

Operational and Maintenance Skills Required by Homemakers for Utilization of Selected Household Equipment

Dimelu, I. N. & Anyakoha E.U.

Department of Vocational Teacher Education
University of Nigeria, Nsukka

Abstract

The study determined the operational and maintenance skills required by homemakers for utilization of selected household equipment in Enugu State. The study adopted survey research design. Three research questions and three hypotheses guided the study. The sample was 317, made up of 184 wage earning and 133 self employed homemakers. Data were analysed using mean and t-test. Findings include 17 operational and maintenance skills required by homemakers in the utilization of blender, 21 in deep freezer and 18 in gas cooker.

Keywords: Homemakers; Household; Equipment; Maintenance; Skill

Introduction

Households carryout different activities for the welfare of their members, such activities include among others laundry, house cleaning, child care and meal management. These activities which keep households going require the use of various forms of household equipment to accomplish them. Examples of household equipment are micro wave oven, deep freezer, blender ranges. Household equipment are made up of home appliances or tools designed to simplify and facilitate household chores (Leach, Peter and Ru-edge 2014). Dorsey (2013), noted that household equipment are valued for work they can do, as well as ways they reduce the time and effort required for many home routine tasks. Household

equipment can be classified by size, as small, medium and large pieces of equipment. Paskin (2013), also categorized household equipment on basis of operational requirement in electrical, non-electrical and mechanical equipment. Electrical ones are powered by electricity. Other types of fuel can also be used too for non-electrical while mechanical equipment are operated manually.

Operation is an act of partaking in a process or series of actions relating to a particular form of work or task to achieve a result. Operational skills in the use of household equipment involve, proper positioning of the appliance, connecting to and disconnecting from source of power, setting device and controlling the device while in use (Lani, 2013). Household chores differ in several

ways, including their operational skills and needed equipment. Some are performed more frequently such as meal management while others such as laundry, house cleaning, financial record keeping, cutting the lawn may be done every other day, weekly or monthly (Lewis, 2010). Meal management is the most frequently chore performed by homemakers in the household. It involves such activities as storing, cutting, blending, mixing, cooking, serving, cleaning among others. Meal preparation requires many different types of equipment. Some of these kitchen equipment are expensive and play more vital role in meal management activities such as deep freezer, blender, cooker. These are major pieces of equipment which homemakers should master their operational skills in order to simplify work especially in this present day where many homemakers take paid jobs outside the home.

Mastering operational skills for the major meal management equipment, facilitates the activities of the homemakers, improves work, saves time and energy and reduce waste and accident (William, 2012). Deloitte (2012), stressed the need for manufacturers of these equipment, issue instruction guide to assist users in operating, cleaning and keeping the equipment in efficient working order. It is the responsibility of the users to follow the instructional guide strictly in handling and maintaining these kitchen equipment.

Maintenance is the process of keeping the kitchen equipment in an optimal operational condition. It is the act of keeping things (equipment, tools etc) in order through regular checking and servicing to avoid breaking down or malfunctioning (Saunders, 2012 and Adebayo, 2013), Maintenance of household equipment calls for careful application of skills in the manipulation, and treatments. Steer (2011) stated two types of maintenance, homemakers need for their kitchen equipment like, preventive and corrective maintenance. The author further explained that preventive maintenance is carried out daily, weekly and monthly while using the equipment to avoid rusting, tarnishing and breaking down which include handling washing drying, polishing, oiling and proper storage. Corrective maintenance is carried out when the equipment has broken down for the purpose of repair work such as fixing spoilt part, re-polishing or repainting. It is important that homemakers should have these skills for regular and proper maintenance of equipment to reduce the experience of frequent damage, breakdown and malfunctioning.

