https://doi.org/10.48047/AFJBS.7.11.2025.201-220

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

IEC POSTER DEVELOPMENT FOR WASTE SEGREGATION AND MANAGEMENT AWARENESS

Jennefer A. Flores[1*] and Gina C. Lacang[2]

[1*]Department of Environmental Science and Technology, College of Science and Mathematics, University of Science and Technology of Southern Philippines, Cagayan de Oro, Philippines

[2]Department of Environmental Science and Technology, College of Science and Mathematics, University of Science and Technology of Southern Philippines, Cagayan de Oro, Philippines

[*]**Corresponding Author**: Jennefer A. Flores: jennefer.flores@deped.gov.ph

Volume 7, Issue 11, 2025

Received: 14 Aug 2025

Accepted: 25 Oct 2025

Published :12Nov2025

Doi :10.48047/AFJBS.7.11.2025.201-220

Abstract: -Solid waste management remains a challenge in schools despite various strategies being implemented. A study conducted at Mat-I National High School analyzed and quantified solid waste, revealing that recyclables accounted for the largest portion at 44.09%, followed by residuals with recycling potential at 35.04%, biodegradable waste at 20.20%, and residual waste for disposal at 0.67%. These findings served as the basis for developing information, education, and communication (IEC) materials within the school. Thus, survey questionnaires were administered, and focus group discussions were conducted to identify the most effective IEC materials for promoting solid waste management practices. The study assessed learning styles, literacy levels, and preferred communication channels among respondents. Results showed that Visual Learning Style ranked highest, with a weighted mean of 3.12, followed by Auditory (3.05), Kinesthetic (2.87), and Reading/Writing (2.72) learning styles.

Additionally, the study ranked perceived literacy types as follows: Functional Literacy (3.26), Basic Literacy (3.16), Proficient Literacy (3.02), and Advanced Literacy (2.88). On the other hand, interpersonal communication proved to be the most effective approach for delivering recycling messages in schools, surpassing both print and electronic media in impact. However, the findings led to the selection of a poster as the preferred IEC material to visually complement face-to-face material, making waste management education more accessible and impactful within the school community.

Keywords: Solid wastes; literacy; channel; information, education and communication; learning styles

1. Introduction

Waste segregation and management are essential for maintaining the cleanliness and sustainability of our local environment. As a local community member, Mat-i National High School plays a vital role in promoting responsible waste disposal and ensuring the community remains healthy and eco-friendly.

Similarly, Information, Education, and Communication (IEC) materials play an important role in promoting environmental responsibility by raising awareness and educating communities. A study on IEC materials as tools to induce climate action in coastal communities in Zambales, Philippines, found that these materials effectively shaped community understanding of climate change adaptation strategies. The research highlighted how visually appealing and recognizable images facilitated residents' knowledge of key environmental concepts and motivated them to take action (Alberto et al., 2024). Similarly, UNICEF's report on engaging youth in climate change and ecological sustainability emphasizes the importance of IEC in empowering young people to take action. These studies collectively illustrate how IEC materials serve as powerful tools in strengthening environmental responsibility and driving meaningful change.

In Claveria, local government programs have supported waste management efforts, encouraging households and institutions to separate biodegradable, non-biodegradable, recyclable, and hazardous waste. According to the Environmental Management Bureau (EMB) Region 10, effective waste segregation has significantly reduced pollution levels and improved waste collection efficiency in Northern Mindanao (EMB Region 10, 2023).

On the other hand, the sampled school in this study faces significant challenges in waste management. Although it has a Material Recovery Facility (MRF) for temporary storage, prolonged delays in waste collection result in mixed waste streams, rendering recycling efforts less effective.

According to Smyth (2010), as cited by Arazo (2015), effective campus waste management requires understanding the types of waste generated and their respective generation rates. This knowledge enables the proper management, treatment, and disposal of trash. However, finances and time hinder many schools from conducting campus waste characterization studies. To address this gap, the researcher conducted a waste analysis and characterization study. The researcher selected the school because no reports had documented its waste generation rate and composition despite the municipality's strong enforcement of RA 9003.

This paper aims to develop **Information, Education, and Communication (IEC) materials** to address ongoing challenges in solid waste management in school. Specifically, it seeks to identify the most effective IEC materials. To attain this, the study focuses on the following objectives: (a) assessing respondents' perceived learning styles, (b) determining their literacy type, and (c) analyzing their preferred communication channels. These insights will serve as the foundation for designing an IEC framework that aligns with students' needs, promoting greater awareness and engagement in responsible waste management.

