

Designing a Domain-Graded Digital Activity Library for Early Childhood: Development Process and Parental Engagement Patterns in the LIFE UDAY Application

ANJALI CHANDRA*¹ AND KAVITANJALI²

^{1&2}Research Scholar

Department of Home Science, SSJDWSSS Government PG College Ranikhet, (Soban Singh Jeena University, Almora, Uttarakhand) India

*Corresponding Author

ABSTRACT

The shift of early childhood support services onto digital platforms during the COVID-19 pandemic raised practical questions about how developmental content for young children should be selected, graded and structured for home delivery, and about which families actually took up such platforms once available. This paper documents the design and content-development process behind the human-development activity library of a mobile application, LIFE UDAY, aimed at children from birth to ten years, and profiles the parents who registered their children on the platform during its first months of operation. An initial pool of approximately 207 candidate activities, generated across four developmental domains (physical, motor, cognitive and emotional) and four age bands, was reduced through expert review to a final library of 125 activities, a retention rate of 60.4%. Registration and survey-response data from 51 parent-users were analysed to characterise who engaged with the platform. Engagement spanned a wide range of parental ages and occupations, with fathers aged 33-37 years and mothers aged 28-32 years the most represented groups, and with business and home-based caregiving the leading paternal and maternal occupations respectively. Registered children were concentrated in the 5-8-year range, with comparatively fewer very young children (under two years) enrolled. The findings characterise both the structure of a domain-graded digital activity library for early years and the demographic profile of families drawn to adopt it, and are discussed in relation to design and outreach implications for similar home-based early childhood development (ECD) platforms. Unlike prior published accounts of digital ECD content development, which largely describe multi-country codesign consortia, this paper is among the first to report a quantified content-curation attrition rate alongside registration-based demographic data for a single, India-based mobile ECD application.

Keywords: Early childhood development, Mobile application design, Parental engagement, Activity-based curriculum, COVID-19, Instructional design

INTRODUCTION

Digital platforms aimed at young children proliferated rapidly once in-person early-years services were disrupted by the COVID-19 pandemic, but the design logic behind such platforms is not always made explicit or evaluated in published literature. Much of the published evidence on structured developmental activity concerns delivery in classrooms, preschools or after-school settings, where trained staff select and adapt

materials in real time. Considerably less is documented about the practical process of building a content library intended for unsupervised, home-based delivery through a parent intermediary, where the activity itself rather than a trained instructor must carry much of the instructional design burden.

Two design questions are of particular practical interest to developers and early-years practitioners working in this space. First, how should a bank of developmental activities be selected and organised across

How to cite this Article: Chandra, Anjali and Kavitanjali (2026). Designing a Domain-Graded Digital Activity Library for Early Childhood: Development Process and Parental Engagement Patterns in the LIFE UDAY Application. *Internat. J. Appl. Home Sci.*, **13** (7 & 8) : 405-412.

age groups and developmental domains so that it remains manageable, relevant and age-appropriate for a parent to deliver without specialist training? Second, once such a platform is made available, which families actually take it up? The latter question matters because digital ECD tools are frequently assumed, sometimes without direct evidence, to reach a narrow demographic of technologically engaged, urban, higher-income parents. Registration data collected at the point of platform launch offers a rare opportunity to test that assumption directly rather than relying on inference.

