

# Integrating Dale's Cone of Experience into Teaching Aids: Teachers' Reflections in Sri Lankan Schools

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## ABSTRACT

This study examines the integration of Dale's Cone of Experience into teaching aids in Sri Lankan schools, with a focus on teachers' perceptions, practices, and challenges. Using a mixed-methods approach, data were collected from 100 teachers across primary, secondary, and advanced levels through structured questionnaires and thematic analysis of open-ended responses. Results revealed that 63% of teachers were somewhat familiar with Dale's Cone, and 62% agreed on its relevance to teaching practices. Inferential findings showed a significant association between education levels and the frequency of designing teaching aids based on Dale's Cone ( $F = 7.89$ ,  $p = 0.001$ ), and a positive correlation ( $r = 0.45$ ,  $p = 0.03$ ) between training adequacy and perceived opportunities for its integration. Teachers primarily utilized concrete levels, such as hands-on activities and visual aids, which were found to enhance student engagement and retention. However, abstract levels, like verbal symbols, posed challenges due to a lack of comprehensive understanding. Barriers included limited resources (67%) and inadequate training (68%), while opportunities emerged through innovative use of digital tools and locally available materials. These findings underscore the need for targeted teacher training, equitable resource allocation, and policy interventions to effectively implement experiential learning models in resource-constrained educational contexts.

**Key words:** Dale's Cone of Experience, Teaching aids, Experiential learning, Sri Lankan education, Digital tools

## INTRODUCTION

The effective integration of teaching aids into classroom instruction is a cornerstone of modern education. Teaching aids, when thoughtfully designed and implemented, have the potential to enhance learners' understanding, engagement, and retention of knowledge. Among the many theoretical models that guide the development of teaching aids, Dale's Cone of Experience has proven to be a valuable framework. First introduced by Edgar Dale in 1946, this model organizes learning experiences on a continuum from abstract to concrete, emphasizing that direct, experiential learning fosters deeper comprehension and more enduring learning outcomes (Dale, 1946).

In the context of Sri Lankan schools, where educational reforms have sought to promote innovative and student-centered teaching approaches, the application of Dale's Cone of Experience provides a unique opportunity to align theory with practice. However, despite its potential, the integration of this framework into teaching aids has not been widely explored within the Sri Lankan education system. Teachers, who play a pivotal role in implementing instructional strategies, offer valuable insights into the practical challenges and opportunities associated with using Dale's Cone of Experience in their classrooms.

Research in educational psychology underscores the importance of teacher perspectives in the successful adoption of teaching frameworks. Teachers' reflections not only shed light on the practical feasibility of theoretical models but also reveal the contextual factors that influence their implementation, such as resource availability, training, and curriculum demands (Mishra & Koehler, 2006; Singh, 2020). In the Sri Lankan context, these reflections are particularly important, given the diversity of schools, disparities in resource distribution, and the ongoing efforts to modernize teaching practices.

This study seeks to explore how Sri Lankan teachers perceive and apply Dale's Cone of Experience in designing and using teaching aids. By examining their reflections, this research aims to bridge the gap between theoretical frameworks and classroom realities, contributing to a deeper understanding of how innovative teaching models can be adapted to meet the specific needs of educators and students in Sri Lankan schools.

## Research Gaps

Despite its prominence as a theoretical framework, Dale's Cone of Experience has been insufficiently studied in terms of its practical application in diverse educational settings, particularly within Sri Lankan schools. While numerous studies underscore the importance of teaching aids in enhancing learning outcomes (Mishra & Koehler, 2006; Singh, 2020), there remains a lack of context-specific research examining how Dale's Cone is integrated into classrooms in resource-constrained environments. This gap is significant in Sri Lanka, where disparities in resources, infrastructure, and teacher training present unique challenges to implementing theoretical frameworks effectively.

