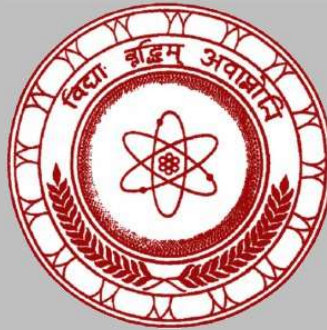


ISSN 1391-0256

Journal of the Sri Lanka Association for the Advancement of Science

Volume 5 Issue 1 2023



JSLAAS

Founded in 1944 and incorporated by the Act of Parliament No 11 of 1966.



Journal of the Sri Lanka Association for the Advancement of Science is a biannual publication. Selected research work from annual research sessions (based on scientific merit) as well as other research articles are invited to submit research manuscripts as per the guidelines provided by SLAAS. SLAAS members may also separately submit their papers for publication.

The Journal can be accessed on-line to view and download the full text of the articles published respective to the volumes free of charge

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Table of Contents

| | Page |
|---|-------------|
| 1 Evaluation of the Cellular and Wi-Fi radiofrequency pollution levels in the Western Province of Sri Lanka <i>S A T U W K Suraweera1* and K P S C Jayaratne</i> | 01 |
| 2 Pharmacological effects of <i>Sesamum indicum</i> ; Systematic review <i>S H K Deepthika1*, K P K R Karunagoda, P K Perera</i> | 15 |
| 3 Evaluation of the Perceived Palatability Levels of Grazing Forages of Wild Asian Elephants in Sri Lanka <i>U D Tharangi*, R U Halwathura and S Somaratne</i> | 26 |
| 4 Impact of Electronic Media on Physical Development in Preschoolers in Sri Lanka: Parents' Perception in Kalutara District <i>P Seneviratne* and W. Hang</i> | 41 |
| 5 Wi-Fi Fingerprint and Pedestrian Dead Reckoning-based Indoor Localization with Supervised Learning <i>D Y Algama, W K R N D Weerasekara, Y L L Thilakaratne and C S Silva*</i> | 51 |

Impact of Electronic Media on Physical Development in Preschoolers in Sri Lanka: Parents' Perception in Kalutara District

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ABSTRACT

The impacts of electronic media on child development are mixed and beget benefits and vice versa. Home is the children's immediate environment; hence, parents' beliefs directly or indirectly impact the children's exposure to electronic media. The literature on parents' perception of electronic media by preschoolers and associated consequences is scantily in Sri Lanka. Thus, a study assessed the parents' views on preschoolers' electronic media use and its potential impacts. A piloted and validated questionnaire was administered online to a parent sample of 377 in the Kalutara district, and the data were subjected to frequency distribution and χ^2 analyses. The majority of respondents were (76.7%) from the rural sector, qualified with G C E (A/L) (45.6%), and 25.7% were unemployed. Sedentary behaviour, vision problems, and consumption of unhealthy foods resulting from electronic media use were rated negatively, reflecting the parents' awareness of the impacts except for feeding children while watching TV. Parents' neutrality in rating implies the unawareness of the impacts of electronic media on child development. Despite the weak associations among the parent's ratings with demographics, parents were well aware of the impacts of electronic media on the physical development of children. There is a need to implement strategies to build awareness among parents on the impacts of electronic media on child development. Further studies are required to establish the real impact of electronic media on child development and correlate parental perceptions.

Keywords: Child development, Electronic media, Impacts, parents' perception, Physical development,

INTRODUCTION

Electronic media has been defined as "Any means of communication requiring users to employ electromagnetic devices, whether analogue or digital (typically in contrast to print-based media)" (Chandler and Mundy, 2022, pp. 407-408). The development of communication technology and the associated infrastructural facilities led to the reach of electronic media surpassing all the limits of geographical barriers and becoming a part of everyday life for each child in rural or urban settings (Buckingham, 2013). At present, electronic media become an indispensable commodity in human life. Comparatively, all inventions cannot be considered benevolent since they have drawbacks (Smil, 2006). Therefore, electronic media negatively and positively affects users regardless of gender, age, and educational background (Medoff & Kaye, 2016). However, adults can choose between electronic media's good and bad effects because of their age-related experiences. It is a well-known fact that the use of electronic media by adults in the family can expose children to the background screen (Benedetto & Ingrassia, 2020). However, the gravity of the effects of electronic media use on preschoolers has been the focus of recent research (Ray & Jat, 2010).

