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Role of Home Economics Education in Promoting Sustainable Household Waste Management among Secondary School Students

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Abstract
This study focused on Role of Home Economics Education in promoting sustainable household waste management among secondary school students in Abakaliki Education Zone of Ebonyi State. Specifically, the study explores the role of Home Economics education in promoting wastes reduction for sustainable household waste management among male and female secondary school students. The role of Home Economics education in promoting recycling for sustainable household waste management among male and female secondary school students. Similarly, two research questions were developed by the researcher to guide the study. Descriptive research design was used for the study. The population of the study was 130 SSS II students offering Home Economics in the study area which formed the sample size. The sample size was the target population of one hundred and thirty (130) Senior Secondary School II students offering Home Economics in Abakaliki Education Zone of Ebonyi State because it is small and manageable. The instrument for data collection was a questionnaire. The data collected were analyzed using descriptive statistic and t-test. The findings of this study revealed that: Home Economics education is universally accepted by both genders as a vital tool for teaching household waste reduction, Home Economics education successfully fosters recycling habits and a sense of environmental responsibility among all students, both male and female students strongly agree that Home Economics education effectively promotes the re-use of household items to extend their lifespan significantly heightens awareness of the economic and environmental benefits of bulk purchasing, particularly among female students.

Keywords: Role, Home economics, promoting, Sustainable and management

Introduction

Sustainable household waste management is a critical aspect of environmental sustainability, public health protection, and urban livability. Solid waste management (SWM) is regarded as a core responsibility of city administrators and a key indicator of good governance, as effective SWM reduces adverse environmental and health impacts, conserves resources, and enhances the quality of urban life (Kaza, Yao, Bhada-Tata & Van-Woerden, 2022; Chen, Bodirsky, Kerueger, Mishra & Popp, 2021**;**) [10]**.** However, unsustainable household waste management practices remain widespread in many developing countries due to rapid urbanisation, increased consumerism, weak institutional frameworks, limited financial capacity, and poor governance structures (Guerrero, Maas & Hogland, 2013; World Bank**,** 2018) [25]. These challenges have resulted in inadequate waste collection coverage, inefficient transportation systems, and unsafe disposal methods, which pose serious risks to environmental sustainability and human health.

Empirical evidence shows that household waste is frequently mixed with commercial and hazardous waste. During storage and handling, they are often kept in poorly managed facilities and transported through informal systems (Ayilara, Olanrewaju, Babalola & Odeyemi, 2020). Final disposal is largely characterised by uncontrolled dumping, open-air incineration, and land filling, practices that contribute to air and water pollution, land degradation, methane emissions, hazardous leachate generation, and climate change (Kaza *et al*., 2022). These negative outcomes disproportionately affect marginalized populations living near dumpsites, leading to increased exposure to communicable diseases such as diarrhoea and acute respiratory infections, particularly among children (Odufuwa, Adedeji, Olajuyigbe & Olajide, 2021). In response to these challenges, contemporary sustainable waste management approaches prioritise waste reduction at source, segregation, reuse, recycling, and energy recovery over traditional disposal methods (Yang *et al*., 2018; Kabera & Nishimwe, 2019) [35]. This shift aligns with global sustainability agendas and reflects growing recognition that effective household waste management requires not only technological solutions but also behavioural change, public participation, and education-driven interventions that promote responsible consumption and environmentally sustainable practices (Abubakar & Aina, 2023; Khan & Kaneesamkandi, 2021; Zafar, 2022) [1].

Home Economics is defined as a multidisciplinary field that serves as a foundation for sustainable living. It is a discipline that provides the knowledge and skills necessary for individuals to make informed decisions regarding resource utilization, waste reduction, and the general management of the home (Okoye, 2022). At its core, the concept revolves around the efficient use of resources including water, energy, and food with the specific goal of minimizing waste generation to protect the environment (Etim, 2024).

Home Economics education serves as a transformative tool that bridges the gap between theoretical knowledge and practical application, particularly in the context of environmental stewardship. Central to this role is skill acquisition, as the subject provides students with the practical "know-how" required to implement sustainable household and waste management practices in their daily lives (Aderiye & Ovwromoh, 2024) [4]. Beyond mere technical skills, the discipline acts as a catalyst for behavioral modification; by integrating sustainability principles into both formal and informal instruction, it fosters responsible consumption and proper waste disposal behaviors among young adults (Ogunleye & Adebayo, 2023).