Moreover, the perspectives of teachers, who are the primary implementers of teaching aids, are underrepresented in the existing literature. While theoretical discussions around Dale's Cone are abundant, little attention has been given to how educators interpret and adapt this framework to their classroom practices. Understanding teachers' insights is crucial for bridging the gap between theory and practice, particularly when designing teaching aids that align with the abstract-to-concrete continuum proposed by Dale (Dale, 1946).

Another critical gap lies in the lack of research exploring how cultural and curricular factors influence the use of Dale's Cone in Sri Lankan schools. Educational policies, cultural norms, and curriculum standards uniquely shape teaching practices in this context, yet these factors are often overlooked in global studies of instructional design. Additionally, existing research seldom investigates the effectiveness of teaching aids designed using Dale's Cone in heterogeneous classrooms, which are common in Sri Lanka and characterized by diverse student abilities, language proficiencies, and socio-economic backgrounds.

Finally, while Dale's Cone has been widely acknowledged for its theoretical value, its application in resource-limited and diverse learning environments, such as those found in Sri Lanka, requires further exploration. Addressing these gaps will provide valuable insights into how this framework can be adapted to meet the needs of educators and students, contributing to the development of more effective teaching aids and instructional practices in Sri Lankan schools.

## Research Objectives

- i. To explore teachers' understanding of Dale's Cone of Experience and its relevance to teaching aids.
- ii. To examine the practical applications of Dale's Cone of Experience in designing and implementing teaching aids in classrooms.
- iii. To identify challenges and opportunities teachers encounter when integrating Dale's Cone of Experience into their instructional practices.

## LITERATURE REVIEW

Teaching aids have long been recognized as an essential component of effective pedagogy, providing students with concrete and engaging ways to grasp complex concepts. Dale's Cone of Experience, first introduced by Edgar Dale in 1946, remains a cornerstone framework in instructional design. The model categorizes learning experiences on a continuum, ranging from abstract forms such as verbal symbols to concrete experiences such as direct, hands-on engagement (Dale, 1946). This hierarchical framework emphasizes that learning is most effective when learners are actively involved, a principle that continues to inform modern educational practices.

Studies have demonstrated the effectiveness of teaching aids based on experiential learning frameworks, like Dale's Cone, in enhancing knowledge retention and conceptual understanding. For instance, Mishra and Koehler (2006) found that teaching strategies incorporating active, hands-on learning result in improved student

engagement and deeper comprehension. Similarly, Kolb’s experiential learning theory aligns with Dale’s emphasis on active involvement, highlighting the critical role of experience in shaping knowledge acquisition (Kolb, 1984). However, while the theoretical merits of such frameworks are well-established, their practical application in diverse educational contexts is less understood.

In the Sri Lankan educational context, teaching aids are often underutilized or inadequately aligned with theoretical frameworks due to resource constraints, lack of training, and curricular demands. According to Perera et al. (2021), many Sri Lankan teachers rely heavily on traditional, teacher-centered methods of instruction, with limited use of experiential teaching aids. This reliance on abstract teaching methods, such as lectures and textbook-based learning, poses challenges in engaging students and fostering meaningful learning experiences. The integration of frameworks like Dale’s Cone could address these issues by encouraging more concrete and interactive teaching methods.

Furthermore, teacher perspectives play a pivotal role in the successful implementation of instructional frameworks. Teachers are not only the end-users of these frameworks but also critical agents in adapting theoretical principles to meet the practical needs of their students. Research by Singh (2020) emphasizes the importance of understanding educators’ attitudes, perceptions, and challenges in adopting innovative teaching strategies. Teachers’ reflections provide valuable insights into the feasibility and effectiveness of integrating frameworks like Dale’s Cone into their daily instructional practices. However, there is limited research exploring how Sri Lankan teachers perceive and apply Dale’s Cone of Experience when designing teaching aids, creating a significant gap in the literature.

Cultural and contextual factors further complicate the application of instructional theories. Sri Lanka’s education system is characterized by diverse classroom environments, resource disparities between urban and rural schools, and unique cultural and linguistic considerations. According to Jayasuriya (2019), these factors significantly influence how teaching strategies are implemented and perceived. While studies have explored the use of teaching aids in general, few have examined how frameworks like Dale’s Cone can be tailored to address these contextual challenges in Sri Lankan schools.