2. Materials and Methods

2.1 Description of Study Area

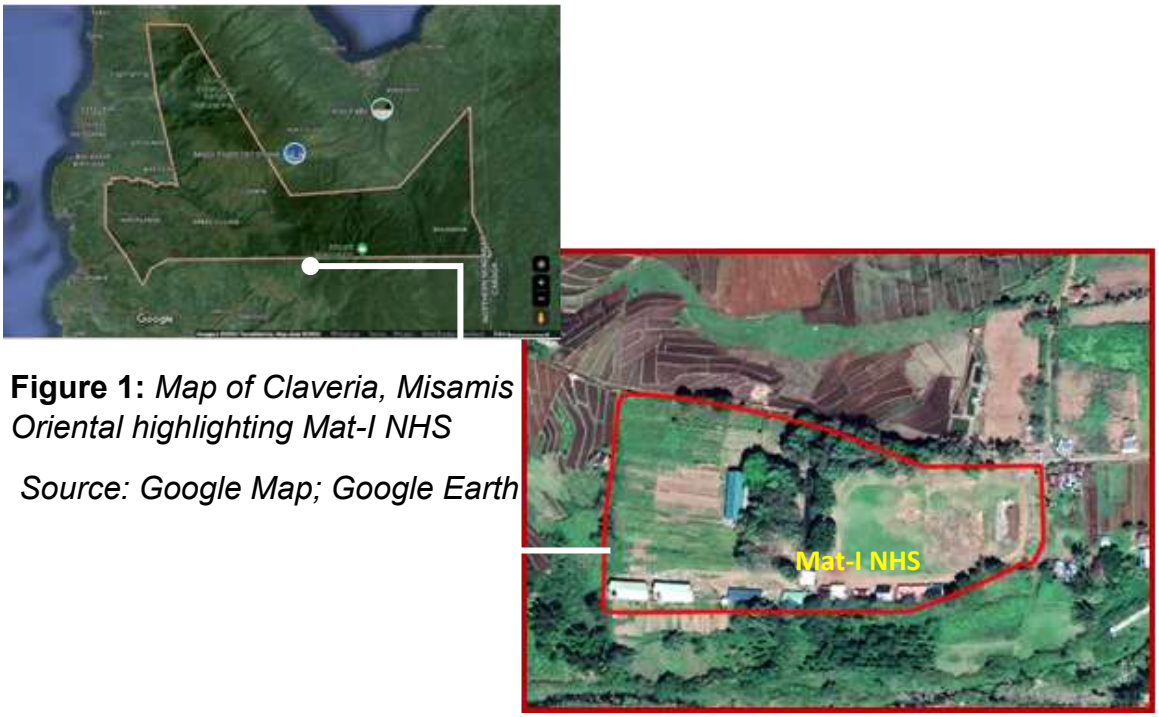


Figure 1: *Map of Claveria, Misamis Oriental highlighting Mat-I NHS*

Source: Google Map; Google Earth

Mat-i National High School (MNHS) is the lone secondary school located in the scenic mountainous area of Barangay Mat-I, Claveria, Misamis Oriental. The school is surrounded by green vegetation and rolling hills, providing a relaxing and beautiful view to its people, contributing to the educational opportunities for students, and making it a vital institution in the area. In the Department of Education Misamis Oriental Division, MNHS belongs to Claveria Northeast District. The school has one (1) covered court, three 2-storey buildings, seven 1-storey buildings used for instructional purposes, and three 1-storey buildings used as offices. The school has approximately 700 individuals, including learners, faculty, and other junior and senior high school personnel.

2.2 Data-Gathering Procedure

Entry Protocol before the data collection procedures, the researcher asked permission from the concerned authorities and secured necessary endorsements before conducting the study. A permission letter to conduct the study was given to the school division Superintendent requesting permission to conduct the study.

Upon approval, the researcher provided copies of the approved letter to the assigned Claveria Northeast District Supervisor and the School Head. Then, the researcher met the YES-O Coordinator of the school and asked for a

schedule to meet the respondents, distributed the consent form, and oriented the students on the purpose of the study. Their responses to the questionnaire was treated with the utmost confidentiality and used solely for the study. On the appointment date and time, the researcher collected the consent form and personally distributed the questionnaire to the participating students in their classrooms. The researcher explained the nature of the checklist. The assessment took less than 10 minutes.