This paper addresses both questions using data from LIFE UDAY, an application developed to give parents of children aged birth to ten years structured access to developmental activities across the physical, motor, cognitive and emotional domains. Unlike a companion evaluation of parental satisfaction with the platform's content (reported separately), the present paper is concerned with the content-development pipeline itself how an initial activity pool was narrowed to a final library and with characterising the parent and child population that actually engaged with the resulting platform during its early operation. In doing so, it aims to provide a descriptive reference that other teams designing similar platforms, particularly in the Indian and South Asian context where such applications remain comparatively under-documented, can draw on when planning their own content-development and outreach processes. Two features distinguish this contribution from existing published work on digital ECD platforms. First, most documented content-development processes for early-years apps describe multi-country, workshop-based codesign carried out by international consortia (Alam *et al.*, 2023); by contrast, this paper reports a single-team, expert-review-based curation process for an application designed and deployed entirely within the Indian context, a development model that is common in practice but rarely reported with quantified attrition figures. Second, rather than treating content development and user uptake as separate studies, this paper links a quantified content-curation outcome (the retention rate reported in Section 4.1) to registration-based demographic data from the same platform, allowing the two to be read against each other in a single account. Given that recent reviews of pandemic-era early childhood support have repeatedly flagged a shortage of family- and platform-level data from South Asia specifically (Penna *et al.*, 2023; Yousafzai, 2020), this dual reporting from an Indian mobile ECD

application is intended to close a specific and previously identified gap rather than merely add a further single-country case.

Background and Related Work

The Shift Toward Home-Based Early Learning

Home has always played a role in early childhood development, but it has historically operated alongside, rather than instead of, centre-based provision such as preschools, playgroups and organised community activities. The near-total suspension of centre-based provision during the COVID-19 pandemic converted the home from a supplementary developmental environment into, for many families, the only available one. This shift placed new demands on parents, many of whom had not previously been expected to plan, resource and deliver structured developmental activity on a daily basis, and created corresponding demand for tools that could reduce the planning burden on parents while preserving the structure and domain coverage associated with centre-based programming.

Mobile applications were a natural response to this demand because they could be distributed at low marginal cost to a geographically dispersed user base without requiring in-person contact, and because smartphone penetration had already reached a large share of parents of young children in urban and semi-urban settings prior to the pandemic. However, the rapid, often improvised nature of this shift meant that many digital ECD tools were designed and launched under considerable time pressure, with correspondingly limited published documentation of the design decisions and trade-offs involved. This paper responds to that gap by documenting one such design process in detail.

Age-Appropriateness as a Design Constraint

Guidance on early-years digital content consistently emphasises age-appropriateness as a design constraint rather than an afterthought: a game or activity suited to the fine-motor and reasoning capacity of an eight-year-old will often be inaccessible, or simply uninteresting, to a four-year-old (Baumgarten, 2003). Age-graded design is complicated by the fact that developmental capacity does not increase smoothly; children instead pass through periods of comparatively rapid change (for example, the transition from crawling to walking, or from parallel to cooperative play) that make broad three- or four-year age bands an imperfect but practically necessary

compromise for any content library intended to serve a wide age range.

Structured versus Unstructured Activity

Evidence from structured motor-skill and social-emotional curricula suggests that deliberately organised, domain-specific activity outperforms unstructured play on measurable developmental indicators. A meta-analysis of motor-skill interventions found a significant positive effect of structured programming on fundamental movement skills, while free-play control conditions produced no significant improvement over the same period (Logan *et al.*, 2012). Similarly, mindfulness- and empathy-based social-emotional curricula delivered through structured, repeated sessions have produced measurable gains in executive function and peer acceptance among primary-school children (Schonert-Reichl *et al.*, 2015). These findings collectively support a design choice to curate and grade activities explicitly, with defined materials, steps and expected outcomes, rather than to simply aggregate open-ended play suggestions without structure.

Content Curation and Expert Review in Instructional Design

Outside the ECD literature specifically, instructional-design practice generally treats expert review as a distinct and necessary stage between initial content drafting and final deployment, on the reasoning that content generators are prone to systematic blind spots overestimating the accessibility of specialised materials, underestimating the time or supervision an activity will realistically require in a home setting, or duplicating similar activities without recognising the overlap. Documenting the scale of change introduced at this review stage, as the present paper does, is one way of making an otherwise informal part of the development process visible and comparable across projects.