Many homemakers in Enugu State operate heavy work load inside and outside the home. The effective utilization of the household equipment such as deep freezer, blender and gas cooker is to simplify and facilitate kitchen activities. The extent to which the women benefit optimally from the use of their

household equipment however remains questionable. They need to acquire relevant operational skills. Obit (2013), observed that most homemakers neglect instructional manual that accompany the equipment and rush into using their equipment. This practice can destroy the equipment and make it a source of danger. Brain (2014), also stated that poor maintenance of kitchen equipment may lead to reduced operational speed or the complete failure of the piece of equipment. In addition there is a risk of loss of time, and accident may occur. Homemakers therefore require training on the operational and maintenance skills of these household equipment for efficiency in utilization. These skills need to be identified.

Purpose of the Study - The major purpose of the study was to evolve operational and maintenance skills required by homemakers (wage earner and self employed) in utilization of selected household equipment.

Specifically, the study determined the operational and maintenance skills needed by homemakers for the utilization of:

- a. (Foodmixer) blender for grinding food items.
- b. Deep freezer for storing in the household.
- c. Range (gas cooker) for cooking food.

Research Questions

The study answered the following research questions:

1. What are the operational and maintenance skills in meal preparation required by homemakers in utilization of blenders for grinding food items?
2. What are the operational and maintenance skills in meal preparation required by homemakers in utilization of deep freezers for storing food?
3. What are the operational and maintenance skills in meal preparation required by homemakers in utilization gas cooker for cooking food?

Hypotheses

The following hypotheses were tested at 0.05 level of significance.

Ho₁: There is no significant difference in the mean ratings of homemakers (wage earners and self employed) on the operational and maintenance skills in blended required by homemakers for efficiency in grinding.

Ho₂: There is significant difference in the mean ratings of wage earners and self employed homemakers in operational and maintenance skills in deep freezer required by homemakers for efficiency in storage.

Ho₃: There is no significant difference in the mean ratings of wage earning and self employed homemakers on operational and maintenance skills in gas cookers required by homemakers for efficiency in cooking food.

Methodology

Design and Area of the Study - The study adopted survey research design. It was carried out in Enugu State. Enugu urban was specifically used due to the presence of ministries, industries, banks and big business areas e.g. boutiques etc, where these wage earning and self employed homemakers are engaged for income generation.

Population for the Study - The population for the study was 1,815 homemakers comprised of 1203 wage earning homemakers and 612 self employed homemakers within prograding stage. Wage earning homemakers are those employed in government establishment (bankers etc) while self are those owning big businesses like boutiques, super markets etc, who can purchase and use these equipments; Extrated from National Directorate of Employment (NDE) Bureau of statistics (2012).

Homemakers are considered relevant to this study because they are directly involved in the use household equipment with some skills in their usage.

Sample for the Study - The sample for the study was 317 homemakers, comprising 184 employed or wage earning and 133 self employed homemakers. Purposive sampling technique was used to select ten percent (10%) from the population of wage earners and twenty (20%)

percent from the population of self employed homemakers making a total sample of 317 respondents.

Instrument for Data Collection - Questionnaire was used for data collection. It was used based on the purposes of the study. The questionnaire item had four response options of Highly Required (4), Averaged Required (3), Slightly Required (2) and Not Required (1). It was validated by three Home Economics lecturers. Cronbach Alpha formular was used to determine the internal consistency of the questionnaire items. It yielded an alpha co-efficient of 0.87.

Technique for Data Collection and Analysis - A total of 517 copies of the questionnaire were distributed by hand to the respondents. Only 295 out of 317 copies were duly completed and retrieved within three weeks. Mean and t-test were used for data analysis. Any item that scored mean of 2.50 and above was regarded as required, while items with mean score below 2.50 were not required. The t-test was used to test the hypotheses at 0.05 level of significance at 255 degree of freedom for hypotheses, any item whose t-cal was less than t-tab was accepted while any item whose t-cal was greater than t-tab was rejected.

Results

Findings: The findings are summarized in Tables 1 -3.