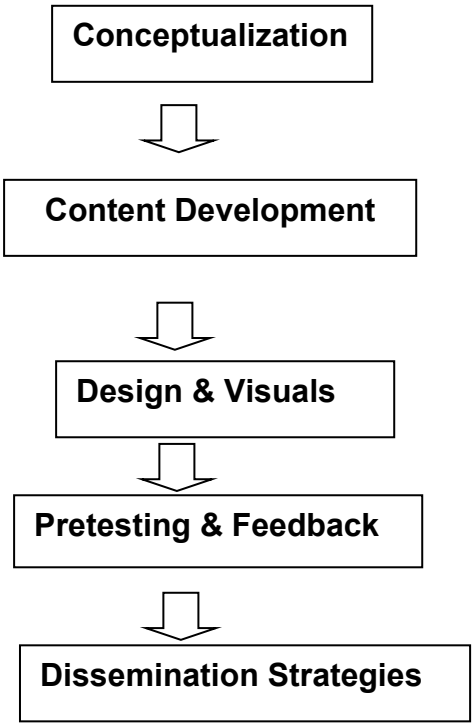
2.3 Respondents of the Study

A total of 100 respondents were considered the study's source population. Stratified random sampling was used to determine the number of respondents per Grade level, which was composed of twenty-two (22) Grade 7, twenty (20) Grade 8, twenty-three (23) Grade 9, fifteen (16) Grade 10, and nineteen Grade 11.

2.4 Data Collection Instrument

An expert-designed structured questionnaire served as the primary tool for data collection. It was structured based on the Waste Analysis and Characterization Study results. The survey was self-administered to 100 respondents, ensuring direct input from the participants. Additionally, two respondents from each grade level were selected for a focus group discussion, providing deeper insights into their perspectives. Results from both the questionnaire and the discussion were then utilized to determine the most appropriate type of IEC (Information, Education, and Communication) material to be reproduced, aligning with the needs and preferences identified through the research.

IEC Material Production Framework



Adapted from Swann, K (2022). *IEC Material Production Guidelines.*

The process follows five key stages in developing effective information, education, and communication (IEC) materials conceptualization, content development, design and visuals, pretesting and feedback, and dissemination strategies**.** Conceptualization involves identifying the target audience and crafting a clear and relevant message suited to their needs and understanding. The content development phase highlights creating engaging and informative materials through accessible language, factual accuracy, and culturally appropriate narratives once the audience and message are defined. Design and visuals are necessary to enhance comprehension and appeal, requiring thoughtful layout, impactful graphics, and effective use of color to ensure readability. Providing clarity, engagement, and inclusivity, as well as pretesting and feedback, are also conducted to allow adjustments based on audience reception. Finally, dissemination strategies determine the best platforms—print, digital, or social media—to maximize reach and impact, ensuring the material successfully informs and

influences the intended audience. IEC materials can be educational and actionable by systematically following these stages, fostering awareness and behavioral change.

2.5 Analysis of Data

The collected data were systematically organized, tabulated, and analyzed. Frequency distributions were determined to summarize the occurrence of each variable, while the mean for each item was calculated to provide a measure of central tendency, facilitating a more precise interpretation of the dataset.

4. Results and Discussion

Perceived Learning Styles

Knowing students' preferred learning styles is important in making effective educational strategies. As shown in Table 1, the majority of the respondents agreed

Table 1. Distribution of Perceived Learning Styles of Respondents

LEARNING STYLE	Strongly Agree		Agree		Disagree		Strongly Disagree	
	f	*%*	*f*	*%*	*f*	*%*	*f*	*%*
Visual Learning Style	31	*31%*	53	*53%*	13	*13%*	3	*3%*
Auditory Learning Style	21	*21%*	64	*64%*	14	*14%*	1	*1%*
Kinesthetic Learning Style	19	*19%*	53	*53%*	24	*24%*	4	*4%*
Reading/Writing	32	*32%*	58	*58%*	10	*10%*	0	*0%*

with each of the learning styles - Visual, Auditory, Kinesthetic, and Reading/Writing. The students may not have a single dominant learning style but are adaptable, drawing from different styles depending on the context. This is common—many students use a blend of visual, auditory, reading/writing, and kinesthetic approaches. This could also mean that the students may not yet have a strong understanding of how they learn best. This is typical, especially if they have not been given much time or opportunity to intentionally explore different styles.

