Exploring Educators' Practices on the Green ICT and the School Energy Consumption and Maintenance

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ABSTRACT

Integrating Information and Communication Technology (ICT) in education has significantly enhanced teaching and learning while promoting institutional sustainability. This study employed a descriptive-quantitative and correlational research design to assess educators' perspectives on Green ICT implementation and its impact on sustainable ICT practices in elementary schools within the DepEd Koronadal City Division, South Cotabato, for the 2024-2025 school year. A total of elementary school teachers participated, meeting specific inclusion criteria. Data analysis utilized statistical measures and correlation analysis to determine the relationship between ICT availability and Green ICT practices. Findings indicated that most schools were well-equipped with ICT facilities, and certain tools, such as messaging platforms, remain less accessible. Teachers exhibited awareness of energy-saving practices, including turning off ICT equipment and using power-saving features. However, there was less consistency in unplugging devices and utilizing energy-efficient ICT tools. These findings suggest that while some Green ICT practices were followed, implementation is room for improvement. Moreover, teachers demonstrated a moderate understanding of Green ICT maintenance, with stronger awareness in disposal practices but lower comprehension of sustainable procurement and repair strategies. The study also observed a significant decline in energy consumption over recent years, indicating successful energy-saving initiatives and improved efficiency measures. Additionally, a strong positive correlation was found between ICT availability and Green ICT practices, highlighting the importance of infrastructure and training in promoting sustainable digital strategies in education. This study underscores the need for continuous efforts to strengthen Green ICT implementation, improve access to necessary digital tools, and enhance teachers' knowledge of sustainable ICT practices to optimize school energy efficiency and environmental responsibility.

INTRODUCTION

Background of the Study

In recent years, integrating Information and Communication Technology (ICT) in educational settings has become increasingly prevalent worldwide. This integration enhances teaching and learning experiences and contributes to academic institutions' overall efficiency and sustainability. Within this context, Green ICT has emerged as a crucial area of interest. Green ICT aims to minimize the environmental impact of ICT use while maximizing its educational benefits. Green ICT involves adopting environmentally sustainable practices and technologies in ICT infrastructure, operations, and usage within academic institutions.

The advancement of technology, particularly in ICT, has revolutionized teaching and learning processes in educational institutions worldwide (UNESCO, 2019). Integrating ICT tools and resources into educational settings has facilitated access to information, enhanced collaboration and communication, and personalized student learning experiences (Ally, 2019). However, the widespread adoption of ICT has also raised concerns about its environmental impact, including energy consumption, electronic waste generation, and carbon emissions (Cherian & Jacob, 2014).

Green ICT has gained traction in response to these environmental challenges, emphasizing the importance of adopting sustainable practices and technologies in ICT usage (Khatun et al., 2020). Green ICT initiatives encompass various strategies, such as optimizing energy efficiency, reducing electronic waste, promoting recycling, and utilizing renewable energy sources (Yeo & Goh, 2019). In educational settings, the implementation of Green ICT holds the potential to lessen the misuse of ICT and encourage learners and educators to use it properly.

Despite the potential benefits of Green ICT in educational settings, its successful implementation may be hindered by various obstacles, including technological barriers, financial constraints, lack of awareness, and resistance to change (UNEP, 2018). Additionally, cultural, institutional, and policy factors may influence educators' perceptions and practices regarding adopting Green ICT initiatives (Kang & Lee, 2019). Therefore, it is essential to explore educators' perceptions of the advantages and obstacles in implementing Green ICT to inform the development of effective strategies for promoting sustainable ICT practices in education.

While research on Green ICT in educational settings has proliferated in recent years, there remains a paucity of studies specifically focusing on educators' perceptions of its implementation. Existing literature predominantly examines the technical aspects and environmental impacts of Green ICT, overlooking the perspectives of key stakeholders, such as teachers and administrators (Nguwi et al., 2021). Consequently, there is a research gap concerning the subjective experiences, attitudes, and challenges educators face in adopting and integrating Green ICT initiatives into their teaching practices.

Furthermore, most studies on Green ICT in education are conducted in developed countries, neglecting the unique contextual factors and challenges in developing countries such as the Philippines (Tetteh et al., 2021). Thus, research that explores educators' perceptions in diverse socio-cultural and economic contexts, including those in the Philippines, is needed to give a proper idea of the good and bad effects of Green ICT in education.

By addressing these research gaps, this study aims to contribute to the existing literature by offering insights into educators' perspectives on Green ICT implementation, informing policy and practice for promoting sustainable ICT use in education internationally and in the Philippines.

Theoretical and Conceptual Framework

Below are the three theoretical frameworks that support the study. First, the Technology Acceptance Model (TAM), developed by Davis (1989), is a widely used theoretical framework for understanding individuals' acceptance and adoption of new technologies. It posits that perceived usefulness and ease of use are key determinants of an individual's attitude toward using a particular technology, influencing their intention to use it. In the context of the study, educators' perceptions of the advantages and obstacles in implementing Green ICT can be examined through the lens of TAM. Specifically, the study can explore how educators perceive the usefulness of Green ICT in enhancing teaching and learning outcomes and their perceived ease or difficulty in integrating Green ICT into their instructional practices.

Second, Innovation Diffusion Theory (IDT) was introduced by Rogers (1962) and gives a structure of ideas on how innovations work, such as Green ICT initiatives, are embraced and spread within a community system. According to IDT, the embrace method follows a bell curve, with innovators and early adopters at one end, the early and late majority in the middle, and laggards at the other. The theory also identifies key factors influencing the adoption of innovations, including perceived attributes of the innovation, communication channels, social networks, and the context within which the innovation is introduced. In the study context, IDT can explore educators' perceptions of the advantages and obstacles in adopting Green ICT and the factors that facilitate or inhibit the diffusion of Green ICT initiatives within educational settings.

Finally, the Social Cognitive Theory (SCT)**, introduced by Bandura (1986), emphasizes the reciprocal interaction between individuals, their environment, and their behavior. It posits that individuals learn by **observing others** (social modeling), experiencing the consequences of their actions (self-efficacy), and through the influence of external factors such as social norms and environmental conditions. In the context of

the study, SCT can be applied to examine how educators' perceptions of the advantages and obstacles in implementing Green ICT are shaped by their social environment, past experiences with ICT integration, and their beliefs about their capabilities to effectively utilize Green ICT tools and resources in their teaching practices.

Statement of the Problem

This study explored the educators' perspectives on Green ICT implementation, informing policy and practice for promoting sustainable ICT use in education in Koronadal City Division, South Cotabato. It addressed the following questions:

1. What is the degree of availability of the ICT facilities in the school?

2. To what level do teachers practice Green ICT?

3. How well do teachers practice the maintenance of Green ICT in school settings?

3.1. acquisition;

3.2. repair and trade in; and

3.3. disposal?

4. What is the school's annual energy consumption rate for the last 3 years?

5. Is there a significant relationship between availability of ICT facilities and ICT practices?

6. Is there a significant relationship between teachers, practices and understanding the maintenance as Green ICT?

Significance of the Study

The study on educators' perceptions of implementing Green ICT in educational settings holds significant implications for DepEd Koronadal City, school administrators, teachers, and future researchers. By understanding the advantages and obstacles associated with Green ICT integration, stakeholders can collaborate efforts to make a more sustainable and technology-enhanced learning environment for students:

DepEd Koronadal City. This can help to update policy improvement and decision-making processes related to integrating Green ICT in educational settings. Understanding educators' perceptions of the advantages and obstacles can help DepEd Koronadal City tailor its strategies and initiatives to effectively support the implementation of Green ICT across the city's schools. Moreover, the study can assist DepEd Koronadal City in designing professional development programs to enhance educators' knowledge and skills in utilizing Green ICT for teaching and learning.

School Management. This research can raise school management's awareness of the benefits and challenges of implementing Green ICT. With this information, administrators can develop comprehensive plans and allocate resources to address obstacles and maximize the advantages of Green ICT integration. Additionally, school administrators can use the study findings to foster a culture of environmental sustainability by promoting eco-friendly technology use among staff and students.

Teachers. This gives teachers an additional understanding of their perceptions of Green ICT, which can help identify their training needs, challenges, and opportunities for professional growth. By recognizing the advantages of Green ICT, teachers can leverage these technologies to enhance teaching effectiveness, student

engagement, and learning outcomes. Moreover, awareness of potential obstacles can empower teachers to address issues proactively and seek support from administrators and educational stakeholders. The study findings can also inspire collaboration among teachers to share best practices and innovative strategies for integrating Green ICT in their classrooms.

Future Researchers. This research can guide you through the multifaceted aspects of implementing Green ICT in educational settings. Future researchers can build on the results of this study to explore in more detail issues such as the environmental aftermath of Green ICT initiatives, the role of policy frameworks in promoting sustainability practices, or the effectiveness of professional development programs for educators. Future researchers can contribute to the ongoing dialogue on sustainable education and technology integration by expanding the body of knowledge in this field.

Scope and Delimitation of the Study

This study focused only on educators (teachers, administrators, and staff) within the Department of Education (DepEd) in Koronadal City. It investigates their perceptions regarding implementing Green ICT practices within educational settings. The study was limited to educators within the geographical jurisdiction of Koronadal City under the DepEd administration.

It involved educators from various educational institutions under DepEd Koronadal City, including public schools, private schools, and alternative learning institutions. The primary focus was understanding educators' perceptions of the advantages and obstacles associated with integrating Green ICT in educational settings. The study primarily examined the context of academic institutions such as schools, learning centers, and administrative offices within DepEd Koronadal City.

Consequently, the study acknowledged any time limitations that may affect the data collection and analysis depth. It may not capture longitudinal changes or developments in educators' perceptions. The research was conducted within the constraints of available resources, including funding, time, and personnel, which may limit the scale or depth of the study.

Definition of Terms

These operational definitions provide clarity and context for the key terms used within the study:

Advantages refer to the perceived positive outcomes, benefits, or enhancements associated with integrating and utilizing Green ICT within educational settings, as articulated by educators from DepEd Koronadal City through their experiences, observations, or reflections.

Annual Energy Consumption refers to the total amount of energy (in kilowatt-hours or other relevant units) used by the school facilities, including classrooms, offices, and ICT equipment, over one year. It encompasses all energy sources utilized within the school environment, focusing on how educators' practices influence energy-saving measures and how Green ICT initiatives can reduce overall energy usage within the school.

Green ICT refers to the Information and Communication Technology (ICT) practices, tools, and methodologies specifically designed or adapted to reduce environmental impact, promote sustainability, and foster eco-friendly behaviors within educational institutions, as identified and understood by educators within DepEd Koronadal City.

Maintenance refers to the regular activities performed by school personnel and educators to ensure the proper functioning, upkeep, and sustainability of school infrastructure, particularly information and communication technology (ICT) equipment. It includes routine inspections, repairs, upgrades, and preventative measures that aim to reduce energy consumption and improve the lifespan of ICT resources by using Green ICT practices.

Obstacles refer to the perceived challenges, barriers, limitations, or hindrances educators encounter within DepEd Koronadal City while implementing and adopting Green ICT initiatives in educational environments, as reported through their narratives, opinions, or discussions.