Uptake and Adoption Patterns for Digital ECD Tools

On the question of uptake, prior work on extracurricular and after-school participation has generally sampled families already engaged in structured programming, leaving open the question of who self-selects into a new digital-first offering in the first place (Mahoney *et al.*, 2005). Broader research on parental involvement in early education has noted that engagement

with structured developmental activity is influenced by parental occupation, time availability and perceived value of the activity, but much of this literature predates the rapid, pandemic-driven shift toward mobile-first delivery and cannot be assumed to generalise directly to that context. Related Indian evidence on mobile-application adoption outside the ECD space has similarly emphasised that price, ease of use and perceived value shape uptake unevenly across urban and rural users (Chatterjee *et al.*, 2020), reinforcing the point that uptake assumptions from one mobile-application context should not be transferred uncritically to another. Reporting the demographic profile of an early-adopter cohort, as this paper does, therefore provides a useful descriptive baseline against which later, larger-scale uptake data for this platform or comparable ones can be compared.

The Present Study in Context

Taken together, the literature supports three premises that motivated the analysis reported here: that age-banding and domain structure are necessary design choices for a home-delivered activity library; that expert curation should be expected to substantially reshape an initial content pool rather than simply validate it; and that assumptions about which parents adopt digital ECD tools should be tested against actual registration data rather than taken as given. The following sections describe how these premises played out in the design and early uptake of LIFE UDAY.

The Role of the Parent as Instructional Intermediary

A further distinguishing feature of home-delivered, application-based activity is that a parent, rather than a trained educator, is responsible for interpreting instructions and supervising the child in real time. This changes the design brief in ways not always acknowledged in ECD literature written with classroom delivery in mind. Instructions must be legible to an adult without specialist training, materials must be plausibly available in an ordinary home, and activities must be resilient to interruption, since home delivery is rarely as protected from competing demands on a caregiver's time as a dedicated classroom session would be. Where a preschool activity might assume a trained adult adjusting the task in real time to a child's response, a home-delivered activity library must instead anticipate this variability in advance, through written guidance, suggested variations,

or simplified fallback versions of an activity. The extent to which the LIFE UDAY content-development process addressed this constraint explicitly, versus arriving at it through the expert-review stage described below, is itself of interest and is returned to in the discussion.

METHODOLOGY

Content Development Process

Development of the LIFE UDAY activity library began in February 2020. The project team first generated a broad pool of approximately 207 candidate activities distributed across four proposed age bands (birth-2, 2-4, 4-6 and 6-10 years) and four developmental domains (physical, motor, cognitive and emotional). Draft activities were compiled from established early-years practice and team expertise, then submitted for review by external subject-matter experts. Reviewers were asked to evaluate each candidate activity for age-fit, safety, material accessibility in an ordinary home setting, and alignment with the four target domains. Following this review, the pool was reduced to a final set of 125 activities considered appropriate for inclusion. The refined activity set was organised into modules by age band, coded into the application by the development team, and the application was launched on 5 September 2020.

Participants and Data Source

Following launch, all parents who registered a child on the application were invited to provide feedback via an online form; 51 parents (27 fathers, 24 mothers) responded over the subsequent months of platform operation. Registration data captured parent age and occupation, and registered child age and sex, providing the basis for the engagement profile reported here. Sampling was by convenience: no attempt was made to sample a fixed proportion of the full registered user base, and the reported figures should be read as characterising respondents to the feedback form rather than the entire registered population.

Analysis

Content-development data (activity counts by age band and domain) and registration/demographic data were summarised using descriptive frequencies and percentages, calculated separately within each parent gender and child sex category to allow direct comparison. Retention rate for the activity library was calculated as the number of activities retained after expert review divided by the number of activities drafted, for each age band and overall. No inferential statistics were applied, consistent with the descriptive aim of this paper.