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Most studies on electronic media's impact on the child have focused on each domain of the child's development (Wartella *et al.*, 2005). The child's development's physical domain encompasses gross and fine motor skills; any impact on these components results in developmental anomalies. Electronic media's impact can affect the child's development (Webster *et al.*, 2019). The impact of electronic media on child development may be mixed, and many researchers have pointed out that electronic media brings benefits and *vice versa* (Stiglic *et al.*, 2019). The home is the children's immediate environment, and adults' electronic media usage and beliefs directly or indirectly stimulate the children's electronic media usage (Domoff *et al.*, 2019; Beamish *et al.*, 2019; Arabiat *et al.*, 2022). Though the literature on electronic media use among preschoolers is limited in Sri Lanka, Manukulasooriya (2019) studied the parents' and teachers' views on the usage of electronic media and its possible impact on the lives of children and concluded that the majority of parents believe electronic media exposure benefited the children. Recent studies on electronic screen devices have shown that 96 % of preschoolers use electronic screens, and above 60 % are overexposed to the screens (recommended daily upper limit of one hour) (Liu *et al.*, 2021). Higher paternal education, maternal employment, and being the only child were significantly associated with electronic screen device use. However, there were gaps in the knowledge of electronic media usage and its impact on the child's physical development in Sri Lanka. Further, the parent's perception of the impact of electronic media on children would play a critical role in implementing awareness-building programs, recommending suitable intervening measures, etc. Therefore, this study was conducted to determine the parents' perception of Sri Lankan children's use of electronic media and its effect on the physical development of preschool children.

METHODOLOGY

The study's target population was parents of preschool children in the Kalutara district of Western Province. There are 1,045 preschools in the Kalutara district, where 27,041 children aged 3-5 years are attended. Of those, only 763 were registered with the Provincial Council for preschool education (National Census of Early Childhood Development Centers in Sri Lanka, 2016). Thomas (1996) argues that it is essential to define the target population and ensure that the selected sample is representative of it. Krejci-Morgan (1970) calculated the parental sample size, resulting in 377 randomly selected parents.

The present study used a survey method to collect data and included a piloted and validated questionnaire consisting of 10 indicators with a 5-point Likert scale. Additionally, the questionnaire included demographic information of the parents. A sample of 55 randomly selected respondents completed the pilot survey. The correlation between the indicators then validated their responses, and the indicators of the physical domain showed a statistical significance of $p < 0.05$ and established a high correlation among the indicators. Internal consistency was measured by Cronbach's alpha test, which was performed for the pilot data and showed that the overall Alpha value of the study was 0.831, greater than the accepted value of 0.7 (Tavakol and Dennick, 2011). The translated questionnaire was converted into Google Forms and administered to the parents chosen for the study. Descriptions of the indicators and their codes used in the study are presented in Table 1.

Table 1. The codes and description of indicators in the physical domain of the child's development.

| Codes | Description |
|-------|--|
| PPD1 | Most children engage in outdoor play activities learned from TV programs/computers or smartphones. |
| PPD2 | Most children do not engage in play activities with peers and siblings since they want to watch TV or use a computer/smartphone. |
| PPD3 | I think electronic media (TV, computer games, or smartphones) has substituted children's play activities. |
| PPD4 | It is easy to feed children when they watch TV. |
| PPD5 | Most children skip meals to watch TV programs or play games using computers/smartphones. |
| PPD6 | Sitting in one place using electronic media (TV, computer, or smartphone) for long hours causes childhood obesity. |
| PPD7 | Advertising non-nutritious foods on TV/computer increases children's unhealthy food consumption. |
| PPD8 | Advergams in the form of TV and the internet advergams promote the consumption of unhealthy food. |
| PPD9 | Electronic media (TV, computer, or smartphone) interfere with children's healthy sleep habits. |
| PPD10 | Excessive use of electronic media (TV, computer, or smartphone) causes vision problems. |

A database was developed using the responses from received Google forms, which were examined for entry errors and missing data. Furthermore, the responses "Strongly disagree" and "Disagree" were combined and given the label "Disagree," and the responses "Agree" and "Strongly agree" were combined and given the label "Agree." Further, "neutral" and "no response" were merged and presented under the "Neutral category. The frequency distribution of demographic and parents' responses was performed, and the χ^2 test was used to assess the association between the demographic attributed and the responses.