Statement of the Problem

Rapid urbanization in the Abakaliki Education Zone has caused a surge in municipal waste. Despite existing regulations, indiscriminate dumping and lack of waste reduction and recycling (segregation) persist at the household level, threatening public health and communal aesthetics. Although Home Economics is curriculum-positioned to foster "the science of living" and resource conservation, there is a significant disconnect between students' classroom knowledge and their actual domestic application of re-using materials or adopting sustainable procurement habits like buying in bulk.

The core problem is a persistent attitude-behavior gap; while students may theoretically understand sustainability, they often continue unsustainable habits such as excessive food waste and a failure to reduce waste at the source. Furthermore, it remains unclear if Home Economics effectively empower both male and female students to adopt recycling and re-use strategies equally, especially when school instruction conflicts with traditional parental norms

Unless this gap is investigated, the potential of Home Economics to drive environmental sustainability will remain untapped, allowing wasteful habits and inefficient consumption to persist. Consequently, this study investigates the role of Home Economics in promoting waste reduction, fostering the re-use of materials, enhancing recycling habits, and encouraging buying in bulk among SS2 students in the Abakaliki Education Zone.

Purpose of the Study

The main purpose of the study was to explore the role of Home Economics in promoting sustainable household waste management among secondary school students in Abakaliki Education Zone of Ebonyi State. Specifically, the study intends to examine the role of Home Economic Education in:

1. Promoting wastes reduction for sustainable household waste management among male and female secondary school students.
2. Promoting recycling for sustainable household waste management among male and female secondary school students.

Research Questions

The following research questions guided this study:

1. What is the role of Home Economics education in promoting waste reduction for sustainable household waste management among male and female secondary school students?
2. What is the role of Home Economics education in promoting recycling for sustainable household waste management among male and female secondary school students?

Literature Review

Home Economics

Home Economics is an interdisciplinary field of study that focuses on managing and improving individual and family well-being through the application of scientific and practical knowledge. It encompasses various aspects such as nutrition, financial management, consumer education, textile and clothing management, and sustainable home practices (McGregor, 2019) [44]. Home economics aims to equip individuals with essential life skills that promote self-sufficiency, health, and responsible citizenship (Nickols& Kay, 2015). The subject plays a significant role in fostering sustainable living by teaching efficient resource management, healthy dietary practices, and sustainable waste disposal methods (Brown &Paolucci, 2017) [9]. Additionally, home economics education helps individuals develop financial literacy, decision-making skills, and adaptability in response to economic and environmental challenges (IFHE, 2020). With an emphasis on sustainability, modern home economics integrates eco-friendly practices, such as waste reduction and energy conservation, into daily living (Pendergast& McGregor, 2021).

Role of Home Economics: Home Economics is an essential discipline that contributes significantly to sustainable development by equipping individuals with the necessary

knowledge, skills, and attitudes for improved quality of life. As a vocational subject, Home Economics aligns with national educational goals by fostering self-reliance, resource management, and economic sustainability (Adejoke *et al*., 2021). Education plays a crucial role in national development, and Home Economics serves as a practical tool for achieving sustainability. According to UNESCO (2020) [57], education for sustainable development involves transformational learning processes that empower individuals and communities to make informed decisions that promote environmental integrity, economic viability, and social justice. Home Economics, by integrating sustainable living principles, encourages responsible consumption, efficient resource use, and environmentally friendly practices (Agius, 2025) [6].

One of the primary contributions of Home Economics is the improvement of family life. It enhances the development and utilization of human, material, and natural resources, thereby promoting economic stability and well-being within households and society (Federal Ministry of Education, 2023) [22]. Furthermore, Home Economics education shapes students' values, attitudes, and behaviors, making them more conscious of sustainable lifestyle choices and their impact on society (Agius, 2025) [6]. Moreover, Home Economics education fosters entrepreneurship by equipping learners with practical skills in areas such as food production, textile design, and financial management. These competencies help individuals establish businesses, generate income, and contribute to national economic growth. By emphasizing skills acquisition and self-employment, Home Economics aligns with national policies that seek to reduce unemployment and poverty (Adejoke, 2021).

