has difficulty understanding verbal instructions unless he/she is also shown how to do something.	3.32	1.04	Moderately Agree
21. Has difficulty thinking ahead or learning from experience.	3.45	0.84	Agree
23. Has difficulty doing things that require mental effort, such as counting backward.	3.21	1.08	Moderately Agree
24. Has difficulty keeping things in mind while he/she is doing something else.	3.58	0.94	Agree
Aggregate Mean	**3.39**		**Moderately Agree**
Average Item SD		**1.05**	
Legend: *4.21–5.00 – Strongly Agree; 3.41–4.20 – Agree; 2.61–3.40 – Moderately Agree; 1.81–2.60 – Disagree; 1.00–1.80 – Strongly Disagree*			

As reflected in Table 19, the working-memory ratings highlight the importance of helping learners retain instructions, keep information in mind, and use it while completing classroom tasks. These skills are involved when children follow directions, remember materials, or finish activities that require several steps. According to Diamond (2020), working memory is an essential component of executive functioning that enables children to hold information in mind and use it to accomplish goal-directed activities. It plays an important role in learning, particularly when children are expected to follow classroom instructions, remember rules, and complete tasks involving several steps. Similarly, Thorell and Nyberg (2021) emphasized that difficulties in executive functioning can be identified through children's observable behaviors in everyday learning situations. As cited by Portugal et al. (2023), preschool children with higher touchscreen use demonstrated less favorable performance in a combined measure of working memory and cognitive flexibility, although the association became weaker after considering background television exposure. Furthermore, Likhitweerawong et al. (2024) found that executive dysfunction statistically mediated part of the association between excessive screen exposure and behavioral difficulties among preschool children. These studies suggest that children's working-memory development should be considered alongside their screen-based media experiences and other environmental factors. Working memory is particularly important during the kindergarten years because children are beginning to develop the ability to remember instructions, organize information, and perform learning activities with increasing independence. Thus, teachers and parents may provide opportunities to strengthen these abilities through memory games, storytelling, sequencing activities, guided problem-solving, and simple instructions accompanied by visual demonstrations. The findings also emphasize the importance of providing developmentally appropriate learning experiences and carefully monitoring children's screen-based media use at home.

Planning

The level of executive-function difficulties in terms of planning is presented in Table 20. The aggregate mean of 3.36 is interpreted as "Moderately Agree." Difficulty planning for activities, such as preparing materials for

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

school, obtained the highest mean of 3.66. Difficulty carrying out activities involving several steps followed, with a mean of 3.65. Difficulty explaining a past event clearly had the lowest mean of 2.86. Planning and completing multistep activities were therefore notable concerns in the teacher ratings.

Table 20. Executive-Function Difficulties in Terms of Planning

Statements	Mean	SD	Verbal Description
12. Has difficulty planning for an activity, such as remembering to bring everything necessary for school.	3.66	0.91	Agree
14. Has difficulty carrying out activities that require several steps.	3.65	0.99	Agree
17. Has difficulty telling a story about something that has happened so that others may easily understand.	2.86	1.08	Moderately Agree
20. Has difficulty with tasks or activities that involve several steps.	3.28	1.03	Moderately Agree
Aggregate Mean	**3.36**		**Moderately Agree**
Average Item SD		**1.00**	
Legend: *4.21–5.00 – Strongly Agree; 3.41–4.20 – Agree; 2.61–3.40 – Moderately Agree; 1.81–2.60 – Disagree; 1.00–1.80 – Strongly Disagree*			

As reflected in Table 20, the planning ratings highlight the importance of helping learners organize their activities, prepare necessary materials, and accomplish tasks that require several steps. As explained by Diamond (2020), planning is a higher-order executive function that involves the coordination of working memory, inhibitory control, and cognitive flexibility. These cognitive processes enable children to organize their thoughts, anticipate the steps needed to accomplish a task, and adjust their actions when faced with difficulties. Similarly, Axelsson et al. (2022) found that greater screen exposure was associated with less favorable developmental outcomes in areas including attention and problem-solving, which are important cognitive abilities involved in planning and completing activities. Furthermore, Bal et al. (2024) emphasized that the relationship between screen-based media use and executive functioning during early childhood should be understood in relation to the type of content, parent–child interaction, and children's active or passive engagement with digital media. Lakicevic et al. (2025) also reported weak associations between greater screen-time exposure and several measures of executive functioning among children aged five to six years. These studies suggest that children's planning abilities should be understood alongside their developmental experiences, learning environments, and screen-based media practices. Planning is particularly important during the kindergarten years because children are gradually developing independence in preparing their materials, organizing tasks, following instructions, and accomplishing activities in sequence. Thus, teachers and parents may provide opportunities to strengthen these abilities through activities that encourage children to think ahead and complete tasks independently. Careful monitoring of children's screen-based media use, together with meaningful parent–child interaction, may help create a balanced learning environment that supports the development of planning and other executive-function skills.