Table 1: The Mean Responses of the Wage Earners and Self Employed Homemakers on Operational and Maintenance Skills in Utilization of Blender Required by Homemakers for Efficiency in Grinding Food Items
N - (257); W/E - (135); S/E - (122)

ITEM STATEMENT							
S/N	Operational skills in Blender	\bar{X}	\bar{X}_W	\bar{X}_S	t-cal	t-tab	Remark
1	Read instructional manual before use.	2.87	2.86	2.88	1.07	1.96	R, NS
2	Operate the blender with good three pin plugs and well insulated wire.	2.99	3.08	2.91	1.01	1.96	R, NS
3	Place the jar holder on the motor house.	3.14	3.05	3.23	1.05	1.96	R, NS
4	Turn the jar holder clockwise until tightly fixed.	3.17	3.15	3.19	0.99	1.96	R, NS
5	Fill the jar half filled with wet food and little water for wet grinding or dry jar with dry food for dry grinding	3.16	3.12	3.21	0.83	1.96	R, NS
6	Cover the lid securely locked.	3.09	3.06	3.12	0.71	1.96	R, NS
7	Socket the plug to the wall socket and switch on.	3.22	3.21	3.23	0.85	1.96	R, NS
8	Run the grinder by pressing the lever and do not run continuously, purse after a time.	2.96	2.81	3.16	0.81	1.96	R, NS
9	Switch off and detach the plug from the socket after grinding pour out the ground food.	2.92	2.87	2.98	0.88	1.96	R, NS
10	Wash up immediately and allow the jar to drain dry before storage	2.87	2.80	2.95	0.96	1.96	N, NS
Maintenance skills							
11	Place the cord on the table while operating the appliance do not allow to hang over the edge of the table or counter.	3.14	3.17	3.11	0.91	1.96	R, NS
12	Handle the sharp blades carefully while washing.	3.22	3.19	3.26	0.89	1.96	R, NS
13	Clean the motor without immersing in water or other liquid to avoid damage.	3.27	3.24	3.31	0.87	1.96	R, NS
14	Use the appliance for intended use and not for other things.	3.13	3.06	3.21	0.83	1.96	R, NS
15	Switch on the appliance only when there is food to grind.	3.25	3.15	3.32	0.92	1.96	R, NS

16	Store clean and dry.	3.18	3.14	3.22	0.90	1.96	R, NS
17	Take to an authorized services company or technician for service and repairs	3.20	3.23	3.18	1.09	1.96	R, NS

Key - \bar{X} Mean; R - Required; NS - Not Significant; WE - Wage Earners; SE - Self Employed, t-cal - t calculated; t-tab - t-table = 1.98, Degree of Freedom = 255.

Table 1, revealed that the mean ratings of the respondents ranged from 2.87 - 3.27 which were greater than 2.50. This showed that both the wage earning and self employed homemakers in Enugu State agreed that the 17 items on operational and maintenance skills in utilization of blender were required by homemakers in utilization of blender for efficiency in grinding.

Table 2: The Mean Responses of the Wage Earning and Self Employed Homemakers on Operational and Maintenance Skills Required by Homemakers in Utilization of Deep Freezer for Efficiency in Storage

ITEM STATEMENT		\bar{X}	\bar{X}_W	\bar{X}_S	t-cal	t-tab	Remark
S/N	Operational Skills in Deep Freezer						
1	Read the instructional manual carefully and understand it before use.	2.91	2.95	2.87	0.81	1.96	R, NS
2	Keep the freezer in a ventilated room and 15cm away from the wall.	3.42	3.38	3.46	0.61	1.96	R, NS
3	Position the deep freezer a distance from direct sunlight or near an oven or cooker.	3.25	3.33	3.16	0.89	1.96	R, NS
4	Indicate the power load from the manual whether it corresponds with the fitted socket.	3.55	3.27	3.44	0.56	1.96	R, NS
5	Connect the plug to the wall socket.	3.41	3.32	3.51	0.68	1.96	R, NS
6	Turn the power to test run the freezer for 30 minute to know whether the temperature will get lower than what is indicated in the manual.	3.02	3.22	2.82	0.95	1.96	R, NS
7	Adjust temperature for storage.	3.18	3.07	3.29	0.97	1.96	R, NS
8	Wash food items for storage and wrap or package.	3.18	3.03	3.33	0.87	1.96	R, NS
9	Store food at maximum freezing capacity as indicated in the manual.	2.97	3.00	2.97	0.76	1.96	R, NS