### Theoretical Framework

This study is grounded in Edgar Dale’s Cone of Experience, a hierarchical model that categorizes learning experiences along a continuum from abstract to concrete. Introduced in 1946, Dale’s Cone is one of the most influential frameworks in instructional design, offering a visual representation of how various types of learning experiences contribute to knowledge retention and understanding (Dale, 1946). The following figure visually represents this model.

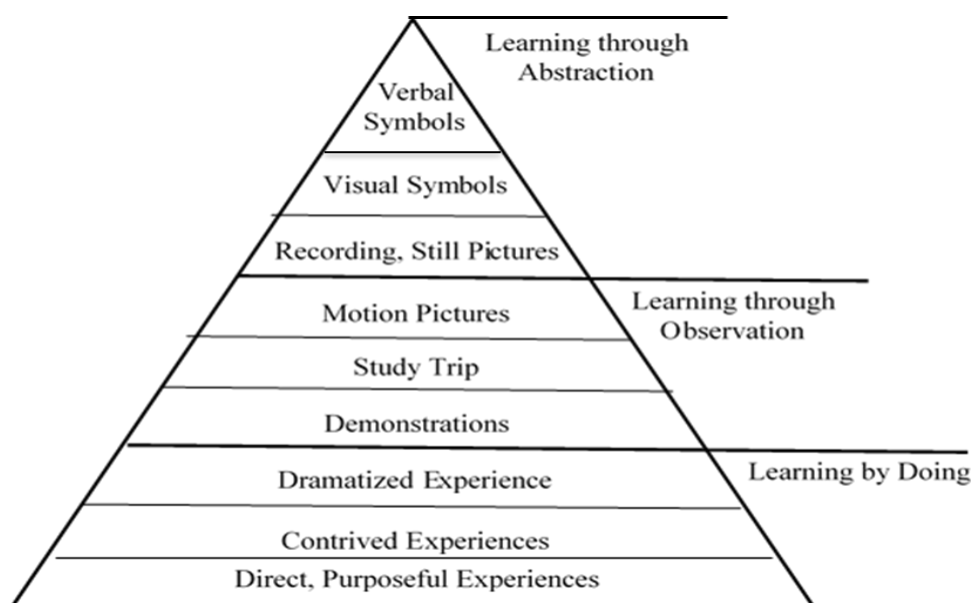


Figure 1 - Edgar Dale's Cone of Experience

The model is structured as a cone divided into hierarchical levels, progressing from concrete to abstract learning experiences. At the base are direct, purposeful experiences and hands-on activities, which are the most concrete and engaging forms of learning. As the levels ascend, they include more abstract forms of representation, such as demonstrations, dramatized experiences, and visual symbols. At the top of the cone are the most abstract experiences, including verbal symbols and reading, which involve minimal sensory engagement. Each level is differentiated with clear labels, emphasizing the continuum from immersive, tangible experiences to conceptual, abstract understanding. This graphical depiction effectively illustrates the principles underlying Dale's model, emphasizing the significance of concrete experiences in fostering meaningful learning.

The model provides educators with a structured approach to move from abstract teaching methods, such as lectures, to more concrete and interactive strategies that resonate with students. However, the practical application of this framework depends significantly on teachers' understanding, attitudes, and ability to adapt its principles to their specific contexts. This study seeks to understand how teachers perceive and apply these principles in their classrooms, addressing gaps in the literature and contributing to the discourse on effective instructional design in diverse educational contexts.

## METHODOLOGY

This study employs a survey research design, integrating both quantitative and qualitative approaches (mixed methods) to comprehensively examine Sri Lankan school teachers' perspectives on the integration of Dale's Cone of Experience into teaching aids. The mixed-methods approach ensures a more robust analysis by combining numerical data with in-depth insights, enhancing the validity and richness of the findings.