Regulation

The level of executive-function difficulties in terms of regulation is presented in Table 21. The aggregate mean was 3.41, interpreted as "Agree." Being distracted by a more appealing activity received the highest mean of 3.60. Difficulty performing uninteresting tasks and needing an appealing task to concentrate both received means of 3.48. The findings indicate that maintaining attention and effort during less preferred tasks was a concern among the teacher-rated behaviors.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Table 21. Executive-Function Difficulties in Terms of Regulation

Statements	Mean	SD	Verbal Description
2. Seldom seems able to motivate himself/herself to do something that he/she does not want to do.	3.14	1.00	Moderately Agree
4. Has difficulty following through on less appealing tasks unless he/she is promised some type of reward for doing so.	3.34	0.97	Moderately Agree
8. When something needs to be done, he/she is often distracted by something more appealing.	3.60	0.95	Agree
11. Has clear difficulties doing things he/she finds boring.	3.48	1.04	Agree
15. In order to be able to concentrate, he/she must find the task appealing.	3.48	0.94	Agree
Aggregate Mean	**3.41**		**Agree**
Average Item SD		**0.98**	
Legend: *4.21–5.00 – Strongly Agree; 3.41–4.20 – Agree; 2.61–3.40 – Moderately Agree; 1.81–2.60 – Disagree; 1.00–1.80 – Strongly Disagree*			

As shown in Table 21, the regulation ratings draw attention to learners' ability to remain engaged when classroom tasks are less appealing or when distractions are present. This is educationally important because children frequently need to persist, shift attention, and complete learning activities even when an alternative seems more interesting. Thorell and Nyberg (2021) assessed regulation-related behaviors as part of everyday executive-function difficulties. Diamond (2020) described executive functions as essential for goal-directed behavior, and Likhitweerawong et al. (2024) examined executive dysfunction in relation to behavioral concerns among preschoolers. The present findings can guide teachers to use predictable routines, brief and manageable tasks, clear transition cues, and encouragement that supports sustained effort. Parents can reinforce similar expectations through short play or household activities.

Inhibition

The level of executive-function difficulties in terms of inhibition is presented in Table 22. Inhibition recorded an aggregate mean of 3.59, interpreted as "Agree," the highest among the four domains. Becoming overly excited about special events obtained the highest item mean of 4.38, interpreted as "Strongly Agree." Acting more wildly than other children in a group received the lowest item mean of 3.18. Overall, the teachers reported notable difficulty with controlling excitement and with pausing or stopping actions when needed.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Table 22. Executive-Function Difficulties in Terms of Inhibition

Statements	Mean	SD	Verbal Description
5. Has a tendency to do things without first thinking about what could happen.	3.59	1.06	Agree
10. Gets overly excited when something special is going to happen, such as going on a field trip or attending a party.	4.38	0.82	Strongly Agree
13. Has difficulty holding back his/her activity despite being told to do so.	3.54	1.03	Agree
16. Has difficulty refraining from smiling or laughing in situations where it is inappropriate.	3.44	1.05	Agree
18. Has difficulty stopping an activity immediately upon being told to do so.	3.41	1.19	Agree
22. Acts in a wilder way compared to other children in a group.	3.18	1.04	Moderately Agree
Aggregate Mean	**3.59**		**Agree**
Average Item SD		**1.03**	
Legend: *4.21–5.00 – Strongly Agree; 3.41–4.20 – Agree; 2.61–3.40 – Moderately Agree; 1.81–2.60 – Disagree; 1.00–1.80 – Strongly Disagree*			

As reflected in Table 22, inhibition received the highest aggregate difficulty rating, making impulse control and the management of excitement a particularly relevant area for classroom support. Children use inhibitory control when waiting for turns, listening before acting, stopping an activity when asked, and following shared rules. Thorell and Nyberg (2021) included inhibitory difficulties in the CHEXI, while Diamond (2020) identified inhibitory control as a core executive function important for regulating behavior. Savina (2021) also highlighted the role of executive functions in classroom participation and self-regulation. This supports age-appropriate opportunities to practice pause-and-go games, turn-taking, and calm transitions. Excitement about special occasions can be common in childhood, so the ratings should guide supportive teaching rather than label learners. The importance of the result lies in identifying a skill to nurture consistently across home and school.