Students might agree with all the styles to some degree because each one can work**,** depending on the subject, teacher, or activity. For example, they may learn science better through hands-on (kinesthetic) activities but prefer visuals for history. They may recognize that each style has its merits but do not feel passionately aligned with anyone. This could indicate a general openness or a moderate preference without a clear favorite. Knowing students' learning styles helps design IEC materials on recycling that are more engaging and effective. By matching content to how students learn best —visuals, audio, reading, or hands-on activities—the IEC designer increases understanding and encourages real behavior change. It also ensures the message reaches everyone, making the campaign more inclusive and impactful. This was also supported by the respondents answer during the focus group discussion that learners have varied learning styles. While some learn best through reading and writing, others prefer visuals or auditory methods. However, many respondents expressed that they understand concepts better through hands-on learning.

Similarly, a related study highlights that students often exhibit a mix of learning styles rather than a single dominant one. Saul McLeod, in his 2025 study on Kolb's Learning Style and Experiential Learning Cycle, stated that Kolb's Learning Theory explains that different people naturally prefer a certain single learning style, and various factors, such as social environment, educational experiences, or the basic cognitive structure of the individual, influence a person's preferred style.

Moreover, in the study on community-based social marketing, McKenzie-Mohr (2011) emphasizes the significance of adapting communication to fit the target audience to specific learning styles to facilitate lasting behavioral change, such as adopting sustainable practices, which highlights the essence of personalized communication strategies in influencing individuals' engagement and retention of information.

Table 2. Weighted Mean Scores Indicating Students' Preferred Learning Styles in Order of Preference

LEARNING STYLE	**Wm**	***Rank***
Visual Learning Style	3.12	*1*
Auditory Learning Style	3.05	*2*
Kinesthetic Learning Style	2.87	*3*

Aligning with these perspectives, Table 2 shows the weighted mean scores of respondents' preferred learning styles, ranking them according to their preferences. The results show that Visual Learning Style outscored among the learning styles, with a weighted mean of 3.12**,** followed by Auditory (3.05), Kinesthetic (2.87), and Reading/Writing (2.72) learning styles. These data mean that respondents preferably respond to visual stimuli strengthening the effectiveness of educational materials. These findings highlight the necessity of adapting communication strategies to align with students' cognitive preferences. Through these, educators and communicators can foster a more dynamic and engaging learning environment, ultimately enhancing knowledge retention and comprehension in recycling efforts.

Quejado's study on Teacher Education Students' Preferred Learning Styles in the New Normal: Basis for Enhancing Pedagogies (2022) supports this result. It also showed that male and female teacher education students scored highest on the visual learning style, meaning they learn best when shown instructional materials in pictures and videos.

Perceived Type of Literacy

In developing IEC, understanding on the perceived type of literacy is significant. It equips individuals with the skills to effectively access, understand, and use information.

Table 3. Distribution of Perceived Type of Literacy of Respondent

LITERACY	**Strongly Agree**		**Agree**		**Disagree**		**Strongly Disagree**	
	f	%	*f*	%	*f*	%	*f*	*%*
Functional Literacy	37	*37%*	53	*53%*	9	*9%*	1	*1%*
Basic Literacy	29	*29%*	61	*61%*	7	*7%*	3	*3%*
Proficient Literacy	24	*24%*	56	*56%*	18	*18%*	2	*2%*
Advance Literacy	18	*18%*	54	*54%*	26	*26%*	2	*2%*

Table 3 presents the distribution of respondents' perceived literacy types offering insights into their self-assessed skills across different literacy domains.

The majority of the respondents agreed with each of the literacy types - Functional, Basic, Proficient, and Advanced. If students agreed (but did not strongly agree) with each literacy type—Functional, Basic, Proficient, and Advanced—it may suggest that they are still exploring or unsure of their actual literacy level. Also, they may see themselves in between levels, not fully identifying with just one. Or that their confidence in their literacy skills might be moderate, not strong. Lastly, the categories may not have been clearly distinguished from one another in their understanding.

Knowing students' literacy types helps tailor IEC materials on recycling to match their ability to understand and act on information. This ensures the message is both accessible and effective, improving understanding and encouraging participation in recycling efforts.