Support or Resources refer to the tangible and intangible assistance, materials, facilities, or guidance provided to educators within DepEd Koronadal City to facilitate the effective integration and implementation of Green ICT practices in their teaching methodologies and curriculum development processes.

Teachers' Perceptions refer to the beliefs, attitudes, and understandings held by educators within DepEd Koronadal City regarding the concept, relevance, and implications of Green ICT implementation in educational settings, as elucidated through qualitative interviews, surveys, or focus group discussions.

Teaching Practices refer to the methods, techniques, strategies, and approaches employed by educators within DepEd Koronadal City to deliver educational content, engage students, assess learning outcomes, and promote academic achievement, as influenced by their experiences, training, pedagogical beliefs, and contextual factors within the educational setting.

REVIEW OF RELATED LITERATURE AND STUDIES

This literature and thematic review explore key concepts related to the study. The review focuses on green ICT, the proper use of ICT in school settings, and the obstacles to implementing it in the field of work. Each section addresses relevant theories, research findings, and practical implications, establishing a foundation for Green ICT and school energy consumption.

Green Information and Communication Technology (ICT)

Green ICT refers to integrating environmentally sustainable practices into designing, manufacturing, using, and disposing of information and communication technology (ICT) products and services (Olaleye et al., 2021). It aims to reduce the environmental impact of ICT infrastructure and operations while promoting sustainability and eco-friendly practices. Over the past few years, there has been growing interest and research focused on Green ICT due to the increasing awareness of environmental issues and the significant carbon footprint associated with ICT-related activities (Chen et al., 2020).

One of the primary concerns Green ICT addresses is the energy utilization of ICT infrastructure and devices. According to a study by (Akkaya et al.,2019), the energy consumption of ICT equipment continues to rise globally, contributing to significant carbon emissions. Improving energy efficiency in ICT has focused on developing low-power hardware components, optimizing software algorithms, and implementing energy-saving strategies in data centers and networks (Beloglazov et al., 2018).

Another important aspect of Green ICT is adopting renewable energy sources to power ICT infrastructure. Research by Rana et al. (2020) highlights the potential of renewable energy technologies, such as solar and wind power, to mitigate the environmental impact of ICT operations. By integrating renewable energy sources into data centers and telecommunications networks, organizations can reduce their reliance on fossil fuels and decrease carbon emissions (Rana et al., 2020). This modification is directed to an eco-friendly use of ICT to help reduce energy consumption by being a more disciplined citizen in the field of work.

Green ICT also addresses the issue of electronic waste (e-waste) generated from discarded ICT products. According to a report by United Nations University (2019), the rapid proliferation of electronic devices has led to a surge in e-waste generation, posing environmental and health hazards. Green ICT initiatives emphasize the importance of sustainable design, product lifecycle management, and recycling programs to minimize e-waste and promote circular economy principles (United Nations University, 2019). By extending the lifespan of ICT products and encouraging responsible disposal practices, organizations can reduce the environmental impact of e-waste and conserve valuable resources.

Advances in ICT have also enabled the development of smart infrastructure and sustainable practices in various sectors, including transportation, energy, and urban planning. For example, the smart grid is using technologies such as ICT to upgrade energy distribution, reduce wastage, and incorporate alternative sustainable power generation resources. (Yousaf et al., 2018). Similarly, smart transportation systems utilize ICT to improve traffic management, enhance public transportation efficiency, and reduce carbon emissions (Zhao et al., 2021). These smart solutions contribute to environmental sustainability by optimizing resource utilization, minimizing environmental impact, and promoting sustainable development.

Implementation of Green ICT in school settings

Green ICT practices in schools contribute to reducing carbon footprint and promoting environmental sustainability. According to research by Akkaya et al. (2019), adopting energy-efficient ICT equipment and renewable energy sources in educational institutions helps mitigate greenhouse gas emissions and conserve natural resources. It aligns with global efforts to address climate change and promote sustainable development goals (SDGs) (UNESCO, 2018).

Also, implementing Green ICT initiatives can lead to significant cost savings for schools. Schools can reduce electricity bills and operational expenses by optimizing energy consumption, implementing power management strategies, and utilizing energy-efficient devices (Rana et al., 2020). A study by Tahir et al. (2019) highlights that cost-effective ICT solutions, such as cloud computing and virtualization, can help schools achieve financial savings while supporting environmental sustainability goals.

Further, Green ICT integration provides educational opportunities for students to learn about environmental issues, sustainability principles, and technology innovations. Through hands-on activities, projects, and curriculum integration, students can develop skills in digital literacy, critical thinking, and environmental stewardship (Rana et al., 2020). Research by Vidal et al. (2021) emphasizes the importance of incorporating Green ICT topics into school curricula to raise awareness and empower students to become change agents for a sustainable future.

Furthermore, Green ICT initiatives in schools foster community engagement and collaboration. Schools can partner with local governments, businesses, and non-profit organizations to implement environmental programs, promote eco-friendly practices, and participate in green initiatives (Tahir et al., 2019). Hence, implementing Green ICT in schools can influence policy advocacy and drive systemic change at the national and international levels. By showcasing successful case studies, demonstrating measurable impacts, and advocating for policy reforms, schools can influence government policies, regulations, and funding priorities related to ICT and environmental sustainability (UNESCO, 2018). Research by Zaka et al. (2020) underscores the role of educational institutions in shaping policy agendas and advancing sustainability initiatives through research, advocacy, and partnerships.

Obstacles to the Implementation of Green ICT in School Settings

One significant obstacle to implementing Green ICT in schools is the limited awareness and understanding of its benefits and practices among educators and administrators. Many schools may lack awareness of the environmental impact of ICT use and the potential for Green ICT to mitigate it (Hoffman et al., 2019). In the Philippine context, this obstacle may be exacerbated by limited access to resources and training on sustainability initiatives (Torres & San Diego-McGlone, 2018).

Also, Financial limitations often pose a significant barrier to adopting Green ICT practices in schools. The upfront costs associated with upgrading to energy-efficient equipment, implementing renewable energy solutions, or establishing e-waste management systems can be prohibitive for cash-strapped educational institutions (Cheng et al., 2019). In the Philippines, where public education funding may be insufficient, budget constraints can further impede efforts to invest in Green ICT infrastructure (Lontoc & Resuello, 2019).

Many institutions, mostly in rural areas or overlooked places, lack vital facilities and supplies to support Green ICT initiatives. It includes inadequate access to reliable electricity, internet connectivity, and ICT hardware (Feng et al., 2018). In the Philippines, disparities in infrastructure development between urban and rural areas exacerbate this challenge, making it difficult for schools in remote regions to implement Green ICT effectively (Datu & Endozo, 2020).

Moreover, resistance to change among educators, administrators, and other stakeholders can hinder the adoption of Green ICT practices in schools. Resistance may stem from a reluctance to depart from traditional teaching methods, concerns about the feasibility or effectiveness of Green ICT solutions, or fear of disrupting existing workflows (Huang et al., 2020). Overcoming resistance to change requires effective communication, stakeholder engagement, and capacity-building efforts (Rahayu et al., 2021).

In some cases, policy and regulatory frameworks may present barriers to implementing Green ICT in schools. It includes outdated or restrictive regulations that fail to incentivize or mandate adopting environmentally sustainable practices (Sánchez-Bayo & Wyckhuys, 2019). In the Philippines, policy inconsistencies, bureaucratic red tape, and a lack of enforcement mechanisms can hinder efforts to promote Green ICT adoption in the education sector (Cuenca et al., 2018)

Addressing these obstacles requires a concerted effort from policymakers, educators, industry stakeholders, and civil society organizations. Strategies to overcome these challenges may include raising awareness and providing training on Green ICT practices, allocating funding for Green ICT initiatives, improving infrastructure development and access to resources, fostering a culture of innovation and collaboration, and advocating for supportive policy reforms at the local and national levels.

Integration of Information and Communication Technology (ICT) in school settings

The inclusion of Information and Communication Technology (ICT) in school settings has become a global trend over the past few years, with various countries, including the Philippines, embracing digital technologies to enhance teaching and learning experiences.

In many countries, digital learning platforms have become increasingly prevalent tools for delivering educational content and facilitating remote learning. According to a study by the OECD (2019), digital platforms offer personalized learning experiences, interactive resources, and collaboration tools that support student engagement and achievement. Countries like Finland and Singapore have implemented national initiatives to promote the use of digital platforms in schools, focusing on enhancing academic results and equipping learners for the digital revolution (OECD, 2019).

Several countries have implemented 1:1 device programs, providing each student with a personal computing device, such as a laptop or tablet, for educational purposes. Research by Ertmer et al. (2020) highlights the benefits of 1:1 device programs in enhancing student learning outcomes, promoting digital literacy, and fostering 21st-century skills. Countries like South Korea and the United States have invested significantly in 1:1 device initiatives to bridge the digital divide and ensure equitable access to technology-enhanced education (Ertmer et al., 2020).

The Department of Education (DepEd) in the Philippines has been actively promoting the integration of ICT in schools through various initiatives and programs. According to a report by DepEd (2021), the agency has implemented the DepEd Information and Communications Technology Unit (ICTU) to oversee ICT integration efforts, develop ICT policies, and provide technical support to schools. DepEd has also launched the School-Based ICT Support Program to train teachers in ICT skills and promote using digital resources in teaching and learning (DepEd, 2021).

In response to the COVID-19 pandemic, the Philippines has adopted a blended learning approach, combining face-to-face classes with online and offline learning modalities. Research by Dela Rosa et al. (2020) discusses

the challenges and opportunities of blended learning implementation in Philippine schools, highlighting the importance of teacher training, infrastructure development, and student support mechanisms. DepEd has rolled out various initiatives, such as the Learning Continuity Plan and the Learning Management System, to facilitate blended learning delivery and ensure continued access to education during the pandemic (Dela Rosa et al., 2020).

In conclusion, integrating ICT in school settings has become a global phenomenon, with countries worldwide embracing digital technologies to enhance educational practices and outcomes. From digital learning platforms and 1:1 device programs to blended learning approaches, ICT integration initiatives aim to empower educators, engage students, and prepare future generations for success in the digital age.

Synthesis

Green ICT encompasses a range of strategies and initiatives to reduce the environmental impact of ICT operations and promote sustainability. From improving energy efficiency and integrating renewable energy sources to managing e-waste and fostering smart infrastructure, Green ICT offers opportunities for organizations to minimize their carbon footprint and contribute to environmental conservation. Implementing Green ICT in school settings provides a range of advantages, including environmental sustainability, cost savings, educational opportunities, community engagement, and policy advocacy. By leveraging technology for ecological conservation and integrating sustainability principles into education, schools can empower students, inspire communities, and contribute to building a more sustainable and resilient future.

METHODOLOGY

This chapter describes the study's research design and methods. It also discusses the instrumentation, the analysis method, and other qualitative processes used in the study.

Research Design

The study used a descriptive and correlational research design to determine the educators' educators on Green ICT implementation, thereby influencing the practice and promotion of sustainable ICT use in education in Koronadal City Division, South Cotabato, for the school year 2024-2025.