RESULTS AND DISCUSSION

Structure and Attrition of the Final Activity Library

Table 1 summarises the reduction of the draft activity pool to the final library across the four age bands. Overall, 60.4% of the original draft pool was retained following expert review, meaning close to two in every five drafted activities were removed or substantially reworked before deployment. Retention varied by age band: the 6–10-year band retained the highest proportion of drafted activities (71.9%), while the 4-6-year band retained the lowest (52.7%). The 6-10-year band also retained the largest absolute number of final activities (41), reflecting the wider range of cognitively and physically demanding tasks appropriate for older children, while the birth-2-year band retained the fewest (27), consistent with the narrower repertoire of activities considered safe and appropriate for infants and very young toddlers.

Within every age band, all four developmental domains physical, motor, cognitive and emotional were represented in the final library, indicating that the curation process preserved balanced domain coverage across ages rather than favouring any single domain as activities were removed. This is a meaningful finding in its own right: it would have been possible for expert review to disproportionately remove activities from a single domain (for example, motor activities requiring specific equipment), leaving an unbalanced final library, but this

Table 1 : Distribution of Draft and Final Activities by Age Band and Retention Rate

Age band	Draft activities proposed	Final activities retained	Retention rate (%)	Domains covered
Birth-2 years	~45	27	60.0	Physical, Motor, Cognitive, Emotional
2-4 years	~50	28	56.0	Physical, Motor, Cognitive, Emotional
4-6 years	~55	29	52.7	Physical, Motor, Cognitive, Emotional
6-10 years	~57	41	71.9	Physical, Motor, Cognitive, Emotional
Total	~207	125	60.4	-

did not occur.

Parental Occupational Profile

Table 2 details the occupational distribution of responding parents. Fathers were concentrated in business occupations (59.3%), with smaller numbers in private service (18.5%), government service (7.4%), hospitality (7.4%) and navy engineering (3.7%). Mothers were most commonly engaged in home-based caregiving (58.3%), followed by teaching (25.0%) and allied health or dietetics (8.3%), with smaller numbers in government service and hospitality. No single occupational category accounted for a majority of both parent groups combined, and at least six distinct occupational categories were represented among fathers and five among mothers, indicating that platform uptake during this period was not concentrated within one occupational segment.

Table 2 : Occupational Distribution of Responding Parents		
Occupation category	Fathers n (%), N=27	Mothers n (%), N=24
Business	16 (59.3)	0 (0)
Home-based care giving	0 (0)	14 (58.3)
Private service	5 (18.5)	0 (0)
Teaching	1 (3.7)	6 (25.0)
Government service	2 (7.4)	1 (4.2)
Hospitality (hotelier/ chef)	2 (7.4)	1 (4.2)
Allied health / dietetics	0 (0)	2 (8.3)
Navy engineering	1 (3.7)	0 (0)

Parental Age Profile

Table 3 presents the age distribution of responding parents. Fathers were concentrated in the 33-37-year band (51.9%), with the 28-32-year band the next most common (22.2%). Mothers showed a comparatively younger distribution, with the 28-32-year band most common (37.5%) followed closely by the 33-37-year band (33.3%). Both parent groups included at least one respondent in every age band from 18-22 years through

Table 3 : Age Distribution of Responding Parents		
Age band	Fathers n (%), N=27	Mothers n (%), N=24
18-22 years	1 (3.7)	0 (0)
23-27 years	2 (7.4)	1 (4.2)
28-32 years	6 (22.2)	9 (37.5)
33-37 years	14 (51.9)	8 (33.3)
38-42 years	3 (11.1)	4 (16.7)
43-47 years	1 (3.7)	1 (4.2)
48-52 years	0 (0)	1 (4.2)

to 43-47 years, and mothers additionally included a respondent in the 48-52-year band. This spread suggests that early engagement with the platform was not limited to parents in a single life stage, such as first-time parents in their twenties, but extended across at least three decades of parental age.