In the flood of new information, individuals must recognize and use the information correctly (Mandusic, Dubravka, et al. (2013). Different literacy types are important for specific IEC needs, with foundational skills like critical thinking and digital literacy necessary for navigating complex information landscapes.

On the other hand, proficient literacy goes beyond basic understanding and encompasses creative and critical thinking skills, enabling individuals to analyze complex texts and data, as cited by Armea et al. (2022) in their research on English proficiency and literary competence. Therefore, IEC materials for this group can

incorporate detailed guides, statistical graphs, and in-depth discussions to stimulate their analytical capabilities.

For those exhibiting advanced literacy, which includes multiliteracies such as digital, ecological, and cultural literacy, the approach shifts significantly. This level reflects the ability to adapt to varied contexts and technologies, emphasizing the ability to synthesize information, evaluate arguments, and navigate diverse environments (Murnane et al., 2012). Consequently, IEC materials for advanced learners can leverage interactive platforms, multimedia content, and culturally relevant narratives, ensuring deeper engagement and resonance.

Moreover, behavior change through literacy is a critical aspect of effective communication. Research on community-based social marketing by Nasution and Setianingrum (2022) emphasizes the importance of tailoring communication to literacy levels. By aligning messages to the audience's literacy skills, IEC materials foster inclusivity and encourage meaningful participation, particularly in campaigns like recycling initiatives.

Table 4. Weighted Mean Scores Indicating Students' Perceived Literacy Type

LITERACY	**Wm**	***Rank***
Functional Literacy	3.26	*1*
Basic Literacy	3.16	*2*
Proficient Literacy	3.02	*3*
Advance Literacy	2.88	*4*

In addition, Table 4 presents the weighted mean scores of students' perceived literacy types, ranking them based on their responses. This data serves as an essential reference for educators, helping to identify areas of strength and potential gaps in literacy development, ultimately guiding the enhancement of instructional strategies and learning interventions.

The table indicates that students' perceived literacy types are ranked in the following order: Functional Literacy (3.26), Basic Literacy (3.16), Proficient Literacy (3.02), and

Advanced Literacy (2.88). This suggests that most students identify with functional and basic literacy, which emphasizes the ability to understand and apply everyday information in practical contexts.

Table 5. Preferred Channel Among Respondents

	f	**%**	**f**	**%**	**f**	**%**
Questions about Channel	**Electronic**		**Print**		**Interpersonal**	
As a student, what channel do you like?	28	28%	21	21%	51	51%
As a student, what channel do you have access at home?	56	56%	17	17%	27	27%
As a student, what channel do you have access at school?	12	12%	37	37%	51	51%
As a student, what channel do you think is most effective for communicating a message about recycling at home?	41	41%	22	22%	37	37%
As a student, what channel do you think is most effective for communicating a message about recycling at school?	16	16%	24	24%	60	60%

When designing an IEC material about recycling, the content should prioritize clarity and practicality. Materials must be simple, accessible, and focused on actionable steps, using clear visuals and easy-to-understand language. It is important to avoid overly complex terms and concepts, ensuring that the material resonates with the

majority of students, whose literacy levels lean toward functional and basic comprehension.

UNESCO (2017) defines functional literacy as the ability to use reading, writing, and mathematics in everyday life. This form of literacy is essential for understanding and applying practical information, such as interpreting charts and following instructions. Similarly, research emphasizes that basic literacy serves as the foundation for functional literacy, as it involves the ability to comprehend short texts and execute simple tasks effectively.

Moreover, studies on educational material design highlight the importance of simplicity and accessibility, particularly for audiences with functional and basic literacy levels. Rose and Meyer (2002) stress the use of straightforward language and clear visuals to ensure comprehension across diverse learner profiles. Building on this, Tomita (2015) underscores the effectiveness of visual aids, such as infographics, posters, and diagrams, in simplifying complex concepts. These visual elements not only capture attention but also facilitate better understanding, making them particularly suitable for IEC materials aimed at learners with functional and basic literacy levels.

Preferred Communication Channels

Effective communication plays a vital role in education, shaping how information is shared and received among students. Table 5 presents the distribution of respondents' preferred communication channels offering insights into the most commonly used platforms for accessing information and engaging with educational content.

The majority of the respondents agreed that interpersonal communication is the most effective channel for recycling messages in school. This suggests that they value face-to-face interaction, such as peer discussions, classroom talks, or group activities. They likely trust personal connections more than posters, social media, or announcements perhaps due to limited access to mass media, the internet, or digital platforms. Lastly, this could mean that they learn better through dialogue, explanation, and direct engagement rather than just receiving information passively.