RESULTS AND DISCUSSION

The demographic profile of the parent sample is shown in Table 2, according to which the majority of respondents were (76.7 %) from the rural and a small fraction of urban respondents (23.3 %) represented the urban sector. According to the educational qualifications, G C E (A/L) dominated the other categories (45.6 %). The majority of responders (25.7 %) were not employed, and the rest of the responders represent employed in different professions. Of the responders included in the sample, 80.6% were female. The results show that most preschools are located in rural areas. The sample of respondents thus reflects the country's general trend in the rural population (Ritchie & Roser, 2018).

Similarly, the distribution of responders' educational qualifications reflects the general trend of the nation (UNESCO- Institute for Statistics, 2023). Since most rural females in Sri Lanka did not participate

in the labour force, there was a substantial percentage of unemployed parents in the sample (Samarakoon & Mayadunne, 2018). According to a general trend, most males stay out of child-related matters, especially those involving younger children, and women are inevitably responsible for these responsibilities (Boserup *et al.*, 2013). It might be because most men had occupations and could not find the time to attend preschool children's related activities.

Table 2. The demographic profile of the parents included in the sample from Kalutara District.

| Indicator | Response | Frequency | % |
|----------------------------------|---|------------------|------------|
| Location | | | |
| | Urban | 88 | 23.3 |
| | Rural | 289 | 76.7 |
| | Total | 377 | 100 |
| Educational Qualification | | | |
| | Primary | 12 | 3.2 |
| | Secondary | 24 | 6.4 |
| | G C E (O/L) | 71 | 18.8 |
| | G C E (A/L) | 172 | 45.6 |
| | Graduate | 58 | 15.4 |
| | Postgraduate | 40 | 10.6 |
| | Total | 377 | 100 |
| Occupation | | | |
| | Manager | 24 | 6.4 |
| | Professional | 58 | 15.4 |
| | Technicians and Associated Professionals | 22 | 5.8 |
| | Clerical Support Workers | 53 | 14.1 |
| | Service and Sales Workers | 29 | 7.7 |
| | Skilled Agricultural, Forestry, and Fishery Workers | 12 | 3.2 |
| | Craft-related Trades Workers | 26 | 6.9 |
| | Plant and Machine Operators and Assemblers | 29 | 7.7 |
| | Elementary occupations | 17 | 4.5 |
| | Armed Forces | 10 | 2.7 |
| | Unemployed | 97 | 25.7 |
| | Total | 377 | 100 |
| Gender of the Responder | | | |
| | Father (Male) | 73 | 19.4 |
| | Mother (Female) | 304 | 80.6 |
| | Total | 377 | 100 |

The summary of the responses of "Agree/Disagree" and "Neutral" across the indicators of the physical domain (Table 3) indicated that a considerable number of responders were neutral, possibly due to the avoidance of cognitive affording, ambivalence or social desirability ranged from 16.18 % for indicator

PPD10 and 38.2 % for the indicator PPD1 (Edwards & Smith, 2014). While the responses of "Agree/Disagree" ranged from 61.80 % for PPD1 and the highest for the indicators PPD10 (83.82 %). This pattern of responses reflects that most parents are well aware of the potential effect of electronic media on their child's development. This discrepancy could be attributed to the parent's attitude toward electronic media and their understanding of the impact on the child's development (Vittrup *et al.*, 2016).

Table 3. Distribution of responses of "Agree/Disagree" and "Neutral" across the indicators of the physical domain within the sample population of the Kalutara District.

| Indicator | Agree/Disagree | | Neutral | | Total | Percent |
|-----------|----------------|---------|-----------|---------|-------|---------|
| | Frequency | Percent | Frequency | Percent | | |
| PPD1 | 233 | 61.80 | 144 | 38.20 | 377 | 100 |
| PPD2 | 268 | 71.09 | 109 | 28.91 | 377 | 100 |
| PPD3 | 260 | 68.97 | 117 | 31.03 | 377 | 100 |
| PPD4 | 255 | 67.64 | 117 | 31.03 | 377 | 100 |
| PPD5 | 260 | 68.97 | 117 | 31.03 | 377 | 100 |
| PPD6 | 279 | 74.01 | 98 | 25.99 | 377 | 100 |
| PPD7 | 258 | 68.44 | 119 | 31.56 | 377 | 100 |
| PPD8 | 261 | 69.23 | 116 | 30.77 | 377 | 100 |
| PPD9 | 299 | 79.31 | 78 | 20.69 | 377 | 100 |
| PPD10 | 316 | 83.82 | 61 | 16.18 | 377 | 100 |