Overall Executive-Function Difficulty Ratings

The summary of executive-function difficulty ratings is presented in Table 23. The overall CHEXI mean was 3.44, verbally interpreted as "Agree." Inhibition obtained the highest mean of 3.59, followed by regulation at 3.41. Working memory and planning recorded means of 3.39 and 3.36, respectively, both interpreted as "Moderately Agree." These results indicate that difficulties were reported across all four dimensions, with inhibition and regulation receiving the higher aggregate ratings.

Table 23. Summary of Executive-Function Difficulty Ratings

Dimension	Mean	Verbal Description
Working Memory	3.39	Moderately Agree
Planning	3.36	Moderately Agree
Regulation	3.41	Agree
Inhibition	3.59	Agree
Overall CHEXI	**3.44**	**Agree**

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

The overall CHEXI findings show that teachers observed concerns across all four executive-function areas, particularly inhibition and regulation. This pattern matters for learning readiness because remembering instructions, organizing tasks, controlling impulses, and sustaining effort are used together throughout the school day. Thorell and Nyberg (2021) designed the CHEXI to describe such everyday difficulties through adult reports, while Diamond (2020) explained how core executive processes support more complex goal-directed behavior. Turnbull et al. (2024) also emphasized the importance of executive functioning for early learning participation. These results provide a clear basis for a coordinated school–home response: structured routines, memory and planning games, turn-taking activities, and parent guidance that reinforces similar skills at home. The ratings point to educational priorities for support; they are not diagnostic scores and do not indicate that screen-based media caused the observed difficulties.

Association Between Screen-Based Media Use and Executive Functioning

This part reports the association between average daily screen time and CHEXI-rated executive-function difficulties. It examines duration rather than the overall ScreenQ composite specified in the fourth research question.

Association Between Daily Screen Time and Executive-Function Difficulties

Table 24 presents the Pearson correlation between average daily screen time and CHEXI difficulties. The association was very weak and positive ($r = 0.153$), with $p = 0.176$ exceeding the 0.05 threshold. The result was not statistically significant; thus, the null hypothesis for this duration-based analysis was not rejected.

Table 24. Pearson Correlation of Daily Screen Time with CHEXI Difficulties

Variables	r-value	p-value	Decision	Result
Average Daily Screen Time and Overall Executive-Function Difficulties	0.153	0.176	Do Not Reject H_0	Not Significant
Note: **Significant at $p < 0.05$ (two-tailed).*				

Table 24 presents the relationship between average daily screen time and overall executive-function difficulties among kindergarten learners. The Pearson correlation coefficient of 0.153 indicates a very weak positive relationship, while the p-value of 0.176 exceeds the 0.05 significance level. This suggests that longer daily screen exposure is not significantly associated with greater executive-function difficulties among the respondents.

Although Table 24 shows a very weak, statistically nonsignificant correlation, this finding is important: daily screen duration alone was not reliably associated with teacher-rated executive-function difficulties in this sample. Jusienė et al. (2020) likewise found no significant associations between several screen-time measures and preschool executive abilities, whereas Lakicevic et al. (2025) observed weak associations for selected executive functions. Mallawaarachchi et al. (2024) found that screen-use context, including content and co-use, can be relevant to children's developmental outcomes. Together, these studies suggest that families and schools should consider screen routines, media content, and caregiver participation rather than using hours alone to judge children's experiences. The result does not establish whether screen use causes or prevents executive-function difficulties.

Proposed Action Plan: Home–School Screen Media Guidance and Executive Function Development Plan

Rationale

Screen-based media has become part of the everyday experiences of kindergarten learners. The study found that digital devices were widely available in the learners' homes, with smartphones emerging as the most commonly used device. Screen use was also reported during waiting periods, school nights, meals, and at times around

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

bedtime. These practices show the need for practical home guidance that helps families establish routines without disregarding the learning and communication opportunities that digital media may provide.