It implies that designing an IEC material should include interactive elements like small group discussions, classroom talks, peer-to-peer education, or student-led demonstrations. Also, materials (e.g., flyers, props, visual aids) that support interpersonal communication should be used rather than replace it. The focus should be on engagement over exposure—encourage students to talk about, share, and act on the recycling message together. In short, design IEC materials that **s**park conversation and collaboration, not just deliver information.

Communication is the transmission of information from a source to an audience, and effective communication requires that the audience understand the message in its intended form (Fashiku, 2017). The findings of the study are supported by research conducted by Salamondra and Tracey (2021), which highlights that face-to-face interaction fosters trust, transparency, and active listening. These elements are essential for effective communication in schools, as they build stronger relationships between students, teachers, and peers, thereby enhancing the impact of messages like recycling initiatives.

Moreover, a study titled A Conceptual Review of Positive Teacher Interpersonal Communication Behaviors in the Instructional Context conducted by Fei Xie and Ali Derakhshan (2021) shows that teacher-student interactions, characterized by care, clarity, and rapport, significantly influence students' engagement and motivation. This underscores the importance of interpersonal communication in creating meaningful connections and promoting behavioral change.

This aligns with the results of the focus group discussion, wherein respondents expressed that Grade 11 and Grade 12 learners were given the opportunity to use the school computers, but there are fewer chances for learners in Grades 7 to 10. As for internet connectivity, it is sometimes strong and sometimes weak. Some of them have cellphones, while others do not. When materials are printed, some students don’t bother to read them thoroughly. Face-to-face interaction is much better as it allows for direct transfer of information.

Lastly, limited access to mass media can shift reliance to interpersonal communication as a primary channel for information dissemination. This is particularly relevant in

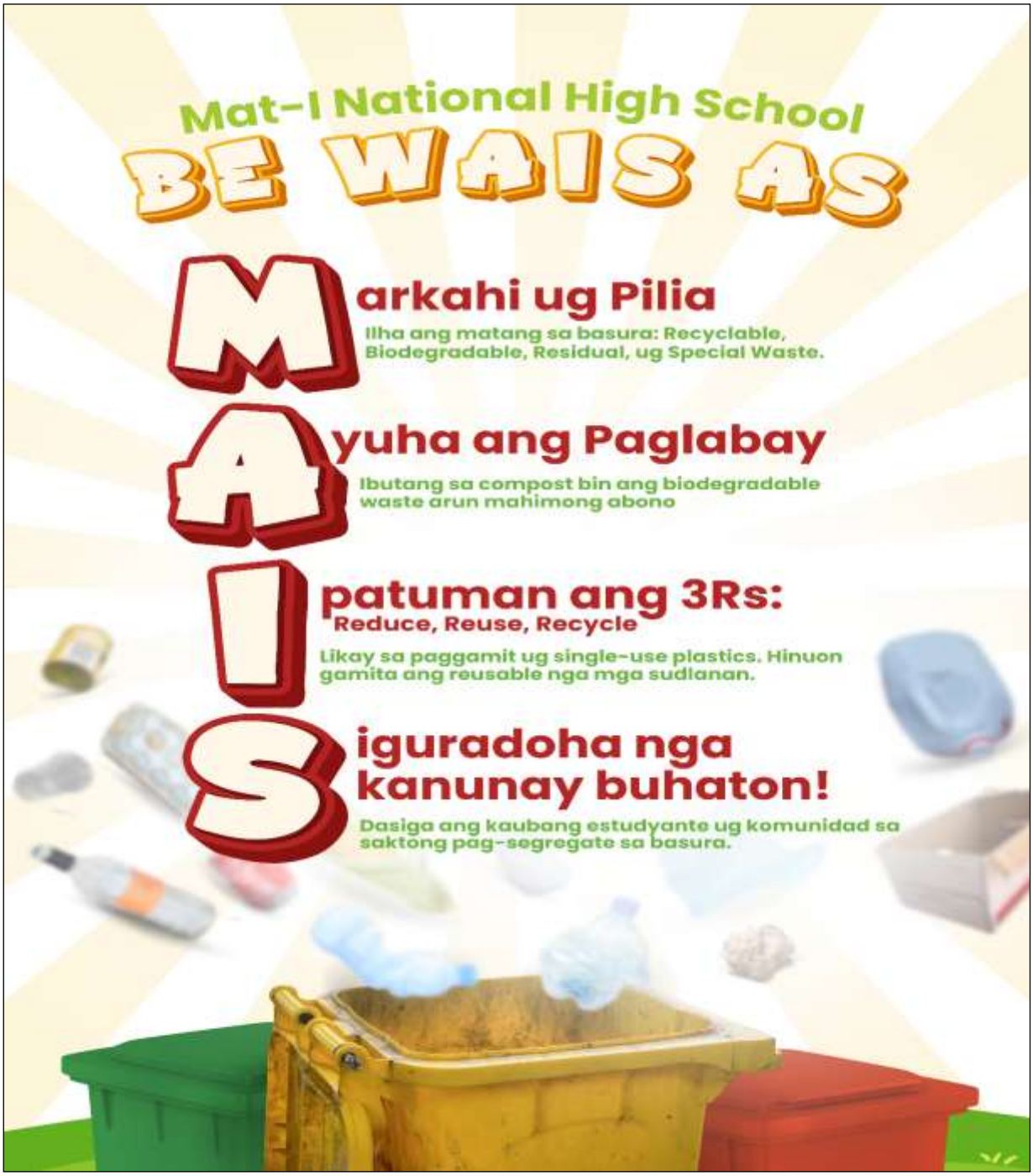
schools where digital platforms may not be widely accessible (Ocharo and Karani, 2015)