Bhandari (2021), Correlational research is crafted to scrutinize the connection between variables, excluding the researcher influencing or directing them. Additionally, a correlation shows the power and path of the connection among two (or more) variables. The path of a correlation is possibly either beneficial or detrimental. The correlational study is optimal for collecting facts faster than the normal way that supports the conclusion and results. Researchers can apply them daily beyond reliable methods.

Locale of the Study

This study was conducted among elementary schools in DepEd Koronadal City. It is a strategic location for this research as it offers a mix of rural and semi-urban educational settings within the Philippine public school system. This aimed to the educators on Green ICT implementation in educational settings.

The city's approach toward integrating environmental sustainability in education justifies the selection of DepEd Koronadal City as the locale for the study on educators regarding Green ICT and school energy consumption. Koronadal City, the regional center of Region XII, has been at the forefront of adopting innovative educational practices and policies, including promoting energy efficiency in schools and integrating ICT in teaching and learning (DepEd Koronadal City, 2022). Moreover, the schools in this area represent diverse educational environments, making them suitable for exploring the practical application of Green ICT initiatives across different school settings.

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Additionally, focusing on elementary schools in DepEd Koronadal City provided valuable insights into the early adoption of sustainable practices at the foundational level of education, where the impact of ICT and energy-saving initiatives can be maximized. By investigating these schools, the study can contribute to broader discussions on how sustainable ICT practices can be scaled up across the education sector in the Philippines (UNESCO, 2020). See the map below:

Locale of the Study

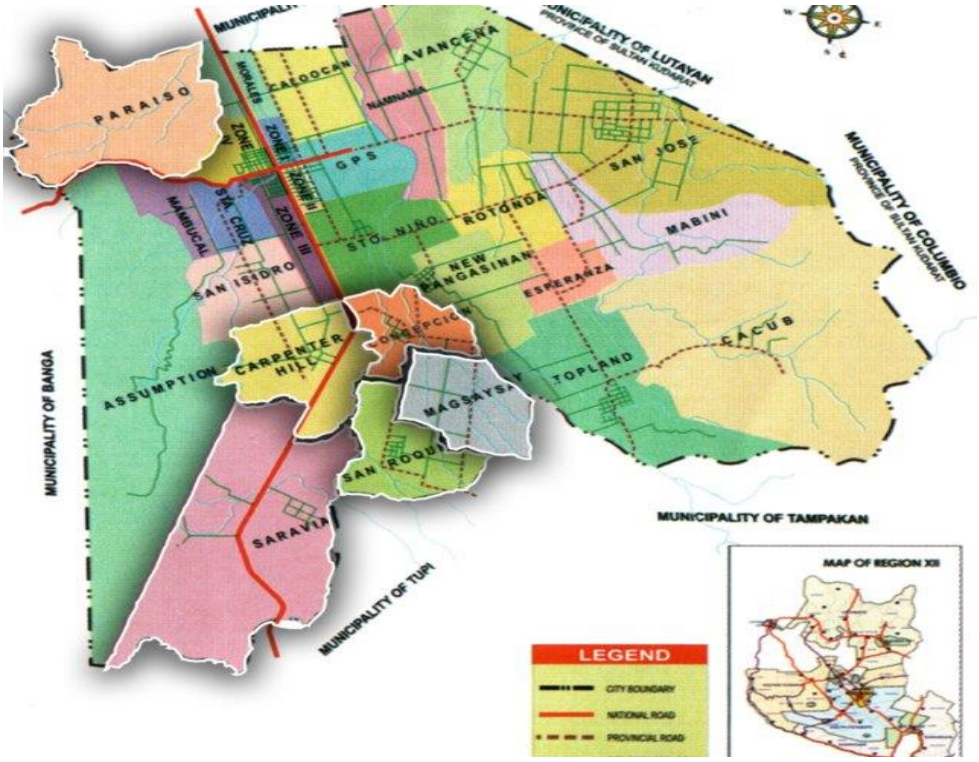


Figure 1 Source: Map of Koronadal City (2019).

Respondents of the Study

Table 1 displays the respondents as determined by the criteria established by the researcher before selecting eligible informants for the study. The study involved three hundred thirty-three (330) teachers from elementary schools in DepEd Koronadal City who meet the research inclusion criteria. Inclusion criteria for elementary teacher-participants in the study on Green ICT implementation in Koronadal City Division, South Cotabato, using a Qualitative-Phenomenological Research Design was also employed for the Elementary school teachers who have been actively teaching in Koronadal City Division, South Cotabato, for at least two years to ensure they have sufficient experience with the educational context and potential exposure to ICT integration initiatives.

Teachers who have integrated ICT into their teaching practices to some extent, either through educational software, digital resources, online platforms, or other ICT tools, demonstrate familiarity and engagement with technology in educational settings.

Participants who express an interest in environmental sustainability and demonstrate a willingness to explore the implementation of Green ICT practices in their teaching and school environment. Teachers who voluntarily agree to participate in the study ensure that they are willing to share their perspectives and experiences related to Green ICT implementation without coercion or external pressure.

Teachers can participate in qualitative data collection activities, such as individual interviews or focus group discussions, at scheduled times convenient for both the participants and the researchers.

Table 1. Respondents of the Study

Respondents	Population	Sample	Total
Teachers	926	330	330
School Heads	20	20	20
TOTAL	946	350	350

Sampling Technique

During this study, a Simple Random Technique was utilized to carefully select 330 elementary teachers from among 926 teachers in DepEd Koronadal City. The researcher also used specified inclusion criteria to select the most reliable participants. The use of the Simple Random Sampling Technique to select 330 elementary teachers from a total of 926 elementary school teachers in DepEd Koronadal City is justified as it ensures that every teacher has an equal chance of being chosen, which minimizes selection bias and enhances the representativeness of the sample (Etikan et al., 2016).

This method is effective in studies where the population is relatively homogeneous regarding key characteristics, such as teaching experience and involvement in Green ICT practices, making it an ideal approach for this research. By applying specified inclusion criteria, the study ensured that only the most reliable and relevant participants—those with experience with energy consumption and maintenance practices—were selected, thereby improving the validity of the findings (Taherdoost, 2018).

On the other hand, Total Enumeration was used to consider all the school heads in the DepEd Koronadal City Division. The total Enumeration Sampling Technique is suitable for selecting all school heads in District I of DepEd Koronadal City Division. This approach is justified because the population of school heads is relatively small and manageable, and their inclusion is critical to capturing comprehensive data on leadership perspectives and decision-making processes related to energy consumption and Green ICT initiatives (Creswell & Creswell, 2018). By considering all school heads, the study can obtain a more holistic understanding of the administrative and strategic roles in implementing energy-saving measures and maintaining ICT systems across schools in the district.

Research Instruments

This study used an observational checklist to assess the practices within organizations. The objective is to explore the educators' Green ICT implementation, informing policy and practice for promoting sustainable ICT use in education in Koronadal City Division, South Cotabato. There were five indicators for degree of availability and six indicators for teachers green teaching practices which originally developed and validated by experts on the energy consumption is taken as secondary data of the overall bill charged in every school.

Degree of the Availability of the Ict Facilities in the Workplace

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Fully Available	All the facilities are present in the workplace
3	2.52-3.26	Partially Available	Nearly complete facilities
2	1.76-2.51	Limited Availability	Limited facilities are present
1	1.00-1.75	Least Available	Not accessible at all

Level of Teachers' Practices Related To Green Ict

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Excellent	At 90-100% observed
3	2.52-3.26	Good	At 60-80 % observed
2	1.76-2.51	Fair	At 30-50 % observed
1	1.00-1.75	Poor	At 20% or less observed

Level of Teachers' Understanding of the Maintenance of Green Ict in the School Settings

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of the Green ICT maintenance is clearly understand
3	2.52-3.26	Agree	51-75% is clearly understand
2	1.76-2.51	Fairly Disagree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

Level of Teachers' Understanding of the Maintenance of Green Ict in the School Settings In Terms Of Repair and Trade-In

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of knowledge repair and trade-in
3	2.52-3.26	Agree	51-75% of knowledge
2	1.76-2.51	Fairly Disagree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

Level of Teachers' Understanding of the Maintenance of Green Ict in the School Settings In Terms Of Disposal

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of knowledge in proper disposal
3	2.42-3.26	Agree	51-75% of knowledge
2	1.76-2.51	Fairly Agree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

Summary of Teachers' Understanding of the Maintenance of Green Ict in School Settings, City Schools Division of Koronadal, 2024

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of the Green ICT maintenance is clearly understand
3	2.52-3.26	Agree	51-75% is clearly understand
2	1.76-2.51	Fairly Disagree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

Data Gathering Procedure

The researcher rigorously adhered to a predetermined set of procedures to ensure the research's quality. The primary aim of this study is to investigate educators' perspectives regarding the implementation of Green ICT and inform policies and practices to promote sustainable ICT usage in education within the Koronadal City Division, South Cotabato.

In the initial phase, formal authorization was diligently sought from the Superintendent of DepEd-Koronadal City and the GS Dean. Securing this authorization is crucial to obtaining the necessary permissions for conducting the study, underscoring the significance of ethical considerations.

Subsequently, a secondary authorization letter was dispatched to the District Supervisors, explicitly requesting access to the specific data required for this research. A meticulously crafted survey questionnaire was developed, rigorously evaluated, and administered to the targeted participants (Nagy & Habok, 2018).

The researcher utilized a Random Sampling Technique to meticulously select elementary school teachers as participants in this study. Adhering strictly to established health protocols. Ultimately, the data collected was

systematically organized and comprehensively analyzed. The diagram below illustrates the process. Secondary data, such as office files about the electric bills, were utilized in this study.

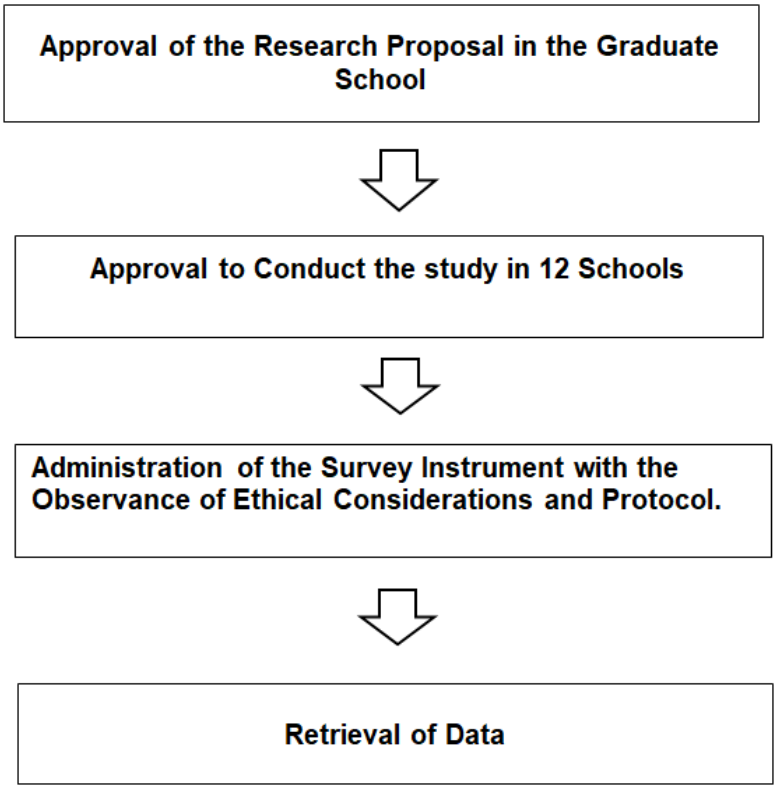


Figure 2. Research Paradigm

Statistical Treatment

Weighted mean, standard deviation, and verbal description were used to determine the degree of ICT facilities in the workplace, the level of teacher knowledge of Green ICT, and the level of teachers' understanding of maintaining green ICT in school settings. The frequency and percentage were used to measure the annual energy consumption rate incurred over the last three (3) years.