Summary information on parental perceptions of the indicators of the physical domain is presented in Table 4 and Figure 1. According to parents' responses, television programs /computers or smartphones (PPD1), a majority believed that a positive effect on children's motivation to play outdoors contributes to the child's development. Conversely, most parents believe that many children do not play games with their peers and siblings because they want to watch TV or use a computer/smartphone (PPD2). Thus, parents believe that television or computer/smartphone use negatively impacts their children's growth. Similarly, most parents felt that electronic media (television, computer games, or smartphones) had replaced children's play activities (PPD3), excluding children from outdoor activities. However, most parents recognize that feeding their child while watching TV (PPD4) is easy and believe this positively affects their child's physical development. The parents' responses indicate that children skipping meals to watch TV programs or playing games using computers and smartphones (PPD5) negatively affect a child's physical growth. The children's sedentary behaviour results from sitting in one place using electronic media (TV, computer, or smartphone) for long hours causes childhood obesity (PPD6) is positively rated reflect the parents' awareness of the lack of physical activities and its negative contribution to the healthy growth of a child (Rodriguez-Ayllon *et al.*, 2019). Most parents agree that advertising non-nutritious foods on TV/computer increases children's consumption of unhealthy food (PPD7) and that these advertisements negatively affect physical development.

Further, parents believe that advergimes in the form of TV and the internet advergimes promote the consumption of unhealthy food (PPD8) and negatively impact the physical development of their children. As far as sleeping habits are concerned, the majority of parents are of the opinion that Electronic media (TV, computer, or smartphone) interfere with children's healthy sleep habits (PPD9), and excessive use of electronic media causes vision problems (PPD10). In summary, among the ten indicators of the physical domain of the child the development, indicator PPD4, parents' belief in the ease of feeding children while watching TV is a poor precedent (Vitrup *et al.*, 2016). Further, though there are skepticisms on electronic media use by children, parents believe that exposure to electronic media is essential to develop skills that enable them to keep pace with ever-expanding technologies (Lenhart *et al.*, 2001; Rideout *et al.*, 2003; St Peters *et al.*, 1991; Woodard & Gridina, 2000).

Table 4. Details of the Parents' rating of the indicators of the physical domain of the child's development.

| Indicator | Response | Frequency | Percent | Contribution |
|-----------|----------|-----------|---------|--------------|
| PPD1 | Disagree | 54 | 23.18 | Negative |
| | Agree | 179 | 76.82 | Positive |
| PPD2 | Disagree | 152 | 56.72 | Negative |
| | Agree | 116 | 43.28 | Positive |
| PPD3 | Disagree | 169 | 65.00 | Negative |
| | Agree | 91 | 35.00 | Positive |
| PPD4 | Disagree | 121 | 47.45 | Positive |
| | Agree | 134 | 52.55 | Negative |
| PPD5 | Disagree | 136 | 52.31 | Positive |
| | Agree | 124 | 47.69 | Negative |
| PPD6 | Disagree | 93 | 33.33 | Positive |
| | Agree | 186 | 66.67 | Negative |
| PPD7 | Disagree | 87 | 33.72 | Positive |
| | Agree | 171 | 66.28 | Negative |
| PPD8 | Disagree | 83 | 31.80 | Positive |
| | Agree | 178 | 68.20 | Negative |
| PPD9 | Disagree | 81 | 27.09 | Positive |
| | Agree | 218 | 72.91 | Negative |
| PPD10 | Disagree | 32 | 10.13 | Positive |
| | Agree | 284 | 89.87 | Negative |

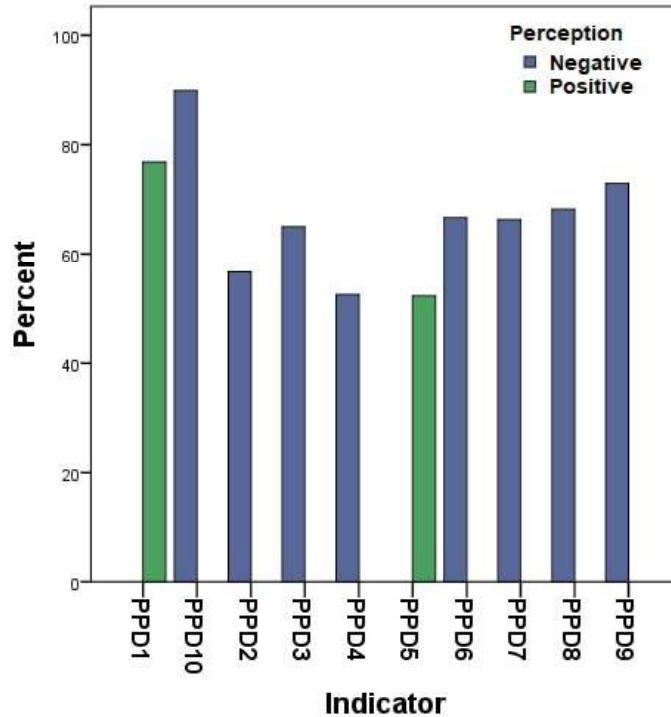


Figure 1. Distribution of parents' rating of the indicators of the physical domain of the child's development.