Understanding students' learning style preferences is essential in designing effective educational approaches. Table 4 presents the weighted mean scores of students' preferred learning styles, ranking them in order of preference. This data provides valuable insights into how students best absorb and process information.

Poster

Based on the survey results, a poster will be utilized as the IEC material to promote solid waste management within the school. Visual communication plays a crucial role in effectively conveying key messages to an audience. This poster serves as an IEC material designed to present essential information in a clear, engaging, and accessible format. By utilizing impactful visuals and concise messaging, it aims to raise awareness, enhance understanding, and encourage action on the topic at hand. Through this medium, we strive to make important concepts more relatable and memorable, ensuring that the intended message reaches and resonates with the target audience.

A 16.54 x 23.39-inch poster was placed at the classroom entrance, the school canteen, and near receptacle bins inside and outside the classroom, ensuring visibility in busy areas where students frequently pass by.



Be 'Wais as Mais.' The phrase "Be Wais as MaiS" seems to combine "wais," a Filipino word meaning wise or clever**,** with "Mais," which translates to "corn**"** in English. However, this poster signifies the qualities of corn, which symbolizes wisdom. Aside from being the primary crop produced by the place, MAIS, as an essential crop, grows

steadily, adapts to its environment, and provides nourishment—much like wisdom, which develops through experience, adapts to challenges, and benefits those around it. Wisdom is not just about knowing facts—it's about learning, growing, and applying knowledge in meaningful ways to help solve real-world problems related to solid waste management. The acronym MAIS was used in the campaign for waste segregation and waste management in the school.

4. Conclusions and Recommendations

Understanding students' preferred learning styles, literacy levels, and preferred communication channels are significant in developing IEC material. The study's findings revealed that students do not have a single dominant learning style. They were identified as having both functional and basic literacy, meaning that clear, straightforward messaging is essential. This flexibility suggests that IEC campaigns should incorporate multiple learning strategies—visual, auditory, kinesthetic, and reading/writing—to maximize engagement and comprehension.

Materials should focus on practical examples, simple instructions, and relatable scenarios to ensure accessibility and usability. Avoiding overly technical language will help students better understand and apply waste management effective channels for spreading recycling awareness, reinforcing the need for interactive approaches. The developed poster has it all. However, it is recommended that, instead of relying solely on posters, IEC materials should promote students' active engagement to deliver not only information but also create greater opportunities for learning through ensuring lasting behavioral change and making IEC campaigns more impactful, inclusive, and action-oriented.

5. Acknowledgements

The authors extend their heartfelt gratitude and acknowledgment to the Schools Division Superintendent of Misamis Oriental and the Local Government Unit of Claveria for granting permission to conduct the study within the areas of their respective responsibilities, as well as to the people who contributed significantly to making this paper a reality.