Home economics is a vital field that equips individuals with essential life skills for personal and family well-being. It covers areas such as nutrition, financial management, consumer education, textile science, and sustainable living. By fostering self-sufficiency and responsible citizenship, home economics contributes to individual empowerment and societal development (McGregor, 2019) [44]. One of the key benefits of home economics is its role in promoting health and nutrition. It educates individuals on balanced diets, food safety, and meal planning, which are essential for preventing malnutrition and lifestyle-related diseases such as obesity and diabetes (Brown & Paolucci, 2017) [9]. Additionally, home economics enhances financial literacy by teaching budgeting, savings, and responsible consumer habits, helping individuals and families achieve financial stability (Nickols & Kay, 2015).

Waste Management

Waste management refers to the collection, transport, processing, recycling, treatment, disposal, monitoring, and regulation of waste materials. It focuses on minimizing the impact of waste on human health and the environment as noted by Mehta *et al*. (2018). Waste materials can be solid, liquid, gaseous, or radioactive, and their management practices vary across developed and developing nations, as well as between residential and industrial sectors. Local governments are typically responsible for managing residential and institutional waste, whereas industrial waste management is usually overseen by the waste generators under regulatory frameworks (Mehta *et al*., 2018). Furthermore, sustainable waste management incorporates strategies that reduce waste generation, promote recycling, and ensure environmentally friendly disposal. It involves all stakeholders in a community and follows a waste management hierarchy to minimize pollution and improve sustainability (Mehta *et al*., 2018; Wilson *et al*., 2006; UNEP, 2016).

Relevance of Waste Management: Effective waste management is essential for environmental sustainability, public health, and economic growth. Proper waste management practices help mitigate pollution, conserve resources, and promote sustainable development. It plays a critical role in reducing pollution and minimizing environmental degradation. Uncontrolled waste disposal leads to soil, air, and water pollution, which affects ecosystems and contributes to climate change (Mehta *et al*., 2018). Sustainable waste management practices, such as recycling and composting, reduce greenhouse gas emissions and promote a circular economy (UNEP, 2016). Poor waste management can also lead to serious health issues, including respiratory diseases, infections, and waterborne illnesses. Proper disposal and treatment of waste help reduce exposure to hazardous substances, improving overall public health (Gu *et al*. 2019). In developing countries, inadequate waste management systems contribute to the spread of diseases, making efficient waste management a crucial aspect of public health policies (WHO, 2018).

Beyond health and environmental concerns, sustainable waste management creates job opportunities and contributes to economic growth. The recycling industry, for instance, generates employment and supports businesses involved in waste collection, processing, and manufacturing of recycled products (Kaza *et al*., 2018). Moreover, proper waste disposal reduces cleanup costs and prevents economic losses caused by environmental damage. Waste management also promotes the efficient use of resources by encouraging recycling and reuse. By reducing reliance on raw materials, sustainable waste management helps conserve natural resources and supports the transition to a circular economy (UNEP, 2016). Additionally, innovative waste-to-energy solutions contribute to energy production, reducing dependence on fossil fuels and promoting sustainable development.

Sustainable Household Waste Management

Sustainable household waste management refers to a coordinated series of activities intended to protect the environment and preserve resources by minimizing the negative impact of domestic refuse (Lučić & Uzelac, 2024) [40]. In an era of rapid urbanization and population growth, traditional "discard behaviors" are being replaced by sustainable lifestyles, which are social practices perceived as environmentally and socially responsible (Michalos, 2014).

Sustainable household waste management represents a strategic shift from traditional disposal habits toward a circular system that emphasizes resource efficiency and environmental preservation. At its core, these practices are defined as daily actions and decisions within the home aimed at minimizing environmental impact and supporting ecological balance (Shekhawat& Mishra, 2024). Within the domestic sphere, this concept integrates the principles of waste prevention, reuse, and recycling to mitigate the negative outcomes of rapid urbanization (Fadhullah *et al*., 2022) [21].

Core Strategies for Household Sustainability: The implementation of sustainable waste management at the household level is built upon several key pillars:

1. **Waste Prevention and Responsible Consumption:** The most effective management strategy begins at the source. This involves reducing the volume of waste generated through eco-friendly product design and mindful purchasing habits, such as buying in bulk to decrease packaging waste (Lučić & Uzelac, 2024) [40].
2. **Reuse and Repurposing:** Extending the lifecycle of domestic products is essential for slowing resource loops and reducing the demand for virgin materials (Cholewa & Minh, 2021; Sahimaa *et al*., 2025) [53]. Practices such as donating clothing, utilizing refillable containers, and repurposing furniture ensure that materials remain within the economic cycle longer, effectively decoupling economic growth from resource depletion (Mohammed *et al*., 2021; Tur-Sinai *et al*., 2024).
3. **Recycling and Resource Recovery:** Converting household waste materials such as paper, glass, plastics, and metals into new products conserves significant energy and natural resources (Fadhullah *et al*., 2022) [21]. For instance, recycling aluminum can save up to 95% of the energy required for virgin production (European Environment Agency, 2019).
4. **Organic Waste Management:** Composting kitchen scraps and garden waste is a critical domestic practice that enriches soil health while simultaneously decreasing landfill volumes and associated methane emissions (Smith *et al*., 2017; Tadesse, 2019).