The correlational analysis was employed to determine the significance of the level of ICT availability associated with the Green ICT challenges and the level of practices attributed to the challenges in the Green ICT practices.

Degree of the Availability of the Ict Facilities In The Workplace

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Fully Available	All the facilities are present in the workplace
4	2.52-3.26	Partially Available	Nearly complete facilities
2	1.76-2.51	Limited Availability	Limited facilities are present
1	1.00-1.75	Not Available	Not accessible at all

Level Of Teachers' Practices Related To Green Ict

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Excellent	At 90-100% observed
3	2.52-3.26	Good	At 60-80 % observed
2	1.76-2.51	Fair	At 30-50 % observed
1	1.00-1.75	None	At 20% or less observed

Level Of Teachers' Understanding Of The Maintenance Of Green Ict In The School Settings

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of the Green ICT maintenance is clearly understand
3	2.42-3.26	Agree	51-75% is clearly understand
2	1.76-2.51	Fairly Disagree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

Level Of Teachers' Understanding Of The Maintenance Of Green Ict In The School Settings In Terms Of Repair And Trade-In

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of knowledge repair and trade-in
3	2.52-3.26	Agree	51-75% of knowledge
2	1.76-2.51	Fairly Disagree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

Level of Teachers' Understanding of The Maintenance Of Green Ict In The School Settings In Terms Of Disposal

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of knowledge in proper disposal
3	2.42-3.26	Agree	51-75% of knowledge
2	1.76-2.51	Fairly Agree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

Summary Of Teachers' Understanding Of The Maintenance Of Green Ict In School Settings, City Schools Division Of Koronadal, 2024

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of the Green ICT maintenance is clearly understand
3	2.52-3.26	Agree	51-75% is clearly understand
2	1.76-2.51	Fairly Disagree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

Ethical Considerations

Before commencing this study, it is essential to underline the critical significance of ethical considerations within the research focused on educators on Green ICT implementation and informing policies and practices to promote sustainable ICT usage in education within the Koronadal City Division, South Cotabato.

To prepare for implementation, the plans and recommendations were presented to Sultan Kudarat State University to ensure adherence to prescribed procedures and protocols. Consequently, the following ethical principles were emphasized:

Informed Consent. Before participation, explicit and informed consent was diligently obtained from all school heads involved in the study. It was crucial that participants fully understand the study's objective, methodologies, potential risks, and benefits, ensuring transparency and comprehension (Creswell & Creswell, 2018). Participation remained entirely voluntary, granting participants the autonomy to get from the study at some point without any unfavorable implications, a principle aligned with ethical research practices (Leedy & Ormrod, 2019).

Anonymity and Confidentiality. To ensure anonymity and confidentiality, strict measures were implemented to safeguard participants' responses. Pseudonyms or codes replaced the actual names, thereby protecting the privacy of all participants (Saunders et al., 2015). Collected data was securely stored, with access restricted exclusively to the research team, ensuring compliance with data protection regulations and maintaining the confidentiality of sensitive information.

Avoiding Harm. Given that sensitive topics, such as the challenges in teaching roles, may arise, careful attention was given to participants' emotional and psychological well-being. Strategies were implemented to minimize distress, and a support system assisted participants as needed (Leedy & Ormrod, 2019). This approach aligns with the ethical principle of non-maleficence, which emphasizes the need to avoid harm in research settings (Resnik, 2018).

Data Protection. Compliance with data protection laws and regulations, such as the Philippine Data Privacy Act of 2012 (Republic Act No. 10173), was strictly observed to safeguard participants' personal information. Secure data storage and transmission methods were employed to ensure the integrity of the data and prevent unauthorized access (National Privacy Commission, 2020).

Voluntary Participation. Participants were explicitly informed that their involvement in the study was entirely voluntary, without any form of coercion or undue influence (Creswell & Creswell, 2018). It ensures that participation is based solely on informed and autonomous decision-making.

Researcher Bias. The researcher remained vigilant to avoid personal biases affecting data collection and analysis. Maintaining objectivity and transparency throughout the research process is essential to upholding the integrity of the study (Leedy & Ormrod, 2019). Reflexivity was practiced to recognize and mitigate any unconscious bias.

Institutional Approval. Before commencing the study, ethical clearance was sought from relevant institutional review boards or ethics committees to ensure that the research adheres to ethical standards (Creswell & Creswell, 2018). This step is critical to maintaining the legitimacy and ethical rigor of the research process.

Honesty and Integrity. The study findings were reported truthfully and accurately without manipulation or distortion. Ensuring the honesty and integrity of the data analysis is vital for producing reliable and credible results (Resnik, 2018).

Beneficence. The study considered the potential benefits to educational practices and policies, particularly in promoting Green ICT and energy conservation in schools. By contributing to the development of sustainable educational practices, the research aims to positively impact the education system (Creswell & Creswell, 2018).

Cultural Sensitivity. The researcher exhibited cultural sensitivity by respecting the research setting's local customs, beliefs, and practices. It is crucial to ensure that the study does not impose external values and is responsive to the cultural context of DepEd Koronadal City (Smith, 2021).

Inclusion and Diversity. The research design prioritized inclusivity and diversity, capturing a wide range of educators on Green ICT implementation. This approach informed policies and practices to promote sustainable ICT usage in education within the Koronadal City Division (UNESCO, 2020).

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter presents the data gathered from the 350 teachers and school heads of elementary schools in the City of Koronadal who participated in this study. It also provides the analysis and interpretation of the data according to the research.

Availability Degree Availability of ICT Facilities in the Workplace

Table 2 presents the degree of availability of ICT facilities in the workplace among the elementary schools in the DepEd Koronadal City Division. This table provides insights into the extent to which ICT resources and

tools are accessible in these schools, helping to assess the infrastructure that supports teaching and learning through technology. The data highlights the availability of essential ICT facilities for enhancing educational practices in a digital age.

The data presented in **Table 2** shows the degree of availability of ICT facilities in the elementary schools under the DepEd Koronadal City Division. The overall mean score of **3.22**, categorized as "Partially Available" suggests that, on average, ICT resources are sufficiently available to support educational activities. Specific indicators reveal varying levels of availability across different ICT tools. The **Personal Cellphone** (mean = 4.00, SD = 0.70) is "**Fully Available**" indicating high accessibility of personal mobile devices for teachers and staff. Meanwhile, the **Tablet** (mean = 3.40, SD = 0.56), **Laptop/Computer** (mean = 3.50, SD = 0.60), and Printer (mean = 3.50, SD = 0.60) are also rated as "**Fully Available**" reflecting a positive availability of these essential tools for communication and instruction.

Table 2. The Degree of the Availability of ICT Facilities in the Workplace

INDICATORS		Mean	SD	Description
1.	Printer	3.50	0.60	**Fully Available**
2.	Laptop	3.50	0.60	**Fully Available**
3.	Tablet	3.40	0.56	**Fully Available**
4.	Personal Cellphone	4.00	0.70	**Fully Available**
5.	Telegram	2.20	0.42	**Limited Availability**
6	Photocopier	3.20	0.52	**Partially Available**
MEAN		**3.30**	**0.55**	**Fully Available**

However, **Telegram** (mean = 2.20, SD = 0.42) scored lower, indicating that the availability of this communication platform is less prominent yet still categorized as "**Limited Availability**" The **Photocopier** (mean = 3.20, SD = 0.52) was also rated as "**Partially Available**" suggesting that copying and printing resources are adequately provided for the schools.

The findings suggest that while most schools in this division are well-equipped with key ICT facilities, there is room for improvement, particularly in areas such as messaging platforms like Telegram, which appear less accessible. Previous research has shown that adequate ICT infrastructure is critical to effectively using technology in teaching and learning.

According to Porras (2020), sufficient access to ICT facilities helps improve instructional strategies, enabling teachers to adopt more interactive and technology-driven approaches in their classrooms. Similarly, Seitz et al. (2019) emphasize that the availability of technology resources in schools correlates with better academic outcomes, as it supports teachers' instructional practices and students' learning experiences.

Table 3. Level of Teachers` Practices Related to Green ICT

INDICATORS		Mean	SD	Description
1.	When not in use, I always turn off all ICT equipment (computers, projectors, etc.).	3.75	0.45	**Excellent**
2.	I use my devices' energy-saving features, such as sleep mode or automatic power-down.	3.55	0.38	**Excellent**
3.	I encourage students to unplug devices or turn off equipment to save energy after classroom use.	3.20	0.50	**Good**
4.	I prefer using low-power devices or equipment that are energy-efficient in the classroom.	2.85	0.60	**Good**
5.	I limit power-hungry devices, such as printers or projectors, to necessary times only.	3.50	0.42	**Excellent**
	MEAN	**3.37**	**0.47**	**Excellent**

The data in **Table 3** presents the level of teachers' practices related to Green ICT among the elementary schools in the DepEd Koronadal City Division. The results indicate that the teachers generally practice energy-saving measures, although some aspects show varying levels of commitment. The highest-rated practice was ensuring that ICT equipment, such as computers and projectors, is turned off when not in use, with a mean of 3.75 and a standard deviation of 0.45.

The result reflects a "**Excellent**" response, suggesting that teachers are conscious of the need to conserve energy by turning off equipment when it is not actively used. Similarly, teachers reported using energy-saving features like sleep mode or automatic power-down with a mean of 3.55 (SD = 0.38), which also falls under the "**Excellent**" category.

However, the practices encouraging students to unplug devices and use low-power devices show lower levels of agreement. The mean scores for these indicators were 3.20 and 2.85, respectively, indicating a good stance on these energy-saving practices. Teachers were less likely to prioritize using energy-efficient devices, with the lowest mean score of 2.85 (SD = 0.60), showing a "**Good**" response. This suggests that more attention might be needed to adopt energy-efficient technologies in classrooms.

Overall, the average mean of 3.37 (SD = 0.47) falls within the "**Excellent**" category, signifying that while some practices are followed, there is room for improvement regarding the consistent implementation of Green ICT practices among teachers. Supporting literature highlights the importance of energy-saving practices in education. A study by Ismail and Yusof (2019) emphasized that teachers' engagement with ICT can significantly promote sustainability, particularly through energy-efficient practices. They suggest that embedding energy-saving practices into the curriculum and teacher training could foster a more environmentally conscious educational environment.