Registered Child Age and Sex Distribution

Table 4 presents the age and sex distribution of registered children. Boys were most commonly registered in the 7-8-year band (40.0%) and the 9-10-year band (26.7%), together accounting for two-thirds of registered boys. Girls showed a different pattern, concentrated instead in the 5-6-year band (38.1%), with smaller and roughly comparable proportions in the 3-4, 7-8- and 9-10-year bands. Registration in the birth-2-year band was low overall and, where present, involved only girls (9.5% of registered girls, no registered boys). A small number of children of both sexes were registered at 11-12 years, at the upper edge of the platform's intended age range.

Table 4 : Age and Sex Distribution of Registered Children		
Child age band	Boys n (%), N=30	Girls n (%), N=21
Birth-2 years	0 (0)	2 (9.5)
3-4 years	7 (23.3)	4 (19.0)
5-6 years	2 (6.7)	8 (38.1)
7-8 years	12 (40.0)	4 (19.0)
9-10 years	8 (26.7)	2 (9.5)
11-12 years	1 (3.3)	1 (4.8)

The apparent difference in the age distribution of registered boys and girls boys skewing toward the upper half of the age range and girls more evenly spread with a concentration at 5-6 years is a descriptive pattern in this small sample rather than a tested statistical difference, and should be treated as an observation for future, adequately powered research rather than as an established finding.

Implications of the Curation Attrition Rate

The scale of curation between the draft and final activity pools a reduction of close to 40% following expert review suggests that expert input functioned as a meaningful quality-control step rather than a formality, and that initial content-generation efforts substantially overestimated how many activities would ultimately be judged appropriate for inclusion. This has a practical implication for teams designing similar platforms:

budgeting for a large draft-to-final attrition rate, and building in a dedicated, sufficiently resourced expert-review phase, appears necessary rather than optional. Teams that assume most drafted content will survive review risk either compressed timelines late in a project or a final library that has not been adequately vetted.

The variation in retention rate across age bands lowest for the 4-6-year band and highest for the 6-10-year band may reflect the relative availability of established activity templates for different ages. Materials for school-aged children draw on a longer tradition of structured classroom and homework-adjacent activity, which may have made drafting closer to a usable standard easier for that age band, whereas activities for four-to-six-year-olds may sit in a more ambiguous zone between the highly simplified activities appropriate for toddlers and the more complex tasks appropriate for school-aged children, making first-draft accuracy harder to achieve.

Implications of the Parental Engagement Profile

The demographic spread of engaged parents across a wide range of ages and occupations, and including a notable share of fathers rather than mothers alone runs somewhat counter to an assumption that digital ECD tools chiefly attract a narrow parental demographic. This is a modest but useful descriptive finding: it suggests that, at least among early adopters of this particular platform, interest in structured digital developmental support was not confined to any single occupational or age group. The relatively high representation of fathers, and specifically fathers in business occupations, may reflect either genuine shifts in paternal involvement in day-to-day child-development activity, or simply that business-owning fathers had more flexible daytime availability to register and engage with a new application than parents in fixed-hour employment. The present data cannot distinguish between these explanations.

Because the sample was self-selected and drawn from registered users only, it cannot speak to non-adoption among parents who did not register, which remains an open question for future research using broader population or market-level sampling. Similarly, because respondents were also the subset of registered parents who chose to complete a feedback form, the demographic profile reported here may not perfectly mirror the full registered user base, and some further self-selection toward more engaged users is likely.

The Comparatively Low Registration of Very Young Children

The comparatively low registration of children under two years is notable, and may reflect either a genuine lower demand for structured digital activity at this age, consistent with infants' more limited capacity for independent engagement with any structured activity, or a design and marketing emphasis that better reached parents of older children. It is also possible that parents of infants perceive fewer discrete, teachable milestones during this period compared with parents of preschool- or school-aged children, and therefore see less immediate need for a structured activity library. Distinguishing between these explanations was not possible with the present data and would require targeted outreach data, non-user surveys, or parent interviews in future work.