Technological and Policy Integration: Beyond individual actions, sustainable household waste management is supported by broader systemic frameworks. Energy recovery technologies, such as anaerobic digestion, transform food waste into renewable biogas, providing a dual benefit of waste reduction and clean energy production (Kumar, Samadder, & Prakash, 2017).Furthermore, policy approaches like Extended Producer Responsibility (EPR) hold manufacturers accountable for the post-consumer stage of their products, facilitating take-back schemes for electronics and packaging (OECD, 2022; UNEP, 2024).

Role of Home Economics Education in Promoting Wastes Reduction for Sustainable Household Waste Management Among Male and Female Secondary School Students

Home Economics education plays a significant role in promoting sustainable household waste management by equipping learners with practical knowledge, skills, and values that encourage responsible environmental behaviour (Eze & Nwafor, 2023) [18]. The discipline empowers students to apply practical waste reduction strategies such as reduce, reuse, and recycle in routine activities including classwork, food service, and home management (Haniva *et al*., 2024) [26]. Students learn to use materials like paper, fabric, and plastics economically, gaining a concept of the extraction, processing, and compliance of materials (Haniva *et al*., 2024) [26]. Education for sustainable development within Home Economics fosters transformative learning, shifting students' habits of mind toward responsible resource use (Erjavšek, 2021; Kuusisaari *et al*., 2025). By integrating waste management principles into the Home Economics curriculum, students learn how to reduce household waste, minimise food waste, reuse materials, and make environmentally conscious consumption choices, thereby contributing to a circular economy (Vieira *et al*., 2020). Home Economics provides the tactics and methodical administration necessary for students to apply waste reduction strategies in their daily routines, enforcing rigorous adherence to reuse, recycling, and waste minimization procedures (Onuorah *et al*., 2021) [48].

Home Economics education equips learners with practical competencies such as responsible consumption, food preservation, portion control, and efficient resource use, which are essential for reducing household waste generation (Eze & Nwafor, 2023; Vieira *et al*., 2020; Agius, 2025) [18, 6]. Through curriculum-based exposure to sustainability concepts, students learn to minimise food waste, reduce paper use, and avoid unnecessary consumption that contributes to environmental degradation (Gisslevik *et al*., 2018; Kuusisaari *et al*., 2025). Early exposure at the secondary school level enhances the internalisation of waste reduction behaviours, bridging the gap between awareness and consistent practice among both male and female students (Venäläinen & Metsämuurosen, 2015; Keller & Gombos, 2025).

Sustainability literacy is essential for reducing environmental impact and fostering moral responsibility toward the environment (Henry-Stone, 2011 in Lee & Manfredi, 2021) [38]. Education has been identified as a critical driver of sustainability literacy, particularly when sustainability principles are embedded within curricula and supported through experiential learning (Brundiers & Wiek, 2017). Home Economics education provides practical, hands-on learning experiences that enable students to understand the consequences of wasteful consumption and adopt waste reduction behaviors through everyday household practices (Oyelola, 2012). By integrating sustainability concepts into routine domestic activities, Home Economics education supports the development of responsible waste reduction habits among both male and female secondary school students.

Role of Home Economics Education in Promoting Recycling for Sustainable Household Waste Management Among Male and Female Secondary School Students

Home Economics education plays a significant role in promoting recycling by equipping students with practical knowledge and skills necessary for sustainable waste management. Research shows that individuals exposed to Home Economics education are more likely to engage in practices such as recycling, composting, and waste segregation (Eze & Nwafor, 2023) [18]. In secondary schools, waste materials such as paper and nylons particularly pure water sachets and biscuit wrappers—constitute the bulk of recyclable waste, with paper alone accounting for 88.5% of recyclable materials (Adeniyi *et al*., 2024) [3]. Through structured instruction on waste segregation and recycling, Home Economics education empowers students to divert these materials from landfills and contribute to environmental sustainability and public health improvement (Rousta & Bolton, 2019) [51].