10	Allow smooth circular of air: by not blocking the vent with food items.	2.95	3.17	2.74	0.26	1.96	R, NS
11	Store bottles in cooling apartment.	3.3	3.35	3.27	0.78	1.96	R, NS
12	Ensure that food stored is fresh.	3.19	3.14	3.24	0.82	1.96	R, NS
Maintenance skills							
13	Adhere strictly to its intended use.	3.25	3.34	3.22	1.06	1.96	R, NS
14	Replace the electric service cords or plug immediately, if faulty.	3.27	3.38	3.17	1.01	1.96	R, NS
15	Unplug or disconnect to defrost before washing don't use sharp object to remove ice.	3.38	3.25	3.45	0.36	1.96	R, NS
16	Wipe the body and tops regularly with soft duster.	3.15	3.21	3.10	1.10	1.96	R, NS
17	Wash with warm soapy water and soft sponge not with scouring pad, brush and abrasive.	3.23	3.32	3.14	1.14	1.96	R, NS
18	Add bicarbonate of soda to remove offensive odour.	3.06	2.96	3.06	0.94	1.96	R, NS
19	Avoid using the tops for storage to prevent depression of the carbonate.	3.26	3.28	3.25	1.15	1.96	R, NS
20	Dictate unusual light signals and noise.	2.27	2.23	2.31	0.89	1.96	R, NS
21	Service and repair the appliance with authorized technicians	2.51	2.45	2.56	0.19	1.96	R, NS

Table 2, reveal that the mean ratings of the two groups of respondents ranged from 2.51 – 3.42 and were above the cut-off point of 2.50. This implied that homemakers required the 21 skill items in operation and maintenance of deep freezer for efficiency in storage activities.

Ho₂, the table also revealed that the 21 skill items required by homemakers for efficiency in utilizing deep freezer for storage had their t-cal

ranged from 0.61 – 1.15 and were less than 1.96 at 0.05 level of significance and 255 degree of freedom. This showed that there was no significant difference in the mean rating of wage earning homemakers and self employed homemakers on the operational and maintenance skills required in deep freezer for efficiency in storage. Therefore, the hypotheses of no significant difference were upheld for the 21 items.

Table 3: The Mean Responses of Wage Earning and Self Employed Homemakers on Skills in Utilization of Gas Cooker Required by Homemakers for Efficiency in Cooking Activity

S/N	ITEM STATEMENT Operational Skills in Cooker	\bar{X}	\bar{X}_w	\bar{X}_s	t-cal	t-tab	Remark
1	Provide ventilation in the kitchen to prevent health hazard.	2.98	3.02	2.94	0.92	1.96	R, NS
2	Place the unit on a level ground, 15cm from the wall and 100cm from the ceiling.	3.13	3.02	3.18	1.06	1.96	R, NS
3	Use gas rubber hose of approved type not vinyl host that may not resist high temperature.	3.10	3.02	3.18	1.06	1.96	R, NS
4	Keep the cylinder away from source of heat.	3.36	3.18	3.47	1.05	1.96	R, NS
5	Open the main gas value, light the match, push in the gas control knob and turn the knob clockwise to light the burner.	3.28	3.34	3.20	0.96	1.96	R, NS
6	Test run all the knobs with care to identify which knob belong to which burner.	2.78	2.83	2.73	1.03	1.96	R, NS
7	Turn the ignition knob clockwise up to its original position and turn off the gas value to stop gas flow after use.	2.89	2.91	2.87	1.01	1.96	R, NS
8	Use the unit for the purpose is meant for, cooking, baking, grilling.	2.76	2.73	2.78	0.99	1.96	R, NS
9	Turn off the cooker immediately if there is any sign of abnormal combustion or sound and contact a qualified technician.	3.19	3.35	3.03	0.85	1.96	R, NS
	Maintenance Skills					1.96	
10	Turn off the knob, raise up the gas lever to stop gas flow after cooking.	2.94	2.96	2.91	0.97	1.96	R, NS
11	Clean the ring cap with wire brush or tooth brush to keep clean.	2.98	3.08	2.87	1.05	1.96	R, NS
12	Mount the ring cap properly	2.92	2.89	2.95	0.96	1.96	R, NS