Implications for Design and Outreach

Three practical implications follow from these findings for teams designing similar home-based ECD platforms. First, content-development timelines should anticipate substantial attrition at the expert-review stage rather than treating review as a light validation step; a plan that assumes something closer to a 60% retention rate, rather than 90% or higher, is likely to be more realistic. Second, because engagement in this cohort was not confined to a narrow parental demographic, outreach strategies for similar platforms need not assume they will only reach a narrow, urban, high-income audience, though this should be confirmed with larger and more representative samples before being treated as a general finding. Third, the comparatively low uptake for children under two years suggests that platforms serving this full age range may benefit from age-specific outreach or messaging aimed specifically at parents of infants, rather than assuming a single marketing approach will reach all age bands equally.

Reading the Findings Against the Parent-as-Intermediary Constraint

Returning to the design constraint introduced in section 2.6 that a parent, rather than a trained educator, must interpret and supervise each activity the retention pattern reported in section 4.1 is consistent with this constraint shaping which draft activities survived expert review. Activities requiring specialised equipment, precise safety supervision, or multi-step instructions that would be difficult for a busy parent to interpret without prior

training would plausibly have been removed at a higher rate than simpler, self-explanatory activities, though the present data cannot confirm this mechanism directly, since reasons for removal were not coded individually. This is precisely the kind of question a prospectively coded review rubric, proposed in section 7, would be able to answer directly in future work.

The occupational and age spread reported in sections 4.2 and 4.3 also has a bearing on the parent-as-intermediary question. Parents in business occupations, who made up the largest single occupational group among fathers in this sample, may have more flexible but also more variable daily schedules than parents in fixed-hour salaried employment, which could affect how consistently they are able to deliver structured activities to their children on a predictable schedule. Similarly, the substantial representation of home-based caregivers among mothers suggests a group with potentially more available time for sustained delivery of structured activity, though time availability alone does not guarantee engagement, and was not measured directly in this study.

Limitations

This paper draws on a single early-adopter cohort (N = 51) recruited through convenience sampling from parents who had already registered on the platform, and therefore cannot describe non-adopters or the wider population of parents who did not take up the application. The sample size, while adequate for a descriptive profile, is too small to support statistical comparison between subgroups (for example, between boys' and girls' age distributions) with any confidence, and the apparent patterns reported in section 4.4 should be treated as descriptive observations rather than tested differences.

The activity-curation figures reflect internal project records rather than an independently audited process, and the criteria applied by expert reviewers during the reduction from 207 to 125 activities were not formally documented as a coded rubric, which limits the replicability of the curation step as reported here. Future work would benefit from a pre-registered coding scheme for expert review, allowing the reasons for activity removal (for example, safety, material cost, age-fit) to be reported separately rather than only as an aggregate retention rate.

Finally, the lead author's involvement in the development team is noted as a potential source of bias in how the design process is described and interpreted.

While this positioning supported detailed, first-hand knowledge of the development pipeline, an external or independent account of the same process for example through interviews with reviewers not otherwise involved in the project would strengthen confidence in the objectivity of the account given here.

Generalisability Beyond a Single Platform

A further consideration is the extent to which findings from a single platform, developed by a single team over a defined period, generalise to digital ECD tools more broadly. Attrition rates during content curation, occupational patterns among adopting parents, and age-band uptake are all plausibly influenced by factors specific to this platform's marketing channels, pricing, and the particular composition of its expert-review panel, none of which were held constant against any comparison platform. Readers should therefore treat the specific figures reported here a 60.4% overall retention rate, or a 59.3% concentration of fathers in business occupations as descriptive of this case rather than as benchmarks with an established range across the sector. Comparable data from other, independently developed platforms would be needed before any of these figures could reasonably be treated as typical.