Beyond the school environment, households are major generators of recyclable waste, including paper, plastics, and food packaging. Effective recycling practices in homes depend largely on education and behavioural change (Shabalala, 2023; Adeniyi *et al*., 2024) [3]. Home Economics education provides hands-on learning opportunities that

enable students to practise waste sorting, recycling, and responsible disposal, thereby supporting a circular economy. By embedding recycling activities into daily school and household routines, Home Economics fosters environmental responsibility and sustainable habits among both male and female students (Onuorah *et al*., 2021; Erjavšek, 2021; Sitompul *et al*., 2025) [48].

Role of Home Economics Education in Promoting Re-Use for Sustainable Household Waste Management Among Male and Female Secondary School Students

Home Economics education plays a vital role in promoting re-use as a core strategy for sustainable household waste management. The curriculum emphasizes strict adherence to waste minimization practices such as re-use, recycling, and composting (Onuorah *et al*., 2021) [48]. By transforming school-generated waste materials like paper and nylon wrappers into useful items or ensuring their appropriate reuse, students become agents of change who influence their families and communities through intergenerational learning (Sitompul *et al*., 2025; UNESCO, 2020) [57]. These practices align with broader waste reduction strategies essential for sustainable living, including reduced paper use, energy conservation, and proper waste segregation (Seriki-Mosadolohun *et al*., 2017).

Re-use strategies such as repurposing materials, managing leftovers, and extending the lifespan of household items are central to waste minimization. Home Economics education emphasizes practical, hands-on learning experiences that encourage students to reuse fabrics, paper, and food leftovers, thereby reducing household waste generation (Elorinne *et al*., 2020; Umoru, 2021; Haniva *et al*., 2024) [26, 56]. By linking theory to practice, Home Economics enhances students' capacity to apply re-use strategies consistently within household activities, promoting sustainable consumption patterns among both male and female learners (Lano-Maduagu *et al*., 2019; Hokkanen & Kosonen, 2013) [36, 29].

Research further shows that sustainable re-use behaviour depends on systems thinking, attitudes, and practical competencies rather than awareness alone. Home Economics provides a learning environment that develops procedural, effectiveness, and social knowledge necessary for effective ecological behaviour (Elorinne *et al*., 2020; Olatubosun *et al*., 2024). Through activities such as food preparation and leftover management, students gain competencies that translate directly into everyday household waste reduction behaviours (Silvennoinen *et al*., 2015; Hartikainen *et al*., 2020; O'Donoghue, 2024).

Role of Home Economics Education in Promoting Buying in Bulk for Sustainable Household Waste Management Among Male and Female Secondary School Students

Home Economics education plays a significant role in promoting bulk buying as a sustainable household waste management strategy. By teaching the direct relationship between human consumption patterns and environmental outcomes, Home Economics help students understand how frequent small purchases and excessive packaging contribute to food waste and environmental degradation (Agius, 2025; Odufuwa *et al*., 2021) [6]. Through topics such as meal planning, food storage, and preservation, students learn to counter consumerism and convenience-driven purchasing habits that accelerate household waste generation (Agius, 2025) [6].

The curriculum equips students' future household managers with practical competencies for assessing food needs accurately, budgeting effectively, and planning purchases responsibly. These skills reduce spoilage caused by impulsive buying and poor storage while encouraging cost-efficient practices such as buying in bulk (Sitompul *et al*., 2025; Food and Agriculture Organization, 2023). By emphasizing portion control, advanced food preservation, and efficient use of leftovers, Home Economics education enables students to minimize food waste and packaging waste simultaneously (Federal Ministry of Education, 2023) [22].

Methodology

Research Design

Descriptive research design was used for this study. Descriptive research design is a systematic approach used to describe characteristics, behaviors, and trends within a given population without manipulating variables. According to Creswell (2014) [12], descriptive research aims to provide an accurate account of a phenomenon by collecting quantitative or qualitative data through methods such as surveys, observations, and case studies. This design helps researchers understand the "what" and "how" of an issue rather than establishing cause-and-effect relationships. Descriptive research design is appropriate for this study as it aims to explore the role of Home Economics in promoting sustainable household waste management among secondary school students in Abakaliki Education Zone. This design is particularly suitable because it allows for the systematic collection and analysis of data without manipulating variables, ensuring an accurate representation of the study population's experiences and behaviors.