	for even distribution of gas.							
13	Wipe the dirt on the cooker using soft damp cloth with mild soap.	3.07	2.96	3.18	0.94	1.96	R, NS	
14	Replace the host if there is crack or leakage.	3.14	2.98	3.30	1.09	1.96	R, NS	
15	Wipe the dirty host with soft damp cloth.	3.06	3.00	3.12	0.96	1.96	R, NS	
16	Clean the unit immediately after each use.	3.19	3.25	3.13	0.93	1.96	R, NS	
17	Clean the unit every weak to prevent stains coating on it.	2.96	2.82	3.10	1.06	1.96	R, NS	
18	Service and repair the unit with an authorized technician.	2.61	2.15	2.57	1.14	1.96	R, NS	

Table 3, revealed that the mean ratings of the two groups of respondents ranged from 2.76 – 3.36 and were above the decision rule of 2.50. This showed that the respondents required the 18 skill items in gas cooker for efficiency in cooking activity.

H_{03} , the t-cal ranged from 0.93 – 1.14 and were less than t-tab at 0.05 level of significance and 255 degree of freedom. This implies that there was no significant difference in the mean ratings of the respondents on the operational and maintenance skills required by homemakers in utilization of gas cooker for efficiency in cooking food. Therefore, the hypothesis of no significant difference was accepted for the 18 items.

Discussion

The findings in Table 1, revealed that homemakers need the seventeen (17) skill items identified by this study in operational and maintenance of a blender for efficiency in meal preparation. These skills include; reading instructional manual before

use, operate the blender with good pin plugs, wash up immediately and allow the jar to drain dry before storage, store clean and dry. These findings agreed with the instructional guide provided by Qlink User Manual (2010) and Frost Free Owner Manual (2013), as follows; operate the blender with three pin plugs, wash up immediately and allow the jar to drain dry before storage, store clean and dry, read instructional manual before use. For efficiency in the use of blender by homemakers, Steer (2011), suggested that homemakers should adopt preventive maintenance in the use of the blender like, handling, oiling washing and drying the equipment before storage to prevent rusting, tarnishing and malfunctioning. In mastering the instructional manual before using the equipment, Deloitte (2013), stated that manufacturer issue instructional guide on how to use, clean and keep any appliance in efficient working condition. It is the responsibility of the user to follow the instructions strictly.

Glusson, Meek and Mock (2012), noted that many factors may hinder users from effective use of household equipment such as having limited time to master the skills and basing their use on previous experience, consequently causing them problem from obtaining the best from using the equipment.

Conclusion

It was observed among career homemakers that they did not obtain expected satisfaction in using some selected kitchen equipment such as blender, deep freezer and gas range in meal preparation. These equipment broke down easily, sometimes fail in operation, causing them stress, frustration and waste of resources. Reason being that, these homemakers did not apply the appropriate skills required in the use of these equipment; therefore require skills in the operation and maintenance of these equipment. The study, therefore was carried out to address the problems and also make contribution to knowledge and comfort of these career homemakers. The study found out 17 operational and maintenance skills required by homemakers in using blender, 21 in deep freezer and 18 in gas range.

Recommendations

1. The identified skills by this study should be incorporated into the curriculum of home economics for training students while in school and in school acquisition centers for interested homemakers on

efficiency in the use of kitchen equipment.

2. Advertisement and the demonstration of skills on these equipment should be shown on television from time to time to help educate homemakers in their individual homes, since some of them have little or no time to master the skills on the use of these selected kitchen equipment through manual guide.
3. Workshops and seminars should be organized by home economist for training homemakers since they nearly need appropriate skills in the use of their kitchen equipment.

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