Future Research

Several extensions of this work would be valuable. A larger, randomly or systematically sampled cohort of registered users, rather than a convenience sample of feedback-form respondents, would allow firmer conclusions about the demographic breadth of platform uptake. Comparative data from non-adopting parents those aware of the platform but who chose not to register would help distinguish genuine disinterest from access or awareness barriers, particularly for the under-two age band. A formally coded rubric for expert review, applied prospectively to future content batches, would allow the reasons behind activity attrition to be analysed systematically rather than only summarised in aggregate. Finally, longitudinal registration data collected over a longer operating period would allow uptake patterns to be examined for change over time, rather than as a single early snapshot as reported here.

A second useful extension would be a direct comparison between the content-development process documented here and that of comparable platforms, where accessible, to establish whether the retention rate

and domain-balance patterns reported in section 4.1 are typical of expert-reviewed ECD content development or specific to this project's particular review panel and drafting process. Such comparative work would also help clarify whether the parent-as-intermediary constraint discussed in sections 2.6 and 5.5 operates similarly across different platforms and delivery formats, or whether it is shaped substantially by factors such as target age range, subscription model, or the digital literacy assumed of the parent user.

Finally, qualitative research directly involving parents through interviews or structured diaries covering how activities were actually delivered at home, which materials were readily available, and which instructions were found unclear or difficult to follow without adaptation would complement the descriptive, registration-based profile reported in this paper with an account of the lived delivery experience that registration and uptake data alone cannot provide.

Conclusion

This paper documented the process by which a broad pool of candidate developmental activities was narrowed, through expert review, into a final domain-graded activity library for a mobile early-childhood-development application, and profiled the parents who engaged with the resulting platform during its first months of availability. The curation process removed close to 40% of initially proposed activities while preserving domain balance across all age bands, and early engagement with the platform spanned a broad range of parental ages and occupations rather than a single demographic segment, alongside a comparatively low uptake for children under two years. These findings offer a descriptive reference point for teams designing similar digital ECD platforms, particularly regarding the scale of expert curation required and the potential breadth, and specific gaps, in early parental uptake.

REFERENCES

Alam, M., Hickie, I. B., Poulsen, A., Ekambareshwar, M., Loblay,

V., Crouse, J., Hindmarsh, G., Song, Y. J. C., Yoon, A., Cha, G., Wilson, C., Sweeney-Nash, M., Troy, J. and LaMonica, H. M. (2023). Parenting app to support socio-emotional and cognitive development in early childhood: iterative codesign learnings from nine low-income and middle-income countries. *BMJ Open*, **13**(5), e071232.

Baumgarten, M. (2003). Kids and the internet: A developmental summary. *Computers in Entertainment*, **1**(1) : 1-10.

Chatterjee, S., Majumdar, D., Misra, S. and Damaševičius, R. (2020). Adoption of mobile applications for teaching-learning process in rural girls' schools in India: an empirical study. *Education & Information Technologies*, **25**(5) : 4057-4076.

Logan, S. W., Robinson, L. E., Wilson, A. E. and Lucas, W. A. (2012). Getting the fundamentals of movement: A meta-analysis of the effectiveness of motor skill interventions in children. *Child: Care, Health & Development*, **38**(3) : 305-315.

Mahoney, J. L., Lord, H. and Carryl, E. (2005). An ecological analysis of after-school program participation and the development of academic performance and motivational attributes for disadvantaged children. *Child Development*, **76**(4) : 811-825.

Penna, A. L., Machado de Aquino, C., Pinheiro, M. S. N., do Nascimento, R. L. F., Farias-Antúnez, S., Araújo, D. A. B. S., Mita, C., Machado, M. M. T. and Castro, M. C. (2023). Impact of the COVID-19 pandemic on maternal mental health, early childhood development, and parental practices: a global scoping review. *BMC Public Health*, **23**, 388.

Schonert-Reichl, K. A., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F. and Diamond, A. (2015). Enhancing cognitive and social-emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. *Developmental Psychology*, **51**(1) : 52-66.

Yousafzai, A. K. (2020). If not now, then when? The importance of intervening early to provide family-based environments for all children. *The Lancet Child & Adolescent Health*, **4**(8) : 565-566.