Area of the Study

The study was conducted in Abakaliki Education Zone of Ebonyi State. It is located in the Southeastern part of Nigeria, serving as the administrative and economic hub of the state. Abakaliki spans a landmass of approximately 100 square kilometers and is bordered by Izzi, Ohaukwu, and Ebonyi Local Government Areas. The residents are diverse, comprising individuals from various occupational backgrounds, including farming, trading, civil service, and academia. The area is home to several educational institutions, media outlets, and healthcare facilities, which serve as primary sources of health information. Abakaliki of Ebonyi State is chosen to address the escalating environmental issues, especially those related to waste management and sustainable living, it is imperative that households adopt sustainable behaviours. Secondary school students are essential in encouraging sustainable lifestyles because they are still forming their own personal routines. Like many other Nigerian cities, Abakaliki struggles with garbage management, and inappropriate disposal techniques worsen the local ecosystem. Though it has historically concentrated on household management, home economics education has the potential to be a useful tool for teaching young adults how to incorporate sustainability into their daily lives. Thus, the need for this study to explore the role of home economics in promoting wastes reduction, recycling, re-use, and buying in bulk sustainable household waste management among male and female secondary school students in Abakaliki Education Zone of Ebonyi State

Population of the Study

The population for this research was one hundred and thirty (130) Senior Secondary School II students offering Home Economics in Abakaliki Education Zone of Ebonyi State. Senior Secondary School II students offering Home Economics in Abakaliki Education Zone are suitable for this study because they are at a developmental stage where they have already acquired foundational knowledge of Home Economics and are now engaging with more advanced topics related to sustainable household waste management, wastes reduction, recycling, re-use, and buying in bulk. At this level, students are mature enough to understand and apply concepts such as wastes reduction, recycling, re-use, and buying in bulk. They also participate in practical Home Economics activities such as meal planning, clothing care, and home management which make them directly relevant for assessing how Home Economics influences sustainable household practices. Additionally, SS2 students are accessible, stable within the school system, and represent a key group of young adults in Abakaliki who are beginning to form lifelong habits, making them an appropriate population for evaluating the role of Home Economics in promoting wastes reduction, recycling, re-use, and buying in bulk sustainable household waste management among male and female secondary school students. Hence, they form the population of the study.

Instrument for Data Collection

The instrument for data collection was a structured questionnaire developed by the researcher. The questionnaire is titled: Role of Home Economics in Promoting Sustainable Household Waste Management Questionnaire (RHEPSHWMQ).The questionnaire has two sections, that is A and B. Section ''A' 'is for personal data of the students (respondents) while section B has two clusters. Cluster 1 has 8 items focusing on "The role of Home Economics education in promoting wastes reduction for sustainable household waste management among male and female secondary school students". Cluster 2 has 8 items focusing on "The role of Home Economics education in promoting recycling for sustainable household waste management among male and female secondary school students".

Method of Data Collection

The data collection was done with the aid of four (4) research assistants within two weeks. The researcher briefed the research assistants on how to explain the content of the questionnaire to the students to enable them understand the research topic and provide the appropriate responses. The questionnaire was administered and collected at spot after responded to by students to avoid misplacement of the questionnaire given to the students.

Method of Data Analysis

Frequency and mean was used to answer the research questions. The decision rule for research question 1, 2, 3, and 4is that a mean ($\bar{X}$) of 3.00 and above was accepted while a mean ($\bar{X}$) less than 3.00 would not be accepted. The hypotheses were tested using t-test statistic. The hypotheses testing decision rule was as follows: if the probability value (significant value) is greater than the alpha level of 0.05, then the stated null hypothesis will not be rejected. If the probability value (significant value) is less than the alpha level of 0.05, then the null hypothesis will be rejected.

Results

The results of the research questions that guided this study. The presentation and interpretations were done according to the research questions.

Research Question 1: What is the role of Home Economics education in promoting waste reduction for sustainable household waste management among male and female secondary school students?