Furthermore, a report by Osei and Mensah (2020) supports the notion that teacher awareness and practice in energy conservation are pivotal to creating a sustainable ICT infrastructure in schools. These findings resonate with the current study, where there is a need for more comprehensive teacher involvement in adopting Green ICT practices for long-term sustainability in educational settings.

The data presented in **Table 4** reveals the level of teachers' understanding regarding the maintenance of Green ICT in the school settings of elementary schools within the DepEd Koronadal City Division, specifically in terms of acquisition. The overall mean score of 3.41, with a standard deviation of 0.55, indicates that teachers "Strongly Agree" with the statements related to Green ICT practices in the procurement process. Specifically, teachers showed a relatively strong awareness of eco-friendly criteria when selecting ICT devices (mean = 3.50, SD = 0.55), suggesting a positive approach towards sustainability in their ICT procurement decisions. However, the responses related to prioritizing energy-efficient devices (mean = 3.30, SD = 0.60) and ensuring that acquired products comply with environmental standards (mean = 3.20, SD = 0.58) reflect a more neutral stance, suggesting that while teachers recognize the importance of these criteria, their actual practices might not yet fully align with them.

Table 4. Level of Teachers` Understanding of the Maintenance of Green ICT in the School Settings in Terms of Acquisition

	ACQUISITION	**Mean**	**SD**	**Description**
1.	I am aware of eco-friendly criteria when selecting ICT devices for school use.	3.50	0.55	Strongly Agree
2.	I prioritize energy-efficient devices in the procurement process.	3.30	0.60	Strongly Agree
3.	I understand the importance of acquiring ICT products from manufacturers that follow sustainable practices.	3.45	0.50	Strongly Agree
4.	I ensure that acquired ICT products comply with environmental standards, such as EPEAT or ENERGY STAR.	3.20	0.58	Agree
5.	I consider the long-term environmental impact of the ICT devices during acquisition.	3.60	0.52	Strongly Agree
	Overall Mean	**3.41**	**0.55**	**Strongly Agree**

These results are consistent with findings from previous studies, which suggest that while teachers are generally aware of the importance of eco-friendly ICT practices, integrating such principles into procurement processes remains limited (Alonso et al., 2020). In their study, Alonso et al. (2020) highlighted that environmental considerations in ICT acquisition are often overlooked in favor of cost and performance. Similarly, a study by Khosravi et al. (2021) found that teachers in various educational settings demonstrate awareness of sustainable ICT practices but struggle with implementation due to a lack of resources and support for environmentally conscious procurement decisions. These studies underscore the need for more comprehensive training and policy support to integrate Green ICT principles fully into educational systems.

The data from **Table 5** reveals the level of teachers' understanding of the maintenance of Green ICT in the school settings, specifically focusing on the **Repair and Trade-in** aspect among the elementary schools in the DepEd Koronadal City Division. The overall mean score of **3.18** with a standard deviation of **0.48** suggests that teachers **"Agree"** with their understanding of repair and trade-in practices for ICT devices. The result indicates that while there is a general awareness of the importance of device maintenance, there is room for improvement in their knowledge and application of these practices.

The teachers' responses is "**Agree"** regarding specific indicators. For instance, teachers reported a "**Agree"** stance on being familiar with the benefits of repairing ICT devices instead of replacing them (mean = **3.20**, SD = **0.50**), supporting trade-in programs (mean = **3.00**, SD = **0.48**), and evaluating when it is cost-effective to repair or trade-in devices (mean = **2.85**, SD = **0.52**). These lower scores reflect a need for further education on the financial and environmental benefits of repairing or trading in devices rather than frequent replacements. Conversely, teachers were more inclined to agree on promoting the reuse of ICT devices within the school (mean = **3.60**, SD = **0.40**) and encouraging regular maintenance of ICT equipment (mean = **3.23**, SD = **0.49**), which shows a recognition of the value of prolonging the lifespan of existing devices.

Table 5. Level of Teachers` Understanding of the Maintenance of Green ICT in the School Settings in Terms of Repair and Trade-In

INDICATORS		**Mean**	**SD**	**Description**
1.	I am familiar with the benefits of repairing ICT devices instead of replacing them.	3.20	0.50	**Agree**
2.	I support trade-in programs that allow schools to exchange old devices for newer, more energy-efficient models.	3.00	0.48	**Agree**
3.	I understand how to evaluate when it is cost-effective to repair a device versus trading it in.	2.85	0.52	**Agree**
4.	I actively promote using ICT devices within the school to reduce electronic waste.	3.60	0.40	**Strongly Agree**
5.	I encourage regular maintenance and servicing of ICT equipment to extend their lifespan.	3.23	0.49	**Agree**
MEAN		**3.18**	**0.48**	**Agree**

These findings align with previous studies, emphasizing the importance of training educators in sustainable ICT practices to reduce electronic waste and energy consumption in schools. According to *Chien et al. (2020)*, effective Green ICT practices in educational settings foster an environmentally conscious school culture, where repair and reuse are prioritized over frequent upgrades and disposals. Additionally, *Gonzalez et al. (2019)* highlighted that school administrators and teachers must be equipped with practical knowledge about the long-term benefits of maintenance strategies, including repair and trade-in programs, to optimize the cost-effectiveness and sustainability of ICT investments.

In conclusion, while teachers in DepEd Koronadal City Division show some understanding of Green ICT maintenance, particularly in promoting device reuse and maintenance, there remains a need for deeper engagement and education on the repair and trade-in practices to enhance sustainability in ICT use.

Table 6. Level of Teachers` Understanding of the Maintenance of Green ICT in the School Settings in Terms of Disposal

DISPOSAL		Mean	SD	Description
1.	I know the environmental risks associated with improper disposal of ICT equipment.	3.60	0.45	Strongly Agree
2.	I know the correct procedures for recycling or disposing of e-waste according to school policies.	3.30	0.48	Strongly Agree
3.	I understand the importance of securely wiping data from ICT devices before disposal.	2.90	0.52	Agree
4.	I actively participate in initiatives that promote the recycling of electronic devices.	3.50	0.46	Strongly Agree
5.	I ensure that disposed ICT devices are sent to certified e-waste recycling centers.	3.42	0.48	Strongly Agree
MEAN		**3.80**	**0.50**	**Strongly Agree**

The data in **Table 6** highlights teachers' understanding of the maintenance of Green ICT, specifically regarding disposal practices within elementary schools in the DepEd Koronadal City Division. On average, teachers exhibited a "Strongly Agree" response, with a mean score of 3.80 and a standard deviation of 0.50. The result suggests that teachers moderately understand the environmental implications and best practices for disposing of ICT equipment.

When analyzing specific indicators, the teachers' awareness of environmental risks associated with improper disposal of ICT equipment (mean = 3.60, SD = 0.45) showed a relatively high level of agreement, reflecting a strong recognition of the potential environmental hazards of improper e-waste disposal. However, teachers exhibited neutral responses regarding their knowledge of correct procedures for recycling or disposing of e-waste (mean = 3.30, SD = 0.48) and the importance of securely wiping data before disposal (mean = 2.90, SD = 0.52). These results suggest that while teachers are somewhat aware of the risks, their knowledge about specific disposal practices and data security remains unclear.

Additionally, teachers reported "**Strongly Agree**" levels regarding their participation in e-waste recycling initiatives (mean = 3.50, SD = 0.46) and ensuring that disposed ICT devices are sent to certified e-waste recycling centers (mean = 3.42, SD = 0.48). These responses indicate that teachers are somewhat engaged in green ICT practices but may benefit from further training and awareness programs to solidify their understanding and active involvement.

The results align with the findings of studies on the importance of environmental education for teachers. According to Dube and Manye (2021), teacher awareness and active participation in green practices are essential to promoting school sustainability. Their research emphasized the importance of training teachers on properly disposing of e-waste, noting that insufficient knowledge of recycling procedures can hinder effective participation in green ICT initiatives. Similarly, a study by Kowalski and Jendrysiak (2019) highlights the need for structured programs that provide clear guidelines on e-waste disposal to ensure teachers understand the risks and know how to act responsibly, reinforcing the need for ongoing professional development.

Table 7. Summary of Teachers' Understanding of the Maintenance of Green ICT in School Settings, City Schools Division of Koronadal, 2024

Variables	Mean	SD	Description
Acquisition	3.41	0.55	Strongly Agree
Repair and Trade-in	3.50	0.55	Strongly Agree
Disposal	3.80	0.50	Strongly Agree
Grand Mean	**3.57**	**0.53**	**Strongly Agree**

The data in **Table 7** summarizes the teachers' understanding of Green ICT maintenance practices in the school settings among elementary schools in the DepEd Koronadal City Division. The results indicate that teachers

have a "Strongly Agree" level of understanding across the three variables—Acquisition, Repair and Trade-in, and Disposal— with mean scores of 3.41, 3.50, and 3.80, respectively. The grand mean of 3.57 further supports this finding, reflecting a general agreement on the importance of Green ICT maintenance practices.

The acquisition of ICT resources is moderately understood, with teachers expressing a fairly positive view (mean = 3.41). The result suggests that while teachers acknowledge the importance of acquiring energy-efficient devices and technology, there may still be gaps in fully understanding the environmental impacts of such practices. Similarly, the mean score for Repair and Trade-in (3.50) indicates that teachers fairly agree on the need for repairing and trading in outdated ICT equipment instead of disposal, suggesting an awareness of sustainable practices in technology lifecycle management. The disposal variable received the highest mean score (3.80), implying that teachers have a relatively strong understanding of the importance of proper disposal of electronic waste, which aligns with environmental sustainability efforts.

These findings resonate with previous research, which suggests that Green ICT practices are crucial in promoting sustainability in educational settings. According to Paniagua et al. (2020), integrating environmentally responsible ICT practices in schools can reduce the ecological footprint while enhancing awareness among teachers and students regarding resource conservation. Additionally, a study by Dhamija and Sharma (2019) highlighted that proper maintenance of ICT equipment, including repair and disposal, not only prolongs the lifespan of technology but also contributes to the broader goals of environmental protection and sustainability in educational institutions.

Table 8. Annual Rate of Energy Consumption of the School for the Last 3 Years (2021-2024)

School Year	Total Energy Consumption (kWh)	Cost per kWh (PHP)	Cost Incurred (PHP)	Percentage Change (%)
2021-2022	30,000 kWh	12.00 PHP	360,000	-
2022-2023	20,500 kWh	12.00 PHP	246,000	-31.67%
2023-2024	20,200 kWh	12.00 PHP	242,400	-30.27%
Mean	**70,700 kWh**	-	**848,400 PHP**	-

The data from **Table 8** reveals the trend in energy consumption and associated costs for elementary schools in the DepEd Koronadal City Division over the past three years. In the 2021-2022 school year, the total energy consumption amounted to 30,000 kWh, incurring a cost of PHP 360,000 at a rate of PHP 12.00 per kWh. However, by the 2022-2023 school year, energy consumption significantly decreased by 31.67%, with only 20,500 kWh consumed, translating to a cost of PHP 246,000. This downward trend continued in the 2023-2024 school year, where energy consumption dropped by 30.27%, with only 20,200 kWh consumed, costing PHP 242,400.