### Research Design

The survey design was selected to gather data systematically from a large population while allowing for the collection of both objective (quantitative) and subjective (qualitative) responses. This approach is particularly suited to exploring diverse teacher experiences, perceptions, and practices in utilizing Dale's Cone of Experience in the classroom.

### Population and Sample

The target population for this study comprises school teachers in Sri Lanka. A sample of 100 teachers was selected using a stratified sampling technique. The stratification was based on teaching level, dividing the participants into three categories:

Table 1 Participation of teachers based teaching level

Category	Number of Teachers	Percentage
Primary (Grades 1–5)	30	30%
Secondary (Grades 6–11)	40	40%
Advanced Level (Grades 12–13)	30	30%

This stratified sampling ensured representation from all levels of teaching in schools, facilitating a nuanced understanding of how perspectives and practices vary across different levels of school.

### Data Collection Instruments

A structured questionnaire was developed to collect both quantitative and qualitative data. The questionnaire comprised two main sections:

- **Quantitative Section:** Included close-ended questions designed on a Likert scale to assess teachers' frequency of use, perceptions, and challenges in implementing Dale's Cone of Experience.

- **Qualitative Section:** Included open-ended questions to gather detailed reflections, examples, and suggestions from teachers on integrating the model into their teaching aids.

### Data Collection Procedure

Data were collected through face-to-face methods to accommodate teachers from different geographic and technological backgrounds. Teachers were briefed about the purpose of the study, and informed consent was obtained prior to participation.

### Data Analysis

Quantitative data were analyzed using descriptive and inferential statistical methods to identify patterns and correlations among teachers’ responses. Qualitative data were analyzed thematically to uncover recurring themes, patterns, and unique insights into the use of teaching aids based on Dale’s Cone. The integration of these findings allowed for a comprehensive understanding of the research problem.

### Ethical Considerations

The study adhered to ethical research guidelines. Participants' anonymity and confidentiality were maintained, and their participation was voluntary. The study received ethical approval from the relevant institutional review board.

## RESULTS

### Demographic Information

Table 2 Demographic Characteristics of Survey Participants

Demographic Variable	Category	Number of Participants	Percentage (%)
Age	Below 25 years	10	10%
	26–35 years	33	33%
	36–45 years	22	22%
	46–55 years	21	21%
	Above 55 years	14	14%
Educational Qualification	Diploma in Teaching	21	21%
	Bachelor’s degree	28	28%
	Bachelor of Education degree	21	21%
	Bachelor’s + Postgraduate Diploma in Education	13	13%
	Master of Education degree	12	12%
	Other (specified)	5	5%

Teaching Experience	1–5 years	28	28%
	6–15 years	55	55%
	16+ years	17	17%
Teaching Levels	Primary (Grades 1–5)	30	30%
	Secondary (Grades 6–11)	40	40%
	Advanced Level (Grades 12–13)	30	30%

The demographic characteristics of the survey participants are summarized in Table 2. The majority of participants (33%) were aged between 26–35 years, followed by 22% in the 36–45 age group. Most participants (28%) held a Bachelor’s degree, while 21% had either a Diploma in Teaching or a Bachelor of Education degree. In terms of teaching experience, 40% of respondents had 6–15 years of experience, with equal representation (30%) from early-career (1–5 years) and senior (16+ years) teachers. Regarding teaching levels, the largest proportion of participants (55%) taught secondary grades (Grades 6–11), while 28% primarily taught primary levels (Grades 1–5). Only 17% of the participants were teaching at the advanced level (Grades 12–13). This distribution highlights the diversity of the sample across age, qualifications, teaching experience, and grade levels.