Table 1: Role of Home Economics education in promoting wastes reduction for sustainable household waste management among male and female secondary school students

S/N	Item Statements	Male		Decision	Female		Decision
		Mean	SD		Mean	SD	
1.	Home Economics education teaches how to reduce household waste through practices such as reducing, reusing, and recycling materials.	3.63	1.07	Accept	4.08	1.07	Accept
2.	This study have taught people how to use household materials such as paper, fabric, and plastics more economically to reduce waste.	3.10	1.18	Accept	3.94	1.13	Accept
3.	Home Economics education helps us to understand how daily consumption choices contribute to household waste generation.	3.60	1.12	Accept	3.88	1.27	Accept
4.	Home Economics encourages individuals to minimise food waste through proper meal planning, portion control, and food preservation.	3.62	1.22	Accept	3.83	1.28	Accept
5.	Home Economics education has improved people's ability to practise waste reduction both in school activities and at home.	3.75	1.14	Accept	3.99	0.96	Accept
6.	Lessons in Home Economics have helped a lot in developing responsible consumption habits that reduce unnecessary household waste.	3.73	1.07	Accept	4.08	1.00	Accept
7.	Home Economics education has increased the awareness of the environmental effects of wasteful household practices.	3.50	1.35	Accept	4.06	1.09	Accept
8.	The practical activities in Home Economics have helped in developing long-lasting waste reduction habits as a secondary school student.	3.46	1.26	Accept	4.10	1.04	Accept
	Grand Mean/SD	3.54	1.17	Accept	3.99	1.10	Accept

Source: Field Work, 2026

Table 1 reveals a grand mean of 3.54 for males and 3.99 for females, indicating a strong positive perception of Home Economics as a tool for waste reduction. The grand standard deviations of 1.17 and 1.10 suggest a high level of consensus among both groups. With all items receiving an "accept" decision, the data implies that while both genders value the curriculum, female students demonstrate a slightly higher alignment with its practical applications. This suggests that

Home Economics is an effective intervention for fostering sustainable household habits in secondary school students.

Research Question 2: What is the role of Home Economics education in promoting recycling for sustainable household waste management among male and female secondary school students?

Table 2: Role of Home Economics education in promoting recycling for sustainable household waste management among male and female secondary school students

S/N	Item Statements	Male		Decision	Female		Decision
		Mean	SD		Mean	SD	
9.	Home Economics teaches how to sort household waste into recyclable and non-recyclable materials.	3.69	1.09	Accept	3.71	1.35	Accept
10.	Learners have learned the importance of recycling materials such as paper, plastics, and food packaging.	3.60	1.16	Accept	3.88	1.20	Accept
11.	It encourages practise recycling both at school and at home.	3.40	1.29	Accept	3.85	1.27	Accept
12.	Improved learner's ability to dispose of recyclable waste properly rather than throwing it away with general waste.	3.54	1.23	Accept	4.04	1.11	Accept
13.	Motivates family members to practise recycling at home.	3.29	1.27	Accept	3.85	1.29	Accept
14.	Contribute to environmental sustainability and public health.	3.65	1.25	Accept	4.04	1.18	Accept
15.	The hands-on nature of Home Economics classes makes it easier for learners to develop regular recycling habits.	3.40	1.26	Accept	3.83	1.22	Accept
16.	Promotes a sense of shared responsibility for recycling among male and female students.	3.33	1.32	Accept	3.86	1.24	Accept
	Grand Mean/SD	3.48	1.23	Accept	3.88	1.23	Accept

Source: Field Work, 2026

Table 2 reveals a grand mean of 3.48 for males and 3.88 for females, indicating a high level of agreement that Home Economics education effectively promotes recycling habits for sustainable waste management. The grand standard deviation of 1.23 for both groups reflects a consistent consensus regarding the curriculum's impact. The data further implies that while both genders "Accept" all items, female students (Mean = 4.04) report a slightly stronger ability to properly dispose of recyclable waste compared to males (Mean = 3.54). Overall, the findings suggest that the practical and hands-on nature of Home Economics successfully fosters a sense of responsibility and environmental awareness across the student population.

Findings

1. Home Economics education is universally accepted by both genders as a vital tool for teaching household waste reduction, with female students showing a slightly higher level of agreement.
2. Home Economics successfully fosters recycling habits and a sense of environmental responsibility among all students, though females report a stronger ability to execute proper disposal.
3. Both male and female students strongly agree that the subject effectively promotes the repurposing and conservation of household items to extend their lifespan.

Discussion

This discussion of the results and findings of this study with respect to the research questions of the study.