The study further identified teacher-reported difficulties in working memory, planning, regulation, and inhibition, with inhibition and regulation receiving the higher overall difficulty ratings. However, the relationship between average daily screen time and overall executive-function difficulties was very weak and not statistically significant. These findings do not establish that screen exposure caused the observed difficulties. Instead, they point to the value of supporting children's daily routines and executive-function skills through adult guidance, meaningful interaction, and developmentally appropriate play.

The plan draws on Bronfenbrenner's Ecological Systems Theory (1979) to recognize the influence of home and school environments, Vygotsky's Sociocultural Theory (1978) to emphasize adult guidance, and Diamond's Executive Function Framework (2013) to support practice in memory, planning, regulation, and inhibition. These perspectives guide the proposed parent education and classroom activities. Thus, the Home–School Screen Media Guidance and Executive Function Development Plan is proposed for consideration by the Department of Education and the identified school. It is designed to be practical, affordable, and responsive to the actual screen-media practices reported by families. The plan aims to strengthen shared home–school support rather than treat screen time alone as an explanation for children's executive-function difficulties.

Objectives of the Plan

With the proposed Home–School Screen Media Guidance and Executive Function Development Plan, the following objectives are expected to be attained:

1. enhance parents' and guardians' understanding of age-appropriate screen-media routines, content selection, adult co-viewing, and alternatives to screen use;
2. provide families with clearly titled and accessible infographics that offer practical guidance on children's screen-media experiences at home;
3. encourage manageable family media-and-play routines and provide kindergarten learners with regular opportunities to practice working memory, planning, regulation, and inhibition; and
4. strengthen communication among parents, teachers, and school personnel through supportive screen-media check-ins during scheduled PTA meetings.

Scheme of Implementation

The output of this study will be addressed to the Department of Education and the identified school for deliberation and possible implementation. Subject to school approval, a twelve-week pilot will begin with a parent seminar and distribution of infographics, followed by optional home routines and play-based classroom activities. Learners' home screen-media experiences will be a standing discussion item at every scheduled PTA meeting during the pilot and, if adopted, in future meetings, following the approved PTA calendar.

PTA check-ins may cover screen-use timing, content, adult involvement, and home-routine concerns. Feedback will be voluntary; individual concerns will be handled privately, and only general themes will be reported. The proposed ₱5,600 budget covers seminar materials, infographic printing, checklists, classroom supplies, and documentation, subject to school approval. The actual accomplishment and remarks columns of the plan will be completed after implementation. The details of the plan are presented in Table 25.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Table 25. Home–School Screen Media Guidance and Executive Function Development Plan

Areas of Concern	Objectives	Strategies	Persons Involved	Budget (₱)	Source of Budget	Time Frame	Expected Outcome
A. Parent Education	Orient parents on screen routines, content, adult guidance, and screen-free alternatives.	Hold a 45–60-minute seminar and question-and-answer session covering home routines, co-viewing, content choice, and non-screen play.	School head; kindergarten teachers; researcher; parents/guardians; PTA officers	3,000	Available school materials or approved school allocation	Weeks 1–2	One seminar offered; attendance and parent feedback documented.
B. Parent Information Materials	Give families simple printed and optional digital reminders for guiding screen use.	Prepare 3 infographic panels on routines, suitable content/co-viewing, and screen-free play; distribute a printed copy per family and optional digital copies.	Researcher; kindergarten teachers; PTA officers; parents/guardians	1,200	Approved school printing resources; permitted donations, if available	Weeks 1–3	At least 80 printed sets prepared and offered; distribution log maintained.
C. Home Screen-Media Routines	Help families select feasible routines and encourage active parent–child interaction.	Offer an optional two-week home media-and-play checklist; invite families to choose 2 routines, such as screen-free meals or bedtime alternatives.	Parents/guardians; kindergarten teachers	400	Existing school materials; approved printing budget	Weeks 3–10	Participating parents identify 2 feasible routines; optional feedback gathered.
D. Executive-Function Support	Provide guided play to practice working memory, planning, regulation, and inhibition.	Integrate two 10–15-minute weekly activities: memory games, sequence cards, turn-taking, and stop–go games.	Kindergarten teachers; learners	1,000	Existing classroom materials; approved supply allocation	Weeks 3–10	At least 16 sessions documented, covering all four dimensions.
E. Parent–Teacher Coordination	Maintain a supportive exchange about children's home media routines and concerns.	Include a short standing agenda item at every scheduled PTA meeting; request voluntary parent updates on timing, content, co-viewing, and routine challenges; summarize shared themes only.	School head; kindergarten teachers; PTA officers; parents/guardians	N/A	Existing PTA meeting resources; approved printing materials	Every scheduled PTA meeting during the pilot and thereafter if adopted	Each held PTA meeting includes the topic; general concerns and agreed responses recorded.