The association between the parents' ratings of the indicators of the physical domain of the child's development is shown in Table 5. As far as the sector of the parents is concerned, the rating for PPD1, PPD8, PPD9, and PPD10 differed significantly ($p < 0.05$); this may attribute to the fact that parents in rural setups have not been informed about the adverse physical consequences of the electronic media and the in the urban set up it may be due to the limited space for children to engage in physical activities. The association between the responders' and the rating of the indicator PPD9 indicated a significant association ($p < 0.05$), which may indicate the responders' gender composition in which female was highly dominant over the male. The association between the responses and parents' educational qualification and for the indicators PPD1, PPD9, and PPD10 were statistically significant at $p < 0.05$. This discrepancy may be attributed to the level of education and the associated knowledge of the parents' children's needs for physical activities for healthy growth. Similar observations were made for the relationship between electronic media and their effects on children's sleep and vision problems concerning the parent's occupation ($p < 0.05$).

Table 5. Association between the parents' ratings of indicator of the physical domain of the child development by sector, gender, educational qualifications, and profession.

| Indicator | Educational | | | | | | | | | | | |
|---------------|-------------|----|-------|------------|----|-------|---------------|----|-------|------------|----|-------|
| | Sector | | | Gender | | | Qualification | | | Profession | | |
| | Chi-Square | df | Sig. | Chi-Square | df | Sig. | Chi-Square | df | Sig. | Chi-Square | df | Sig. |
| PPD 1 | 6.997 | 1 | 0.008 | 1.547 | 1 | 0.214 | 11.371 | 5 | 0.045 | 9.749 | 10 | 0.463 |
| PPD 2 | 0.016 | 1 | 0.900 | 0.356 | 1 | 0.551 | 4.043 | 5 | 0.543 | 16.019 | 10 | 0.099 |
| PPD 3 | 0.024 | 1 | 0.876 | 0.251 | 1 | 0.616 | 3.819 | 5 | 0.576 | 10.189 | 10 | 0.424 |
| PPD 4 | 1.208 | 1 | 0.272 | 0.208 | 1 | 0.649 | 3.768 | 5 | 0.583 | 13.257 | 10 | 0.210 |
| PPD 5 | 0.261 | 1 | 0.610 | 0.003 | 1 | 0.954 | 6.661 | 5 | 0.247 | 7.2070 | 10 | 0.706 |
| PPD 6 | 1.128 | 1 | 0.288 | 0.805 | 1 | 0.370 | 5.916 | 5 | 0.314 | 14.329 | 10 | 0.159 |
| PPD 7 | 0.958 | 1 | 0.328 | 0.046 | 1 | 0.830 | 4.686 | 5 | 0.455 | 15.028 | 10 | 0.131 |
| PPD 8 | 6.955 | 1 | 0.008 | 0.106 | 1 | 0.744 | 5.226 | 5 | 0.389 | 16.544 | 10 | 0.085 |
| PPD 9 | 8.254 | 1 | 0.004 | 9.609 | 1 | 0.002 | 15.049 | 5 | 0.010 | 21.354 | 10 | 0.019 |
| PPD 10 | 6.392 | 1 | 0.011 | 0.548 | 1 | 0.459 | 11.862 | 5 | 0.037 | 21.398 | 10 | 0.018 |

CONCLUSION

Most parents are aware of the impact of electronic media on children's physical development, which is an objective of the study. Many parents are neutral on the impact of electronic media on their children's physical development due to avoidance of cognitive effort, ambivalence, or social desirability. Most indicators were rated by parents, regardless of parental demographic background. as a reward for the child. Most indicators were more or less equally rated by parents, regardless of parental demographic background, indicating insignificant associations. However, a certain number of parents appreciated the ease brought by electronic media while feeding their children, which was used; the majority of parents appreciated the ease brought by electronic media while feeding their children as a reward for the child. Therefore, there is a need for parental awareness programmes/discussion sessions on the healthy use of electronic media for children.