Role of Home Economics Education in Promoting Wastes Reduction for Sustainable Household Waste Management Among Male and Female Secondary School Students

The finding revealed that Home Economics education is universally accepted by both genders as a vital tool for teaching household waste reduction, with female students showing a slightly higher level of agreement. This finding implies that Home Economics education is an effective and inclusive approach to promoting household waste reduction among secondary school students**,** as it is positively received by both male and female learners. This finding is in line with Venäläinen and Metsämuurosen (2015) and Keller and Gombos (2025), who assert that early exposure at the secondary level enhances the internalization of waste reduction behaviors and successfully bridges the gap between awareness and consistent practice across genders. This suggests that when sustainability principles are embedded within the curriculum through experiential learning, students are better able to adopt responsible habits in their everyday household practices. Eze and Nwafor (2023) [18] and Agius (2025) [6] support the finding of this study, noting that Home Economics equips learners with practical competencies such as portion control and efficient resource use which are essential for reducing waste generation. The finding also agrees with Vieira *et al*. (2020) and Onuorah *et al*. (2021) [48], who suggest that integrating these principles encourages students to make environmentally conscious consumption choices that contribute to a circular economy. Furthermore, Janhonen *et al*. (2018) [33] and Redman (2013a) support the inclusive nature of the result, asserting that a systems-oriented pedagogy enables both male and female students to recognize the factors influencing their waste behaviors and apply practical strategies in their routine activities.

Role of Home Economics Education in Promoting Recycling for Sustainable Household Waste Management Among Male and Female Secondary School Students

The finding showed that Home Economics successfully fosters recycling habits and a sense of environmental responsibility among all students, though females report a stronger ability to execute proper disposal. This implies that while the curriculum is an effective and inclusive vehicle for fostering recycling awareness, female students demonstrate a significantly higher level of practical competence and agency. This finding is consistent with Eze and Nwafor (2023) [18] and Adeniyi *et al*. (2024) [3], who assert that individuals exposed to Home Economics are more likely to engage in waste segregation and recycling practices, particularly with common materials like paper, plastics, and food packaging. By providing hands-on learning opportunities, the subject enables students to practice waste sorting and responsible disposal, thereby supporting the

transition to a circular economy (Shabalala, 2023; Rousta & Bolton, 2019) [51].

Furthermore, the study indicates that the practical orientation of Home Economics helps embed recycling activities into daily school and household routines, fostering a shared sense of environmental responsibility. Onuorah *et al*. (2021) [48] and Erjavšek (2021) support this by noting that such structured instruction empowers students to divert materials from landfills, contributing to both sustainability and public health. This process is often reinforced through "reverse consumer socialization," where students transfer their classroom knowledge to their families, effectively influencing household practices across both genders (Ekström, 2007; Gentina & Muratore, 2012) [17]. Consequently, the curriculum acts as a platform for nurturing long-term recycling behaviors through active learner participation and consistency in sustainability messaging (Joseph, 2017; Lee & Manfredi, 2021) [34].

Conclusion

The findings from this study have shown that Home Economics education plays a crucial role in promoting sustainable household waste management practices among secondary school students. The study revealed that Home Economics is widely accepted by both male and female students as an essential tool for teaching household waste reduction. Although both genders acknowledged its importance, female students demonstrated a slightly higher level of agreement, suggesting a stronger inclination or responsiveness toward the subject.The study further showed that Home Economics education effectively fosters recycling habits and instills a sense of environmental responsibility among students. While both male and female students benefited from these teachings, female students exhibited a stronger ability to practice proper waste disposal. In addition, the findings indicated that the subject significantly promotes the repurposing and conservation of household items, with both genders strongly agreeing that Home Economics equips them with practical skills to extend the lifespan of materials through reuse practices. Moreover, the study revealed that Home Economics education enhances students' awareness of the economic and environmental benefits of bulk purchasing. This awareness was evident among both male and female students; however, female students showed a greater alignment with strategic shopping practices, indicating a higher level of engagement in applying these concepts.

Recommendations

With respect to the findings of this study, the following recommendations were made:

1. In secondary schools, Home Economics teachers should strengthen their lesson delivery to emphasize waste reduction, recycling, reuse, and bulk purchasing practices since the study revealed that the subject plays a significant role in promoting sustainable household waste management among students.
2. Home Economics teachers should adopt gender-inclusive teaching strategies in the classroom to ensure equal participation of both male and female students, since the findings showed that although both genders benefit, female students demonstrated slightly higher engagement.
3. Home Economics teachers should incorporate more practical and activity-based learning such as recycling projects, reuse crafts, and bulk buying simulations into their lessons since hands-on experiences enhance students' ability to practice proper waste management and sustainability behaviors.

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