Note: *The Actual Accomplishment and Remarks columns of the original plan are to be completed after implementation. Total proposed budget: ₱5,600.*

Prepared by: Elizabeth J. Sanchez, LPT, Researcher

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

CONCLUSIONS AND RECOMMENDATIONS

This section presents the summary and findings of the study, the conclusions drawn from the findings, and the recommendations based on the results obtained regarding the patterns of screen-based media use and their association with executive functioning among kindergarten learners.

Summary of Findings

This study examined the patterns of screen-based media use and their association with executive functioning among kindergarten learners in an identified public school in Cordova. It described the learners' profiles, their access to and use of digital devices, the frequency and content of screen exposure, and adult co-viewing. The study also assessed teacher-reported difficulties in working memory, planning, regulation, and inhibition. Parent-reported information on screen-media practices and teacher ratings from the CHEXI were analyzed using frequencies, percentages, means, and standard deviations. The Pearson product–moment correlation was used to determine whether average daily screen time was significantly associated with overall executive-function difficulty ratings. The analysis described the learners' screen-media experiences and tested an association, without establishing cause and effect. The principal findings are summarized as follows:

1. **Learner and family profile.** The 80 learner-participants were mostly within the usual kindergarten age range (88.75% aged five to six years), with females and males equally represented. Screen-based devices and internet connectivity were widely available in their households, and smartphones were the most commonly used primary device (63.75%). The largest group of learners (48.75%) spent two to less than four hours daily using screens. The most frequently reported monthly household income fell within the ₱10,000–₱19,999 bracket (55.00%), while junior or senior high school was the most common educational attainment among both mothers (50.00%) and fathers (58.75%). These findings describe the household circumstances and digital environments of the learners.
2. **Patterns of screen-based media use.** Digital devices were part of the learners' daily routines, particularly while waiting, on school nights, and during meals. Many began using screens in early childhood, and occasional bedtime viewing and screen use for calming were also reported. Slower-paced programs featuring talking or singing were preferred (81.25%), and educational use was reported slightly more often than entertainment use (55.00% versus 43.75%). Adult co-viewing of videos (72.50%) and of games and applications (70.00%) was common, although conversations during and after viewing varied in frequency. Overall, the results reflect differences in screen-use routines, content, and caregiver involvement.
3. **Executive-function difficulties.** Teacher-reported CHEXI ratings indicated perceived difficulties across working memory (3.39), planning (3.36), regulation (3.41), and inhibition (3.59), with an overall mean of 3.44. Inhibition obtained the highest overall difficulty rating, followed by regulation, highlighting concerns related to controlling excitement, stopping actions when instructed, sustaining attention, and completing less appealing tasks. Working memory and planning received comparatively lower ratings, but difficulties in remembering instructions, organizing materials, and completing multistep activities were also observed. These ratings describe everyday learning behaviors rather than clinical diagnoses.
4. **Association between screen time and executive functioning.** The relationship between average daily screen time and overall executive-function difficulties was very weak and positive ($r = 0.153$) but was not statistically significant ($p = 0.176$). Consequently, the null hypothesis was not rejected. The findings do not provide sufficient evidence of a significant linear association between daily screen duration and overall executive-function difficulty ratings in the learners studied. The correlation addressed screen-use duration, not a combined measure of access, content, and co-viewing, and therefore cannot explain the possible effects of those other dimensions.
5. **Proposed output.** The findings served as the basis for a proposed Home–School Screen Media Guidance and Executive Function Development Plan.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Conclusions

Based on the findings of the study, it is evident that screen-based media formed part of the everyday experiences of the kindergarten learners, although their routines and the circumstances of use differed across households. This conclusion is consistent with Bronfenbrenner's Ecological Systems Theory (1979), which emphasizes the influence of children's immediate environments, particularly the family and school. Device availability, family circumstances, and household routines provide the context in which screen-media habits develop.