This sharp decline in energy usage and costs suggests several possible contributing factors, such as increased energy efficiency, changes in school operations, or a shift to alternative energy sources. The trend could also indicate that the schools have implemented measures to reduce their energy consumption, such as the use of energy-efficient appliances or a reduction in school activities requiring high energy usage. This observation aligns with the findings of various studies, indicating that schools and educational institutions are increasingly adopting energy-saving technologies to curb costs and contribute to sustainability.

According to Salazar et al. (2021), implementing energy-efficient systems in educational institutions has significantly reduced energy consumption and operational costs. Similarly, in a study by Garcia (2022), schools in the Philippines that integrated renewable energy sources such as solar power reported reduced dependence on grid electricity and lower energy expenses.

Table 9 presents the association between ICT awareness and green practices. The data presented in **Table 9** reveals a strong positive correlation between ICT availability and Green ICT practices among elementary schools in the DepEd Koronadal City Division. With an overall mean score of 3.22 for ICT availability and a standard deviation (SD) of 0.51, the availability of ICT resources appears to be moderately present across the schools. The data presented in **Table 9** reveals a strong positive correlation between ICT availability and Green ICT practices among elementary schools in the DepEd Koronadal City Division.

Table 9. Association Between ICT Availability and Green ICT Practices

Variables	Mean	SD	r-value	p-value	Interpretation
ICT Availability (Overall Mean)	3.22	0.51	0.72	0.001	Strong Positive Correlation
Green ICT Practices (Overall Mean)	3.37	0.47			

With an overall mean score of 3.22 for ICT availability and a standard deviation (SD) of 0.51, the availability of ICT resources appears to be moderately present across the schools. Similarly, Green ICT practices, with an overall mean score of 3.37 and an SD of 0.47, indicate that schools are moderately engaged in environmentally sustainable ICT practices. The r-value of 0.72, with a p-value of 0.001, signifies a statistically significant and strong positive relationship between ICT availability and Green ICT practices. The result suggests that as schools have better access to ICT resources, they are more likely to adopt Green ICT practices, such as energy-efficient devices, digital waste reduction, and sustainable technology use.

Supporting this interpretation, research by Olanrewaju et al. (2021) highlights the role of ICT availability in fostering green practices within educational institutions. Their study found that schools with adequate ICT resources can implement green technologies, reduce their environmental footprint, and integrate sustainable practices in their operations. Furthermore, the findings align with those of Agyemang et al. (2019), who also reported that increased ICT availability promotes Green ICT practices in schools, leading to better environmental outcomes. Their research emphasized the importance of technology infrastructure in facilitating green initiatives in education systems.

Table 10. Association between Teachers' Practices and Understanding of the Maintenance of Green ICT

Variables	Mean	SD	r-value	p-value	Interpretation
Teachers' Practices and Understanding of Maintenance of Green ICT	**3.37**	**0.47**	0.72	0.002	Strong positive correlation, statistically significant.

The data in **Table 10** illustrates the association between teachers' practices related to Green ICT and their understanding of its maintenance in elementary schools within the DepEd Koronadal City Division. The mean score for teachers' practices related to Green ICT is 3.37 with a standard deviation of 0.47, which suggests a relatively moderate practice level among teachers in implementing Green ICT. The r-value of 0.72 indicates a strong positive correlation between the teachers' practices and their understanding of maintaining Green ICT, with a p-value of 0.002, which is statistically significant. The result implies that as teachers' knowledge of Green ICT maintenance improves, their practices related to it also improve significantly.

Supporting literature on the relationship between teachers' knowledge and practices in ICT reveals that effective implementation of Green ICT in schools is strongly influenced by teachers' understanding and ability to integrate sustainable ICT practices into their teaching techniques. For instance, a study by Kumar and Nanda (2020) highlighted the critical role of teacher understanding in implementing environmentally responsible ICT methods, suggesting that a higher level of understanding leads to better practices in environmental sustainability in education. Similarly, Jamshed and Ali (2021) emphasize that teacher professional development focused on environmental sustainability is essential for translating knowledge into effective classroom practices, thereby supporting the positive relationship observed in this study.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter summarizes the results presented in the previous chapters and the conclusions drawn from the collected data. It also includes recommendations for action and further studies.

Summary

In this study, information and communication technology (ICT) use in learning environments became rampant worldwide. This integration enhances teaching and learning experiences and contributes to educational institutions' overall efficiency and sustainability. The study used a descriptive-quantitative and correlational

research design to determine the educators' perspectives on Green ICT implementation, thereby influencing the practice and promotion of sustainable ICT use in education in Koronadal City Division, South Cotabato, for the school year 2024-2025.

The study involved 350 teachers and school heads from elementary schools in DepEd Koronadal City, who meet the researcher's specified inclusion criteria for elementary teacher participants in the survey of Green ICT implementation in Koronadal City Division, South Cotabato. Mean statistical measure and Pearson Moment Correlation were utilized to measure the meaningful connection between the supply of ICT and Green ICT Practices.

The findings suggest that while most schools in this division are well-equipped with key ICT facilities, there is room for improvement, particularly in areas such as messaging platforms like Telegram, which appear less accessible. Previous research has shown that adequate ICT infrastructure is critical to effectively using technology in teaching and learning.

Further, results indicated that elementary school teachers in DepEd Koronadal City Division demonstrated awareness of energy-saving practices related to Green ICT, but their implementation remained inconsistent. Teachers actively turned off ICT equipment when not in use (M = 3.75, SD = 0.45) and utilized energy-saving features like sleep mode (M = 3.55, SD = 0.38), reflecting a "Excellent" response. However, lower agreement was observed in encouraging students to unplug devices (M = 3.20) and using low-power ICT equipment (M = 2.85, SD = 0.60), indicating a neutral stance. With an overall mean of 3.37 (SD = 0.47), the findings suggested that while some Green ICT practices are followed, there is a need for stronger implementation efforts.

Furthermore, the results revealed that teachers in elementary schools within DepEd Koronadal City Division had a "Strongly Agree" level of understanding of Green ICT maintenance practices, as indicated by a grand mean of 3.57. Disposal received the highest mean score (3.80) among the three variables assessed, suggesting a stronger awareness of proper electronic waste management. Meanwhile, Repair and Trade-in (3.50) and Acquisition (3.41) were rated slightly lower, indicating moderate comprehension of sustainable technology lifecycle management and energy-efficient ICT procurement. These findings highlight the need for further initiatives to enhance teachers' understanding and implementation of Green ICT practices in schools.

Moreover, the results indicated a significant decline in energy consumption and costs among elementary schools in the DepEd Koronadal City Division over the past three years. From the 2021-2022 to the 2023-2024 school years, energy consumption dropped from 30,000 kWh to just 2,200 kWh, resulting in an 30.27% decrease in energy usage and a corresponding reduction in costs from PHP 360,000 to PHP 242,400. This downward trend suggested the successful implementation of energy-saving initiatives, improved efficiency measures, or a shift to alternative energy sources. The data highlighted the potential impact of school policies and operational changes in optimizing energy consumption and reducing expenses.

Also, the findings indicated an intense positive correlation (r=0.72, p=0.001) between ICT availability in Green ICT practices among elementary schools in the DepEd Koronadal City Division. With a mean score of 3.22 (SD = 0.51) for ICT availability and 3.37 (SD = 0.47) for Green ICT practices, the findings suggest that while ICT resources are moderately available, schools are also moderately engaged in sustainable ICT initiatives. The significant relationship implied that increased access to ICT resources enhances the adoption of Green ICT practices, including energy-efficient technology, digital waste management, and eco-friendly digital strategies.

Finally, a strong positive correlation had been revealed between teachers' practices related to Green ICT and their understanding of its maintenance in elementary schools within the DepEd Koronadal City Division. Both aspects are moderate, with a mean score of 3.37 (SD = 0.47) for Green ICT practices and 3.57 (SD = 0.53) for understanding its maintenance. The r-value of 0.72 (p = 0.002) suggested that as teachers' comprehension of Green ICT maintenance increases, their implementation of related practices improves significantly. Similarly, the correlation between understanding and maintenance, with an r-value of 0.68 (p = 0.006), reinforced the idea that strengthening teachers' knowledge of Green ICT maintenance can positively impact their application of sustainable ICT practices in schools.

Conclusion

In light of the findings of this study, the following conclusions were drawn:

Most schools in the DepEd Koronadal City Division are well-equipped with ICT facilities. Still, certain tools, such as messaging platforms like Telegram, remain less accessible, highlighting the need for improved ICT infrastructure to support digital communication and learning.

Teachers demonstrate awareness of energy-saving practices, such as turning off ICT equipment and using sleep mode, but their implementation remains inconsistent. To enhance sustainability efforts, areas like unplugging devices and using low-power ICT equipment need further reinforcement.

Teachers understand Green ICT maintenance fairly. They are more aware of disposal practices but less knowledgeable about sustainable procurement and repair strategies. Training and initiatives are needed to strengthen their Green ICT lifecycle management knowledge.

The notable decrease in energy usage over the past three years suggests the successful implementation of energy-saving measures, operational changes, or a shift to alternative energy sources, emphasizing the effectiveness of school energy policies.

The study confirms that there is a significant relationship between the availability of ICT facilities and ICT practices. The strong agreement among respondents indicates that when ICT facilities are already accessible, the integration and application of ICT in educational practices are notably enhanced.

The result of the study indicates a significant relationship between teachers' practices and their understanding of the maintenance of Green ICT. The strong agreement among respondents suggests that teachers who are actively practice ICT-related tasks are more likely to understand and apply principles of sustainable and environmentally responsible technology use.