**To explore teachers' understanding of Dale's Cone of Experience and its relevance to teaching aids.**

**Quantitative Findings**

Table 3 Familiarity with Edgar Dale's Cone of Experience

Category	Number of Participants (n)	Percentage (%)
Not familiar	8	8%
Somewhat familiar	63	63%
Very familiar	29	29%

Table 3 provides an overview of participants' familiarity with Edgar Dale's Cone of Experience. The data indicates that the majority of participants (63%,  $n = 63$ ) reported being somewhat familiar with the concept, while a smaller proportion (29%,  $n = 29$ ) described themselves as very familiar. Notably, only 8% ( $n = 8$ ) of participants indicated they were not familiar with the Cone of Experience. These findings suggest that while most participants have some level of awareness of this educational framework, there remains a minority with little to no familiarity.

Table 4 Relevance of Dale’s Cone of Experience to Teaching Practices

Category	Number of Participants (n)	Percentage (%)
Strongly disagree	4	4%
Disagree	12	12%
Neutral	15	15%
Agree	62	62%
Strongly agree	7	7%

Table 4 illustrates participants' perceptions of the relevance of Edgar Dale’s Cone of Experience to their teaching practices. The majority of participants (62%,  $n = 62$ ) agreed that the Cone of Experience is relevant to their



teaching, while 7% ( $n = 7$ ) strongly agreed. A smaller proportion of participants expressed neutrality (15%,  $n = 15$ ), indicating neither agreement nor disagreement. Conversely, 12% ( $n = 12$ ) disagreed, and only 4% ( $n = 4$ ) strongly disagreed. These findings suggest a predominantly positive perception of the framework's applicability to teaching, though a notable minority expressed uncertainty or dissent, warranting further investigation into potential barriers or differing interpretations of its practical relevance.

Table 5 Association between Teaching Level and Familiarity with Edgar Dale’s Cone of Experience

Statistic	Value	df	Asymptotic Significance (p-value)
Pearson Chi-Square	9.213	4	0.056
Likelihood Ratio	9.34	4	0.053
Linear-by-Linear Association	6.512	1	0.011
Number of Valid Cases	100		

The results of the Pearson chi-square test indicate that the p-value is 0.056, which is marginally above the conventional significance level of 0.05. This suggests no statistically significant association between teaching level and familiarity with Dale’s Cone of Experience. However, the linear-by-linear association test yielded a p-value of 0.011, demonstrating a significant linear trend. This result implies that familiarity with Dale's Cone of Experience tends to increase with higher teaching levels.

### Qualitative Findings

Teachers expressed a strong belief that Dale’s Cone of Experience enhances student engagement, particularly through its emphasis on active learning and experiential methods. Many participants highlighted that hands-on activities and visual aids foster greater attentiveness and simplify complex concepts, thus improving overall student engagement. For instance, one teacher noted, *"Students are more attentive and engaged during lessons when activities align with direct experiences."* Similarly, another participant stated, *"Visual aids simplify complex concepts, making learning more accessible."* These observations underscore the perceived link between Dale’s Cone and increased student engagement.

In terms of effective teaching, participants identified Dale’s Cone as a valuable framework for designing lessons that cater to diverse learning styles and ensure the practical application of concepts. Respondents emphasized that the Cone’s progression from concrete to abstract levels helps in bridging theoretical knowledge and real-world applications. One teacher remarked, *"It provides a framework to design lessons that move from concrete to abstract, which is effective for different learning styles."* Another commented, *"The Cone ensures that teaching aligns with real-world applications."*

Despite its perceived value, teachers reported challenges in understanding and applying the abstract levels of Dale’s Cone, such as verbal symbols. Participants expressed difficulty in integrating these levels into their teaching practices, with one noting, *"I find it difficult to connect verbal symbols like lectures to the practical needs of students."* Another stated, *"Balancing between the abstract and concrete levels is a challenge."* These challenges point to a gap in teachers' ability to fully leverage the Cone’s potential.

### To examine the practical applications of Dale's Cone of Experience in designing and implementing teaching aids in classrooms.