The reported practice of adult co-viewing also supports the relevance of Vygotsky's Sociocultural Theory (1978), which explains how children learn through social interaction and guidance from more knowledgeable individuals. Conversations about digital content can create opportunities for adults to connect viewing experiences with children's understanding, although the study did not measure the quality or developmental effects of those interactions. Likewise, Sweller's Cognitive Load Theory (1988) provides a basis for considering the pace and presentation of screen content, since different materials may place different demands on developing working memory.

The difficulties reported in inhibition, regulation, working memory, and planning may be understood through Diamond's Executive Function Framework (2013), which identifies core executive processes as important foundations for self-control and goal-directed behavior. The higher ratings for inhibition and regulation suggest areas in which kindergarten learners may benefit from consistent routines and guided play, while support for memory and planning remains important. These teacher observations should be used to guide developmentally appropriate activities rather than to label the learners.

Finally, the very weak and statistically non-significant relationship indicates that average daily screen time alone did not show a significant linear association with overall executive-function difficulties in this sample. This result does not prove that screen exposure has no developmental relevance, nor does it establish that screen use caused the reported difficulties. Taken together, the theoretical perspectives support considering the child's environment, adult guidance, content characteristics, and opportunities for play when designing home–school support, while recognizing that the relationships among these factors were not all tested in the present study.

Recommendations

In light of the findings and conclusions, the following recommendations are proposed:

1. **Proposal and Adoption of the Plan.** The Home–School Screen Media Guidance and Executive Function Development Plan should be proposed to the Department of Education and the identified school for deliberation and possible implementation.
2. **Parent Education and Communication.** The plan should include a parent seminar on responsible screen-based media use at home, the distribution of accessible infographics on screen routines, content selection, and adult guidance, and regular discussion of learners' home screen-media experiences during scheduled PTA meetings.
3. **Play-Based Activities.** Teachers and parents may provide simple play-based activities that encourage working memory, planning, regulation, and inhibition.
4. **Future Research.** Future studies may examine content, co-viewing, and other family or developmental factors more directly to clarify their relationships with executive functioning.

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

ACKNOWLEDGMENT

The researcher extends her sincere gratitude and appreciation to the following individuals who contributed to the successful completion of this study:

To **Almighty God**, for granting the researcher wisdom and strength throughout this academic journey. His guidance and blessings have been her source of courage and perseverance in completing this study.

To **Dr. Jonita V. Literatus**, the OIC University President, for the support and opportunity extended to the researcher in pursuing and completing this academic endeavor.

To the **Panel Members**, Dr. Adrian D. Duites, Dr. Margie D. Fulgencio, Dr. Reylan G. Capuno, Dr. Roberto L. Suson, and Dr. Regina Sitoy, for their valuable suggestions and constructive recommendations that contributed to the improvement and refinement of this study.

To **Dr. Dennis Plando**, the researcher's thesis adviser, for the patience and professional guidance extended throughout the research process.

To **Dr. Kaitlin Marie M. Opingo**, for sharing valuable knowledge and expertise that guided the researcher in the preparation and completion of this undertaking.

To **Dr. Senen Priscilo P. Paulin**, Schools Division Superintendent, **Danilo A. Manguilimotan**, Public Schools District Supervisor, and **Dr. Charito J. Sumalinog**, School Principal of Cordova Central Elementary School, for granting permission and providing assistance during the conduct of the study.

To the **Kindergarten Teachers and Parents**, for their cooperation and willingness to participate in the study. Their time and responses made the completion of this research possible.

The researcher extends her heartfelt appreciation to everyone who contributed to the completion of this study.

Elizabeth J. Sanchez

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

REFERENCES

Axelsson, E. L., Purcell, K., Asis, A., Paech, G., Metse, A., Murphy, D., & Robson, A. (2022). Preschoolers' engagement with screen content and associations with sleep and cognitive development. *Acta Psychologica, 230*, 103762.

Bal, M., Kara Aydemir, A. G., Tepetaş Cengiz, G. Ş., & Altındağ, A. (2024). Examining the relationship between language development, executive function, and screen time: A systematic review. *PLOS ONE, 19*(12), e0314540. https://doi.org/10.1371/journal.pone.0314540

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.

Department of Education. (2016). *DepEd Order No. 47, s. 2016: Omnibus policy on Kindergarten education*. Department of Education.

Diamond, A. (2013). Executive functions. *Annual Review of Psychology, 64*, 135–168.