Recommendations

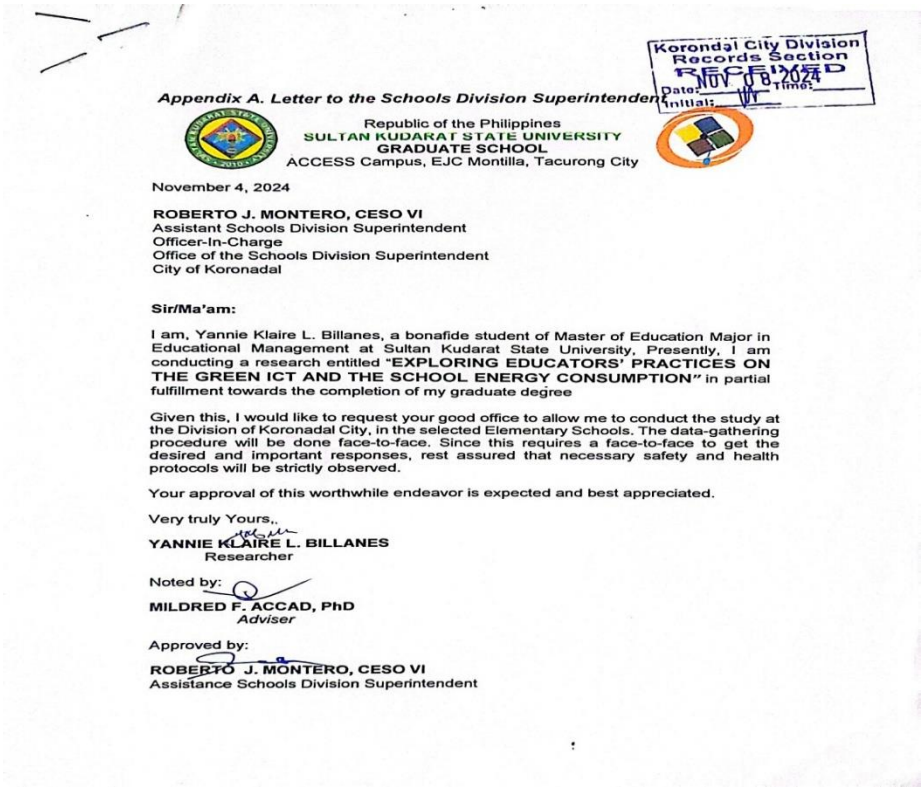
In alignment with the findings and conclusion of the study in Green ICT, the following are recommended:

1. Provide appropriate financial support in the learning environment, especially focusing on the ICT facilities, to sustain the needs and demands of the school. For the adaptation of blended learning and the use of Telegram.
2. Conduct an LAC session that focuses on the proper use of Green ICT. During the LAC session, provide some insights to help them familiarize themselves with the conservation and repair of laptops, printers, etc.
3. Encourage all the stakeholders to always turn off the laptops, computers, and printers properly and remind them to unplug the charger when it's full. It also applies to all gadgets and devices.
4. Provide a division-wide contest for every school whose efficiency is the most energy, which will be divided into three groups (small, medium, and big schools). Also, the contest in innovation creates a device that lessens energy consumption.
5. Schools and educational institutions is recommended to prioritize the provision and maintenance of adequate ICT infrastructure. This includes ensuring access to computers, stable internet, projectors, and other digital tools. Moreover, continuous training and support should be provided to educators to maximize the effective integration of ICT in teaching and learning.
6. Schools and educational institutions should provide continuous professional development programs focused on sustainable ICT use. Workshops, seminars, and training on Green ICT principles should be integrated into teachers' capacity-building activities. Encourage and support teachers in adopting eco-friendly ICT practices by providing appropriate guidelines, resources, and incentives.
7. For further study, the development of system to closely monitor energy consumption to ICT hardware and green practices should be explored to promote sustainability and efficiency in technology use.

Billanes, Yannie Klaire L. (2025). Exploring Educators` Practices On The Green Ict And The School Energy Consumption And Maintenance. Sultan Kudarat State University, Access Ejc Montilla, Tacurong City. **95** Pp.

Adviser: Mildred F. Accad, Phd.

APPENDICES



Koronadal City Division
Records Section
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Date: NOV 08 2024
Time:
Initial:

Appendix A. Letter to the Schools Division Superintendent

Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
GRADUATE SCHOOL
ACCESS Campus, EJC Montilla, Tacurong City

November 4, 2024

ROBERTO J. MONTERO, CESO VI
Assistant Schools Division Superintendent
Officer-In-Charge
Office of the Schools Division Superintendent
City of Koronadal

Sir/Ma'am:

I am, Yannie Klaire L. Billanes, a bonafide student of Master of Education Major in Educational Management at Sultan Kudarat State University, Presently, I am conducting a research entitled **"EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION"** in partial fulfillment towards the completion of my graduate degree

Given this, I would like to request your good office to allow me to conduct the study at the Division of Koronadal City, in the selected Elementary Schools. The data-gathering procedure will be done face-to-face. Since this requires a face-to-face to get the desired and important responses, rest assured that necessary safety and health protocols will be strictly observed.

Your approval of this worthwhile endeavor is expected and best appreciated.

Very truly Yours,

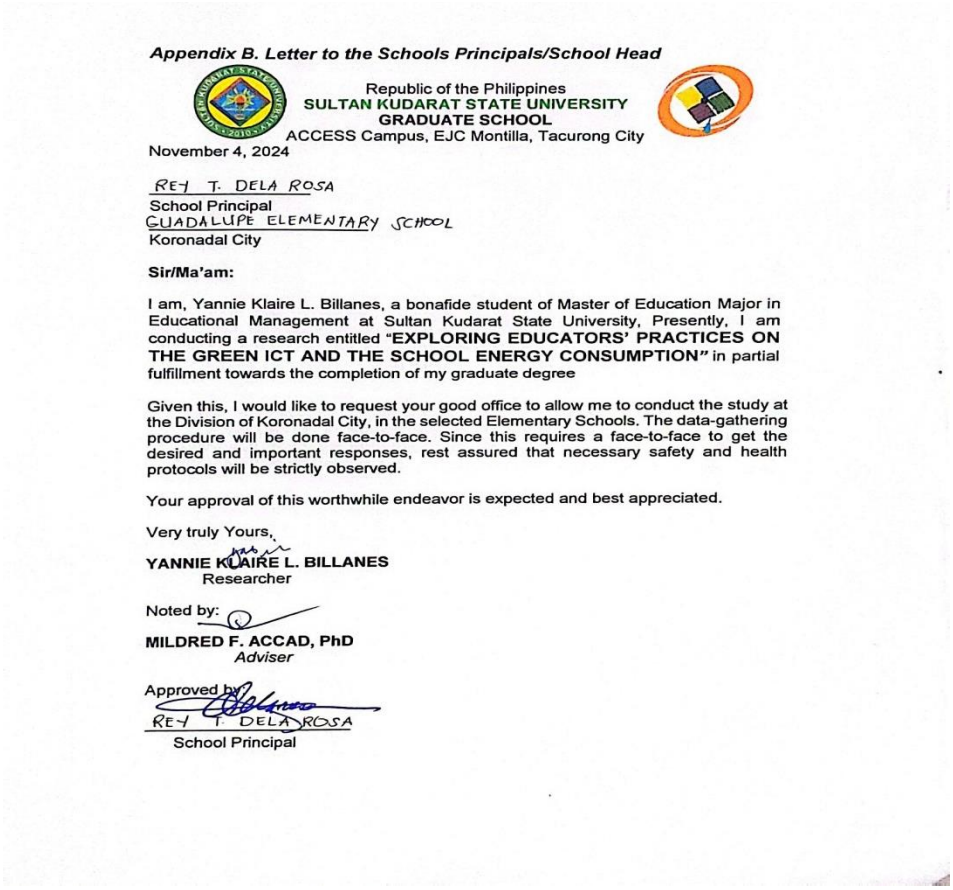
YANNIE KLAIRE L. BILLANES
Researcher

Noted by:

MILDRED F. ACCAD, PhD
Adviser

Approved by:

ROBERTO J. MONTERO, CESO VI
Assistance Schools Division Superintendent



Appendix B. Letter to the Schools Principals/School Head

Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
GRADUATE SCHOOL
ACCESS Campus, EJC Montilla, Tacurong City

November 4, 2024

REY T. DELA ROSA
School Principal
GUADALUPE ELEMENTARY SCHOOL
Koronadal City

Sir/Ma'am:

I am, Yannie Klaire L. Billanes, a bonafide student of Master of Education Major in Educational Management at Sultan Kudarat State University, Presently, I am conducting a research entitled **"EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION"** in partial fulfillment towards the completion of my graduate degree

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Your approval of this worthwhile endeavor is expected and best appreciated.

Very truly Yours,

YANNIE KLAIRE L. BILLANES
Researcher

Noted by:

MILDRED F. ACCAD, PhD
Adviser

Approved by:

REY T. DELA ROSA
School Principal

Appendix B. Letter to the Schools Principals/School Head

Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
GRADUATE SCHOOL
ACCESS Campus, EJC Montilla, Tacurong City

November 4, 2024

LEMUEL V. ARANJUEZ
School Principal
SARAVIA ELEMENTARY SCHOOL
Koronadal City

Sir/Ma'am:

I am, Yannie Klaire L. Billanes, a bonafide student of Master of Education Major in Educational Management at Sultan Kudarat State University, Presently, I am conducting a research entitled **"EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION"** in partial fulfillment towards the completion of my graduate degree

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Your approval of this worthwhile endeavor is expected and best appreciated.

Very truly Yours,

YANNIE KLAIRE L. BILLANES
Researcher

Noted by:

MILDRED F. ACCAD, PhD
Adviser

Approved by:

LEMUEL V. ARANJUEZ
School Principal

Appendix B. Letter to the Schools Principals/School Head

Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
GRADUATE SCHOOL
ACCESS Campus, EJC Montilla, Tacurong City

November 4, 2024

ALFONSO C. LACSON JR.
School Principal
MAGSAYSAY ELEMENTARY SCHOOL
Koronadal City

Sir/Ma'am:

I am, Yannie Klaire L. Billanes, a bonafide student of Master of Education Major in Educational Management at Sultan Kudarat State University, Presently, I am conducting a research entitled **"EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION"** in partial fulfillment towards the completion of my graduate degree

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Very truly Yours,

YANNIE KLAIRE L. BILLANES
Researcher

Noted by:

MILDRED F. ACCAD, PhD
Adviser

Approved by:

ALFONSO C. LACSON JR.
School Principal

Appendix B. Letter to the Schools Principals/School Head

Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
GRADUATE SCHOOL
ACCESS Campus, EJC Montilla, Tacurong City

November 4, 2024

JOHN REY T. LEDDA
School Principal
ESPERANZA ELEMENTARY SCHOOL
Koronadal City

Sir/Ma'am:

I am, Yannie Klaire L. Billanes, a bonafide student of Master of Education Major in Educational Management at Sultan Kudarat State University, Presently, I am conducting a research entitled "**EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION**" in partial fulfillment towards the completion of my graduate degree

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Your approval of this worthwhile endeavor is expected and best appreciated.

Very truly Yours,

YANNIE KLAIRE L. BILLANES
Researcher

Noted by:

MILDRED F. ACCAD, PhD
Adviser

Approved by:

JOHN REY T. LEDDA
School Principal

Appendix B. Letter to the Schools Principals/School Head

Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
GRADUATE SCHOOL
ACCESS Campus, EJC Montilla, Tacurong City

November 4, 2024

JABAR SALMO
School Principal
MAMA MAPAMBUKOL PRIMARY SCHOOL
Koronadal City

Sir/Ma'am:

I am, Yannie Klaire L. Billanes, a bonafide student of Master of Education Major in Educational Management at Sultan Kudarat State University, Presently, I am conducting a research entitled "**EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION**" in partial fulfillment towards the completion of my graduate degree

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Your approval of this worthwhile endeavor is expected and best appreciated.