### Quantitative Findings

Table 6 Frequency of Designing Teaching Aids Based on Dale's Cone of Experience

Response Category	Frequency (n)	Percentage (%)
Never	5	5%
Rarely	12	12%

Sometimes	58	58%
Often	18	18%
Always	7	7%

Table 6 presents the frequency with which participants design teaching aids based on Edgar Dale's Cone of Experience. The majority of participants (58%,  $n = 58$ ) reported sometimes designing teaching aids aligned with the Cone of Experience, while 18% ( $n = 18$ ) indicated they often do so. A smaller proportion (7%,  $n = 7$ ) stated they always design such aids. Conversely, 12% ( $n = 12$ ) reported rarely incorporating the Cone into their teaching aids, and 5% ( $n = 5$ ) indicated they never do so.

Table 7 Education Level vs. Frequency of Designing Teaching Aids

Source	Sum of Squares (SS)	df	Mean Square (MS)	F	Sig. (p-value)
Between Groups	10.4	4	2.6	7.89	0.001
Within Groups	31.35	95	0.33		
Total	41.75	99			

Table 7 presents the results of a one-way analysis of variance (ANOVA) examining the effect of education level on the frequency of designing teaching aids based on Edgar Dale's Cone of Experience. The analysis revealed a statistically significant difference between groups,  $F(4, 95) = 7.89, p = 0.001$ . The between-groups sum of squares ( $SS = 10.4$ ) and mean square ( $MS = 2.6$ ) indicate variability attributable to differences in education levels, while the within-groups sum of squares ( $SS = 31.35$ ) and mean square ( $MS = 0.33$ ) reflect variability within each education level group. These results suggest that education level significantly influences the frequency with which participants design teaching aids.

### Qualitative Findings

The analysis of open-ended responses highlighted several key themes regarding the practical applications of Dale's Cone of Experience in designing and implementing teaching aids.

First, teachers reported an inconsistent application of Dale's Cone in their teaching practices. Many noted that while they recognize its value, designing teaching aids is often sporadic due to time constraints, limited resources, and institutional barriers. For instance, one participant stated, *"I try to design teaching aids, but it's hard to do it regularly with our workload."* Another remarked, *"Teaching aids are designed only for specific lessons that demand extra engagement."*

Second, teachers identified examples of direct experiences, such as field trips, laboratory experiments, and hands-on projects, which they found highly effective for enhancing student understanding. One teacher shared, *"We recently organized a field trip to a historical site, and it was very engaging for students."* However, logistical challenges often limited the frequency of such activities.

Third, visual aids were preferred over verbal aids, with tools such as charts, videos, and info graphics frequently mentioned as effective. Teachers found verbal aids, including lectures and readings, less engaging for students. One participant commented, *"Students understand topics better with charts and videos,"* while another noted, *"I rarely rely on verbal aids alone they're not as engaging."*

Fourth, teachers emphasized context-driven selection of Dale's Cone levels. Decisions about which level to use were primarily influenced by the subject matter, students' needs, and resource availability. As one respondent explained, *"The decision depends on whether resources for hands-on activities are available."* This adaptability highlights teachers' efforts to align instructional strategies with situational demands.



Fifth, teachers observed positive impacts on student outcomes when using teaching aids aligned with Dale’s Cone. They noted that concrete levels, such as direct and visual experiences, contributed to improved comprehension and retention. One teacher remarked, “*Students grasp concepts faster when they can see or touch what they are learning,*” while another stated, “*Retention improves significantly with teaching aids like models and experiments.*”

Lastly, teachers identified opportunities for improvement, particularly in balancing abstract and concrete levels. While concrete experiences were easier to implement, respondents recognized the importance of incorporating abstract elements, such as verbal symbols, to provide a holistic learning experience. Teachers suggested leveraging innovative tools, including multimedia presentations, interactive models, and augmented reality. For example, one participant noted, “*I’ve used augmented reality to show virtual 3D models it’s a hit with students.*”

**To identify challenges and opportunities teachers encounter when integrating Dale's Cone of Experience into their instructional practices.**

**Quantitative Findings**

Table 8 Institutional or Resource Barriers and Adequate Training

Category	Response	Frequency (n)	Percentage (%)
Institutional/Resource Barriers	Yes	67	67%
	No	33	33%
Adequate Training Provided	Yes	32	32%
	No	68	68%

The data presented in Table 8 highlights significant challenges faced by teachers in integrating Dale's Cone of Experience into their instructional practices, focusing on institutional or resource barriers and the adequacy of training provided. A majority of respondents (67%) reported encountering institutional or resource barriers, which indicates that a lack of infrastructure, resources, or institutional support is a significant hindrance to the effective implementation of this instructional model. Conversely, only 33% of respondents stated that they did not face such barriers.