ACKNOWLEDGMENTS

The authors thank the Chinese Scholarship Council for granting a scholarship to study at Central China Normal University. Further, assistance was given by the parents who provided information on their preschool children despite their busy work schedules is appreciated.

FUNDING

"This paper is supported by the project "Evaluation and Improvement Strategy of Preschool and Family Cooperation Quality from the Perspective of Relationship" (No. 22YJA880060), funded by the Chinese Ministry of Education"

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4. Abstract

- Should be limited to a maximum of 250 words.
- Up to a maximum of the five (05) key word should be identified, arranged in alphabetical order, included immediately after the abstract.
- Abstract should be typed in italics. Scientific names in the abstract should be underlined.
- No reference, tables, or figures should be included in the abstract.

5. Body

- Introduction: Justification of the research work, objectives and hypotheses should be included in the introduction.
- Methods and Materials/ Methodology: All materials, chemicals, clinical, subjects and samples used should be identified. Analytical, survey and statistical method should be explained concisely. Common analytical methods need not be elaborated.
- Results and Discussion: Can be combined.
- Conclusions: Should be concise.
- Headings: All headings should be in bold capital and centered, e.g., INTRODUCTION
- Subheadings: All subheadings should be in bold and in title case, e.g., Preparation of Land.
- Non-English terms: All non-English terms should be italicized, e.g., et al., i.e., viz., except "etc."
- References: Use APA style 3

6. Table and Figures

- Should be included in the exact place within the text
- Tables should be numbered sequentially using Arabic numerals. The titles should be self explanatory and placed above the tables.
- Tables should not contain any vertical lines
- Illustration, Line drawing and photographs, if any, should be clear, properly numbered and captioned and ready for reproduction. They should be of high resolution such as minimum of 300 dpi and saved in .tif or .bmp formats. Please do not use .jpeg or similar formats that do not reproduce well.
- All lettering, graph lines and points on graphs should be sufficiently large and bold faced to permit reproduction for inclusion in the Journal.
- Artworks and illustrations should be of appropriate thickness. Please note that thin lines do not reproduce well. Please note that the illustrations, line drawings and photographs should be placed in the appropriate location of the electronic file and numbered sequence with other figures.

7. Units

- SI units should be used.
- A single space should be left between the numerical value and the unit.

8. Acronyms and Abbreviations

- All acronyms should be written in full at the first time of appearance. Abbreviations can be used subsequently.

- The full stop should not be included in abbreviations. Where abbreviations are likely to cause ambiguity or may not be readily understood by readers, the units should be mentioned in full.
9. On being informed of the acceptance, the manuscripts should be revised as per the reviewers' suggestions and re-submitted to the Editor – SLAAS. The accepted manuscripts will be published in the inaugural Journal of the SLAAS. Manuscripts that do not confirm to the above guidelines will not be accepted.
 10. Acknowledgements Only the essential individuals and/or organizations/institutes should be include
 11. Need to attach the manuscripts both as 1. with names and affiliations of the author and 2. Without with names and affiliations of the author

ISSN 1391-0256

*Journal of the Sri Lanka Association for
the Advancement of Science*

Volume 5 Issue 1

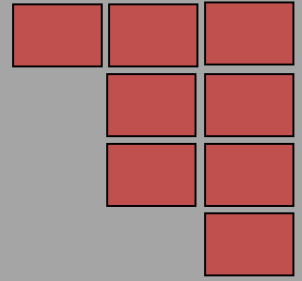
Contents

Research Article

- 1 Evaluation of the Cellular and Wi-Fi radiofrequency pollution levels in the Western Province of Sri Lanka
S A T U W K Suraweera¹ and K P S C Jayaratne*
- 2 Pharmacological effects of *Sesamum indicum*; Systematic review
S H K Deepthika¹, K P K R Karunagoda, P K Perera*
- 3 Evaluation of the Perceived Palatability Levels of Grazing Forages of Wild Asian Elephants in Sri Lanka
U D Tharangi¹, R U Hawathura and S Somaratne*
- 4 Impact of Electronic Media on Physical Development in Preschoolers in Sri Lanka: Parents' Perception in Kalutara District
P Seneviratne¹ and W. Hang*
- 5 Wi-Fi Fingerprint and Pedestrian Dead Reckoning-based Indoor Localization with Supervised Learning
*D Y Algama, W K R N D Weerasekara, Y L L Thilakaratne and C S Silva**



9771391025002



Edited and Published by the Sri Lanka Association of for the Advancement of Science

ISSN 1391-0256