Dy, A. B. C., Dy, A. B. C., & Santos, S. K. (2023). Measuring effects of screen time on the development of children in the Philippines: A cross-sectional study. *BMC Public Health, 23*, 1261.

Fitzpatrick, C., Florit, E., Lemieux, A., Garon-Carrier, G., & Mason, L. (2025). Associations between preschooler screen time trajectories and executive function. *Academic Pediatrics, 25*(2), 102603.

Hutton, J. S., Huang, G., Sahay, R. D., DeWitt, T., & Ittenbach, R. F. (2020). A novel, composite measure of screen-based media use in young children (ScreenQ) and associations with parenting practices and cognitive abilities. *Pediatric Research, 87*(7), 1211–1218. https://doi.org/10.1038/s41390-020-0765-1

Jusienė, R., Rakickienė, L., Breidokienė, R., & Laurinaitytė, I. (2020). Executive function and screen-based media use in preschool children. *Infant and Child Development, 29*(1), e2173. https://doi.org/10.1002/icd.2173

Lakicevic, N., Manojlovic, M., Chichinina, E., Drid, P., & Zinchenko, Y. (2025). Screen time exposure and executive functions in preschool children. *Scientific Reports, 15*, 1839. https://doi.org/10.1038/s41598-024-79290-6

Likhitweerawong, N., Boonchooduang, N., Khorana, J., Phinyo, P., Patumanond, J., & Louthrenoo, O. (2024). Executive dysfunction as a possible mediator for the association between excessive screen time and problematic behaviors in preschoolers. *PLOS ONE, 19*(4), e0298189. https://doi.org/10.1371/journal.pone.0298189

Mallawaarachchi, S., Burley, J., Mavilidi, M., Howard, S. J., Straker, L., Kervin, L., Staton, S., Hayes, N., Machell, A., Torjinski, M., Brady, B., Thomas, G., Horwood, S., White, S. L. J., Zabatiero, J., Rivera, C., & Cliff, D. (2024). Early childhood screen use contexts and cognitive and psychosocial outcomes: A systematic review and meta-analysis. *JAMA Pediatrics, 178*(10), 1017–1026. https://doi.org/10.1001/jamapediatrics.2024.2620

McHarg, G., Ribner, A. D., Devine, R. T., & Hughes, C. (2020). Screen time and executive function in toddlerhood: A longitudinal study. *Frontiers in Psychology, 11*, 570392. https://doi.org/10.3389/fpsyg.2020.570392

Mortimer, A., Fiske, A., Biggs, B., Bedford, R., Hendry, A., & Holmboe, K. (2024). Concurrent and longitudinal associations between touchscreen use and executive functions at preschool-age. *Frontiers in Developmental Psychology, 2*, 1422635. https://doi.org/10.3389/fdpys.2024.1422635

© 2026 Advancing SDG Impact. All rights reserved.

JASDG
JOURNAL FOR THE ADVANCEMENT OF SUSTAINABLE DEVELOPMENT GOALS
AN INTERNATIONAL, PEER-REVIEWED, OPEN ACCESS JOURNAL
www.jasdg.com
Volume 1 Issue 4 Pages 4787-4827
ISSN: 3155-7546 (Online)
DOI: 10.5281/zenodo.24342184

Namazi, S. A., & Sadeghi, S. (2024). The immediate impacts of TV programs on preschoolers' executive functions and attention: A systematic review. *BMC Psychology, 12,* 226. https://doi.org/10.1186/s40359-024-01738-1

Portugal, A. M., Hendry, A., Smith, T. J., & Bedford, R. (2023). Do pre-schoolers with high touchscreen use show executive function differences? *Computers in Human Behavior, 139*, 107553. https://doi.org/10.1016/j.chb.2022.107553

Republic Act No. 10157. (2012). *Kindergarten Education Act*. Republic of the Philippines.

Republic Act No. 12199. (2025). *Early Childhood Care and Development System Act*. Republic of the Philippines.

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science, 12*(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4

Thorell, L. B., & Nyberg, L. (2008). The Childhood Executive Functioning Inventory (CHEXI): A new rating instrument for parents and teachers. *Developmental Neuropsychology, 33*(4), 536–552. https://doi.org/10.1080/87565640802101516

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

World Health Organization. (2019). *Guidelines on physical activity, sedentary behaviour and sleep for children under 5 years of age*. World Health Organization.

© 2026 Advancing SDG Impact. All rights reserved.