In terms of training, the results show a concerning trend. While 32% of participants reported receiving adequate training to effectively integrate Dale's Cone of Experience, a notable 68% indicated that they had not been provided with sufficient training.

Table 9 Correlation between Training Adequacy and Perceived Opportunities

Variable 1	Variable 2	Correlation (r)	p-value	Significant?
Adequate Training	Perceived Opportunities	0.45	0.03	Yes

Table 9 presents the correlation analysis examining the relationship between adequate training and perceived opportunities for integrating Dale's Cone of Experience. The hypothesis posited that adequate training correlates with higher perceived opportunities. The analysis revealed a moderate positive correlation ( $r = 0.45$ ) between the two variables, with a statistically significant p-value of 0.03 ( $p < 0.05$ ). These findings suggest that teachers who receive adequate training are more likely to perceive greater opportunities for effectively implementing Dale’s Cone of Experience in their instructional practices.

**Qualitative Findings**

The thematic analysis of open-ended responses revealed several key challenges and opportunities teachers encounter when integrating Dale’s Cone of Experience into their instructional practices.

One prominent theme was the resource limitations that hinder the application of Dale's Cone. Teachers frequently cited the lack of physical materials, time, and institutional support as significant barriers. For instance, one participant noted, "*We don't have enough resources like visual aids or materials for hands-on activities,*" while another mentioned, "*Time constraints make it difficult to plan lessons that incorporate the Cone's levels.*" These findings underscore the need for better resource allocation and institutional support.

The second theme related to institutional and resource barriers, with participants highlighting inadequate funding and rigid curricula as obstacles. One teacher explained, "*The school's budget doesn't allow for additional resources needed for teaching aids,*" and another stated, "*There's little flexibility in the curriculum to experiment with new methods.*" These barriers indicate the need for policy-level interventions to enable teachers to experiment with innovative instructional strategies.

Teachers also observed positive student responses to teaching aids designed based on Dale's Cone. Effective teaching aids were reported to enhance student engagement and retention. For example, a teacher shared, "*Students are much more active and participate enthusiastically during hands-on lessons,*" while another commented, "*Visual aids help students retain information better, especially for complex topics.*" This suggests that the effective use of teaching aids fosters greater student involvement and comprehension.

Another recurring theme was the insufficiency of professional development opportunities. Teachers expressed a need for structured training programs to understand and apply Dale's Cone effectively. One participant noted, "*We haven't had any formal training on how to use Dale's Cone in classrooms,*" and another suggested, "*Workshops or hands-on training would be helpful to understand its practical applications.*" These responses highlight the importance of targeted professional development initiatives.

Despite the challenges, teachers identified opportunities for enhancing teaching practices through innovative teaching aids and collaborative efforts. Participants emphasized the potential of digital tools such as augmented reality and multimedia presentations to make lessons more interactive and engaging. For instance, one teacher remarked, "*Using digital tools like augmented reality can make lessons more interactive and exciting.*" Additionally, collaboration with peers was seen as a valuable approach, with one participant noting, "*Collaborating with other teachers allowed us to share ideas and create better aids together.*"

Lastly, teachers discussed creative adaptations to resource limitations. Strategies included repurposing locally available materials and utilizing low-cost alternatives. One participant explained, "*We use locally available materials to create simple yet effective teaching aids,*" while another mentioned, "*Group work among students reduces the need for individual resources.*" These resourceful approaches demonstrate teachers' resilience and ingenuity in overcoming challenges.