6. References

Abdolah, Kader (2024). Captivating Communication – Building Rapport and Engagement in Public Speaking – D Sound Pro. https://www.dsoundpro.com/2024/general/captivating-communication-building-rapport-and-engagement-in-public-speaking/

Alberto, R., Mendoza, A., & Paz-Alberto, A. (2024). *IEC Materials as Tools to Induce Climate Action as Perceived by Coastal Communities in Zambales, Philippines.* American Journal of Climate Change, **13(4),** 697-719. doi: 10.4236/ajcc.2024.134032

Arazo, R. 2015. Compositions of solid wastes generated from a School Campus. International Journal of Research in Engineering and Technology, **4**(10), 263-267.

Armea, A. P., Castro, M. P., Llamado, M. N., Lotino, R. B., San Esteban, A. A., & Ocampo, D. M. (2022). *English Proficiency and Literary Competence of English Major Students: Predictor for Effective Language and Literatu**re Teaching.*** Globus Journal of Progressive Education, 12(1), **141-151.**

Fashiku, C. O. (2017). *Effective Communication: Any Role in Classroom Teaching-Learning Process in Nigerian Schools.* Bulgarian Journal of Science & Education Policy (BJSEP), 11(1), 171-187.

Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development.* Prentice Hall.

Mandusic, D., & Blaskovic, L. (2013). *Information Literacy, Theory and Practice in Education.* Revista Romaneasca pentru Educatie Multidimensionala, 5(1), 47-58. https://ideas.repec.org/a/lum/rev1rl/v5y2013i1p47-58.html

McKenzie-Mohr, D. (2011). *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing (Third Edition).* New Society Publishers.

McStrickey, M. (2024, December 2). Supporting Diverse Learners: Identifying Pupils Who Need Content Broken Down. https://www.teachwithmrst.com/post/supporting-diverse-learners-identifying-pupils-who-need-content-broken-down

Murnane, R., Sawhill, I., & Snow, C. (2012). *Literacy Challenges for the Twenty-First Century: Introducing the Issue.* **The Future of Children, 22(2),** 3–15. doi: 10.1353/foc.2012.0013

Nasution, D. E. P., & Setianingrum, V. M. (2022). *Implementation of Community-Based Social Marketing in the Program for Increasing Disability Awareness by Komunitas Peduli Inklusi Nusantara in Blitar.* **The Commercium, 5(3),** 43–56. doi: 10.26740/tc.v5i3.48234

Ocharo, M. C., & Karani, S. E. (2015). *Effects of Mass Media on the Academic Development of Children in Primary Schools in Kenya: A Case Study of St. Alloys Junior Academy.* **Novelty Journals.**

Quejado, M. R. M., Recede, R. A. A., & Carnecer, R. B. (2022). *Teacher Education Students' Preferred Learning Styles in the New Normal: Basis for Enhancing Pedagogies.* International Journal of Multidisciplinary: Applied Business and Education Research, 3(5), 758-766. doi: 10.11594/ijmaber.03.05.04

Rose, D. H., & Meyer, A. (2002). *Teaching Every Student in the Digital Age: Universal Design for Learning.* Association for Supervision and Curriculum Development.

Salamondra, T., & Tracey, S. (2021). *Effective Communication in Schools.* BU Journal of Graduate Studies in Education, 13(1), 22-26.

Saul McLeod (2025). Kolb's Learning Style and Experiential Learning Cycle .https://www.simplypsychology.org/learning-kolb.

Smyth, D. P., Fredeen, A. L., & Booth, A. L. 2010. Reducing solid waste in higher education: The first step towards "greening" a university campus. Resources, Conservation and Recycling, 54, 1007–1016. https://doi.org/10.1016/j.resconrec.2010.02.008.

Swann, K. (2022). IEC Material Production Guidelines. https://www.behaviourchange.net/docs/iec-production-guidelines.

Tomita, K. (2015). *Principles and Elements of Visual Design: A Review of the Literature on Visual Design Studies of Instructional Materials.* Educational Studies (Institute for Educational Research and Service), 56

UNESCO (2017). *Functional Literacy and Numeracy: Definitions and Measurement Options for SDG Target 4.6.*

UNICEF (2025). *Engaging Youth on Climate Change & Environmental Sustainability.* Retrieved from UNICEF IEC Report.

Xie, F., & Derakhshan, A. (2021). *A Conceptual Review of Positive Teacher Interpersonal Communication Behaviors in the Instructional Context.* Frontiers in Psychology, 12, 708490. doi: 10.3389/fpsyg.2021.708490