Very truly Yours,

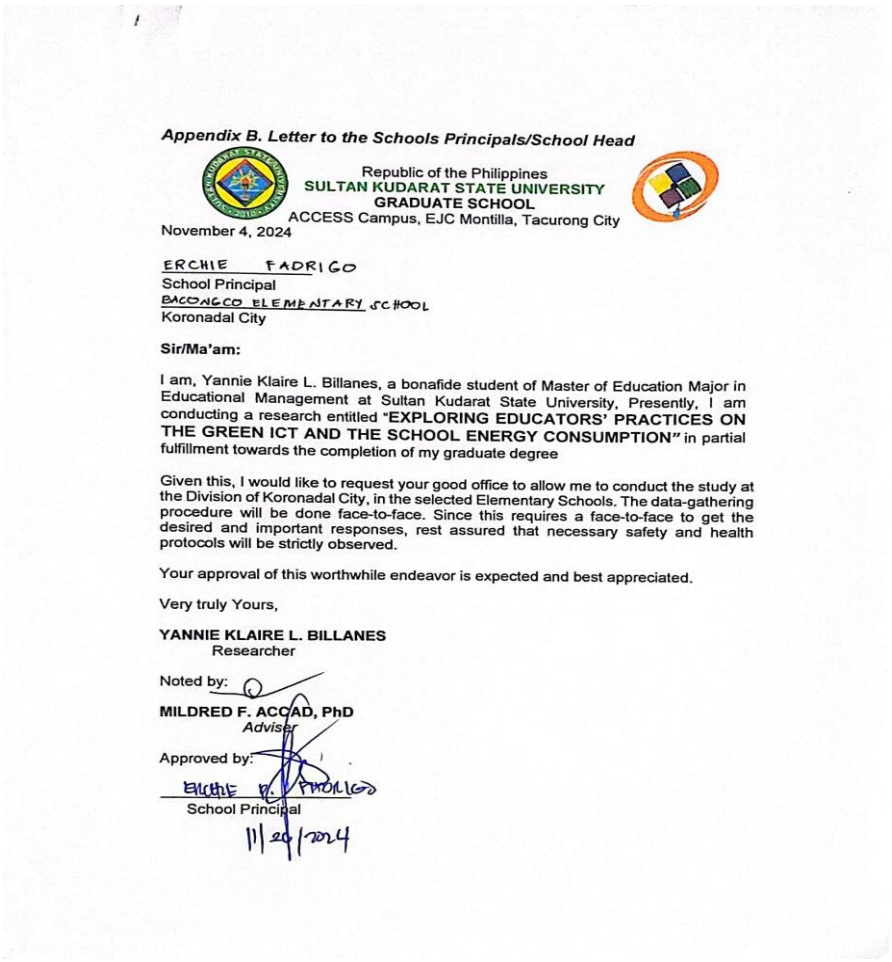
YANNIE KLAIRE L. BILLANES
Researcher

Noted by:

MILDRED F. ACCAD, PhD
Adviser

Approved by:

School Principal



Appendix B. Letter to the Schools Principals/School Head

Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
GRADUATE SCHOOL
ACCESS Campus, EJC Montilla, Tacurong City

November 4, 2024

ERCHIE FADRIGO
School Principal
BACONGCO ELEMENTARY SCHOOL
Koronadal City

Sir/Ma'am:

I am, Yannie Klaire L. Billanes, a bonafide student of Master of Education Major in Educational Management at Sultan Kudarat State University, Presently, I am conducting a research entitled **"EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION"** in partial fulfillment towards the completion of my graduate degree

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Very truly Yours,

YANNIE KLAIRE L. BILLANES
Researcher

Noted by:

MILDRED F. ACCAD, PhD
Adviser

Approved by:

ERCHIE F. FADRIGO
School Principal
11/20/2024

Appendix C Survey Questionnaire

Survey-Questionnaire

Dear Respondents:

The undersigned is a Master of Arts in Educational Management undertaking a thesis entitled "**EXPLORING EDUCATORS` PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION AND MAINTENANCE"**. This is one of my requirements for the above-mentioned degree. In this regard, you are chosen as one of my respondents here in answering my survey questionnaire. The anonymity of your replies will undoubtedly be taken into account in this study.

Generally, This study aims to explore the educators practices and knowledge on the green ICT and the school energy consumption and maintenance of schools in the Division of Koronadal City during the school year 2024-2025.

Rest assured that all of your responses will be kept strictly confidential.

Thank you and God bless!

The Researcher

Yannie Klaire L. Billanes

Part I. Profile

Name(Optional):_____

Office/Position _____

Part II. Degree of the Availability of the Ict Facilities in the Workplace

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Fully Available	All the facilities are present in the workplace
5	2.52-3.26	Partially Available	Nearly complete facilities
2	1.76-2.51	Limited Availability	Limited facilities are present
1	1.00-1.75	Not Available	Not accessible at all

INDICATORS		RATING			
		4	3	2	1
1.	Printer				
2.	Laptop				
3.	Tablet				
4.	Personal Cellphone				
5.	Telegram				
6.	Photocopier				

Part III. Level Of Teachers`Practices Related To Green Ict

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Excellent	At 90-100% observed
3	2.52-3.26	Good	At 60-80 % observed
2	1.76-2.51	Fair	At 30-50 % observed
1	1.00-1.75	None	At 20% or less observed

INDICATORS		RATING			
		4	3	2	1
1.	I make sure to turn off all ICT equipment (computers, projectors, etc.) when they are not in use.				
2.	I use energy-saving features such as sleep mode or automatic power-down on my devices.				
3.	I encourage students to unplug devices or turn off equipment to save energy after classroom use.				
4.	I prefer using low-power devices or equipment that are energy-efficient in the classroom.				
5.	I limit the use of power-hungry devices, such as printers or projectors, to necessary times only.				

Part Iv Level Of Teachers' Understanding Of The Maintenance Of Green Ict In The School Settings

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of the Green ICT maintenance is clearly understand
3	2.42-3.26	Agree	51-75% is clearly understand
2	1.76-2.51	Fairly Disagree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

A. Acquisition

INDICATORS		RATING			
		4	3	2	1
1.	1. I am aware of eco-friendly criteria when selecting ICT devices for school use.				
2.	2. I prioritize energy-efficient devices in the procurement process.				
3.	3. I understand the importance of acquiring ICT products from manufacturers that follow sustainable practices.				
4.	4. I ensure that acquired ICT products comply with environmental standards, such as EPEAT or ENERGY STAR.				
5.	5. I consider the long-term environmental impact of the ICT devices during acquisition.				

B. Repair and Trade-in

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of knowledge in repair and trade-in
3	2.60-3.39	Agree	51-75% of knowledge
2	1.76-2.51	Fairly Disagree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

INDICATORS		RATING			
		4	3	2	1
1.	1. I am familiar with the benefits of repairing ICT devices instead of replacing them.				
2.	2. I support trade-in programs that allow schools to exchange old devices for newer, more energy-efficient models.				
3.	3. I understand how to evaluate when it is cost-effective to repair a device versus trading it in.				
4.	4. I actively promote the reuse of ICT devices within the school to reduce electronic waste.				
5.	5. I encourage regular maintenance and servicing of ICT equipment to extend their lifespan.				

C. Disposal

RATING	RANGE OF MEANS	DESCRIPTIVE RATING	INTERPRETATION
4	3.27-4.00	Strongly Agree	76-100% of knowledge in disposal
3	2.60-3.39	Agree	51-75% of knowledge
2	1.76-2.51	Fairly Agree	26-50% familiarity
1	1.00-1.75	Disagree	25% or less knowledge

INDICATORS		RATING			
		4	3	2	1
1.	I am aware of the environmental risks associated with improper disposal of ICT equipment.				
2.	I know the correct procedures for recycling or disposing of e-waste according to school policies.				
3.	I understand the importance of securely wiping data from ICT devices before disposal.				
4.	I actively participate in initiatives that promote recycling of electronic devices.				
5.	I ensure that disposed ICT devices are sent to certified e-waste recycling centers.				

Thank you for your cooperation!

Prepared by:

Yannie Klaire L. Billanes

Researcher

GS 2022-07

Language editor's

Certification

This is to certify that the undersigned has thoroughly reviewed the thesis of **YANNIE KLAIRE L. BILLANES**, titled **EXPLORING**

EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION AND MAINTENANCE in partial fulfillment of the requirements for the degree **Master of Arts in Education**. The review covered the content, grammar, and organization to ensure clarity, coherence, and adherence to scholarly standards.

This certification is granted to **YANNIE KLAIRE L. BILLANES** as a requirement for the **Final Defense**. This is issued on February 18, 2025, at SKSU Graduate School, ACCESS Campus, EJC Montilla, Tacurong City.

ADRIAN V. PROTACIO, PhD
Language Editor

GS 2022-08

Originality Test

Certification

This is to certify that the thesis of **YANNIE KLAIRE L. BILLANES**, titled **EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION AND MAINTENANCE** has 4% Turnitin Similarity Test results. Hence, the manuscript has the originality of 96%, as prescribed in the GS Manual of Operations, approved by the BOR through Resolution No 034-2022.

This certification is granted to **YANNIE KLAIRE L. BILLANES** as a requirement for the **Final Defense.** This is issued on February 18, 2025, at SKSU Graduate School, ACCESS Campus, EJC Montilla, Tacurong City.

ADRIAN V. PROTACIO, PhD
Faculty , Graduate School

Republic of the Philippines
SULTAN KUDARAT STATE UNIVERSITY
GRADUATE SCHOOL
ACCESS Campus, EJC Montilla, Tacurong City

GS 2022-10

STATISTICIAN'S CERTIFICATION

This is to certify that the final paper of **YANNIE KLAIRE L. BILLANES**, titled **"EXPLORING EDUCATORS' PRACTICES ON THE GREEN ICT AND THE SCHOOL ENERGY CONSUMPTION AND MAINTENANCE** has been reviewed and checked by the undersigned for its statistical tools to be employed in the study.

This certification is granted to **YANNIE KLAIRE L. BILLANES** as a requirement for the **Final Defense**.

This is issued on February 22, 2025, at SKSU Graduate School, ACCESS Campus, EJC Montilla, Tacurong City.

EFREN C. FLORES, PhD
Statistician

Curriculum Viate

BILLANES, YANNIE KLAIRE L.

Koronadal City, South Cotabato

0994-755-4962

Email Address: yanniebillanes@gmail.com

Objective

As an enthusiastic and dedicated educator, my objective is to inspire and empower students by creating a dynamic, engaging, and inclusive learning environment. I aim to foster critical thinking, creativity, and a growth mindset in my students, helping them achieve both academic success and personal development. By integrating innovative teaching strategies and adapting to diverse learning styles, I strive to make learning meaningful and accessible for all students.

Personal Information

NICKNAME : Yan

AGE : 27

SEX : Female

BIRTHDAY : March 13, 1997

FATHER'S NAME : Gabriel B. Billanes

MOTHER'S NAME : Belen L. Billanes

CIVIL STATUS : Single

NATIONALITY : Filipino

RELIGION : Roman Catholic

SKILLS	**EDUCATIONAL BACKGROUND**	
- Multitasking	MASTERS DEGREE	SULTAN KUDARAT STATE UNIVERSITY
- Editing		Masters of Arts in Education
		Major in
- Athletic		Educational Management (present)
- Flexible	COLLEGE	SULTAN KUDARAT STATE
		UNIVERSITY EJC MONTILLA
		TACURONG CITY
		BACHERLOR IN
		ELEMENTARY EDUCATION