## CONCLUSION

This study explored the integration of Dale's Cone of Experience into teaching aids in Sri Lankan schools through three research questions. The findings provide a comprehensive understanding of the challenges, opportunities, and practical applications associated with using this instructional framework.

The first research question examined teachers' understanding of Dale's Cone of Experience and its relevance to teaching aids. The results indicated that while most teachers were somewhat familiar with the model, a minority lacked awareness or struggled to fully comprehend its abstract levels, such as verbal symbols. Teachers acknowledged the framework's relevance, emphasizing its ability to enhance student engagement and bridge theoretical concepts with real-world applications. However, the findings highlighted the need for further professional development to deepen teachers' understanding and application of the model.

The second research question focused on the practical applications of Dale's Cone in designing and implementing teaching aids. Teachers reported using teaching aids sporadically due to time constraints, resource limitations, and institutional barriers. Concrete levels of Dale's Cone, such as direct experiences and visual aids, were more frequently applied and found to be highly effective in fostering student engagement and comprehension. Teachers identified logistical challenges in organizing hands-on activities, such as field trips, and emphasized

the importance of context-driven selection of teaching strategies. Despite these challenges, teachers highlighted innovative practices, such as using locally available materials and digital tools like augmented reality, to create effective teaching aids.

The third research question addressed the challenges and opportunities teachers encounter when integrating Dale's Cone into their instructional practices. Institutional and resource barriers, such as insufficient funding, lack of materials, and rigid curricula, emerged as significant obstacles. Additionally, inadequate training limited teachers' ability to fully implement the framework. However, teachers recognized opportunities for improvement through structured training programs, peer collaboration, and the use of technology to enhance teaching practices. Creative adaptations, such as repurposing local materials and leveraging collaborative efforts, also demonstrated teachers' resilience and ingenuity in overcoming resource constraints.

## **Suggestions**

Based on the findings of this study, the following suggestions are proposed to enhance the integration of Dale's Cone of Experience into teaching aids in Sri Lankan schools:

### **Strengthening Teacher Training Programs**

Comprehensive and structured training programs should be developed to enhance teachers' understanding of Dale's Cone of Experience. These programs should focus on practical applications, bridging the gap between theoretical knowledge and classroom practices. Workshops, hands-on training sessions, and mentorship opportunities could support teachers in effectively designing and implementing teaching aids based on this framework.

### **Improving Resource Allocation**

Schools should prioritize the provision of adequate resources, including materials for hands-on activities, visual aids, and digital tools. Policymakers and educational leaders must address resource disparities between urban and rural schools to ensure equitable access to teaching aids.

### **Incorporating Flexibility in Curricula**

The rigid structure of curricula often limits the opportunities for innovative teaching practices. Introducing flexibility in curricula and lesson planning could encourage teachers to experiment with experiential learning approaches, such as those supported by Dale's Cone.

### **Leveraging Technology**

Educational technology, such as augmented reality, virtual simulations, and multimedia tools, offers significant potential for integrating abstract and concrete levels of Dale's Cone. Investment in teacher training for digital tools and access to affordable technology can expand the possibilities for designing engaging teaching aids.

### **Encouraging Locally Available and Cost-Effective Solutions**

Teachers should be encouraged to use locally available materials and low-cost alternatives to create effective teaching aids. Resourceful adaptations, such as using everyday objects or community resources, can help overcome resource constraints while aligning with the principles of experiential learning.

### **Institutional Support and Policy Interventions**

Policymakers and educational authorities should provide institutional support through funding, infrastructure development, and incentives for innovative teaching practices. Policy-level interventions could include grants for teaching resources, recognition of teachers' efforts in designing experiential aids, and integrating experiential learning into national education strategies.

## Ongoing Research and Monitoring

Further research is needed to evaluate the long-term impact of Dale's Cone on student learning outcomes. Regular monitoring and feedback mechanisms can help identify areas of improvement and ensure that teaching aids remain effective and relevant to diverse classroom needs.

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