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IMPLEMENTING KIRKPATRICK'S EVALUATION MODEL TO ASSESS TRAINING PROGRAM FOR YOUNG MOTHERS IN THE PHILIPPINES

Gaudicos, Adel Grace

agaudicos@southernleytestateu.edu.ph

Dayola, Yancy Maria

ydayola@southernleytestateu.edu.ph

Camaso, Maria Fe

mfcamaso@uv.du.ph

Wagas, Henry

henry.wagas@gmail.com

Abstract

This study evaluates the effectiveness of the dishwashing liquid production training program conducted under using the Kirkpatrick Four Stages Evaluation Model. This study utilizes the quasi-experimental design to assess the participants' acquisition of knowledge and skills through pre-and post-tests. Kirkpatrick's first level shows the participants' high satisfaction with the training and highlights its perceived helpfulness. Kirkpatrick's second level reveals a substantial increase in participants' knowledge and cognitive skills post-training. Statistical significance was not reached in the fifth workshop, emphasizing the need for continuous refinement. The third and fourth levels manifest that most participants initiate their respective dishwashing liquid production and sales. While the training poses challenges due to confounding factors, the study highlights the importance of participants' opinions in shaping educational programs and enhancing organizational performance. Further explorations like necessary refinement of the assessment tools, tailored program enhancements, and a continuous feedback loop to ensure sustained effectiveness in community-based training initiatives, may be carried out.

Keywords: *Young mothers, Livelihood training, dishwashing liquid production, Four stages evaluation model, Training program*

Introduction

State Universities and Colleges (SUCs) in the Philippines must fulfill a triad of functions encompassing instruction, research, and extension services. The instruction involves imparting knowledge and skills to students (Sermona et al., 2020). Conversely, research is used to formulate novel theories and practices beneficial to the university and society. The significance

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of higher education in research is underscored in CMO No. 46, s. 2012, emphasizing its role in providing targeted support for research essential for technological innovation, economic growth, and global competitiveness, as well as in shaping the strategic directions and policies of the country. The CMO No. 46, s. 2012 states that the critical objectives of the Philippine Higher Education system are to enhance the quality of life for Filipinos, to adapt proactively to evolving societal needs, and to offer solutions to issues at the local, regional, and national levels. As extension services constitute a fundamental function of universities and colleges, the assessments of state universities and colleges should incorporate measures and indicators gauging the scope and effectiveness of extension service delivery. These evaluations can be integrated into various assessments, including SUC Levelling, the Annual Major Final Outputs of SUCs, the Institutional Sustainability Assessment of CHED, and the Institutional and Program Accreditation conducted by the Accrediting Agency of Chartered Universities and Colleges (AACCUP). This directive for engaging in extension services extends beyond Philippine higher education institutions. Globally, universities are expected to contribute significantly to society, forming a crucial aspect of their mandate called the "third mission." In addition to education and research, universities are anticipated to articulate their connection or desired connection with society (Maassen et al., 2019).

Extension services enable institutions and their faculty members to share their expertise not only with the enrolled students but also with the broader community. Moreover, extension services serve as the conduit through which research outcomes and innovations are translated into products and services that contribute to the socio-economic development of both the local community and the nation at large.

Southern Leyte State University's Institute of Arts and Sciences has launched the Community-Based Young Parents Support and Livelihood Program. This initiative addresses the prevalent issue of early pregnancy in the Philippines, where the country holds the third position among the Southeast Asian nations. Concentrating in barangay San Jose, the program aims to confront the social and economic challenges confronted by young parents. Its objectives include improving parenting skills and presenting livelihood opportunities. Embedded within this program is the Effective and Efficient Parenting Project, featuring a livelihood component centered around dishwashing liquid production.

Evaluation is one of the essential elements of the educational process. Evaluation of training is an effort to determine whether the training objectives are achieved by gathering information to assess the efficiency of the training. There are also growing pressures to evaluate training for the significant achievement of the objectives. Training organizers are responsible not only for determining whether the trainees have met the educational objectives but also for ensuring the quality of the training programs themselves.

Numerous models had been established to evaluate educational programs, but Donald Kirkpatrick's model (Kirkpatrick & Kirkpatrick, 2006) stands out as the predominant framework

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for organizing training evaluations. Kirkpatrick's evaluation strategies offer a comprehensive approach comprising four pivotal assessment levels, each influencing the subsequent level (see Figure 1). The initial level centers on participants' perceptions of the training program, satisfaction assessment, and gathering of insights into their feelings about the received training (Kirkpatrick & Kirkpatrick, 2005). The second level, the learning phase, is where the participants most likely acquire knowledge, skills, and subsequently witness changes in attitudes and behaviors (Ehlers &Schneckenberg, 2010). Assessors may employ pre-tests and post-tests to measure the knowledge and cognitive skills acquired during the training. The third level evaluates whether the acquired knowledge, skills, and attitudes can be applied in the workplace, promoting positive changes in behaviour and job performance. The fourth level, deemed the most crucial, examines the primary outcomes of the project, focusing on the enhanced performance of participants. This vital information is particularly challenging to provide due to various factors influencing organizational performance beyond just faculty performance (see Figure 1), (Kirkpatrick & Kirkpatrick, 2007).

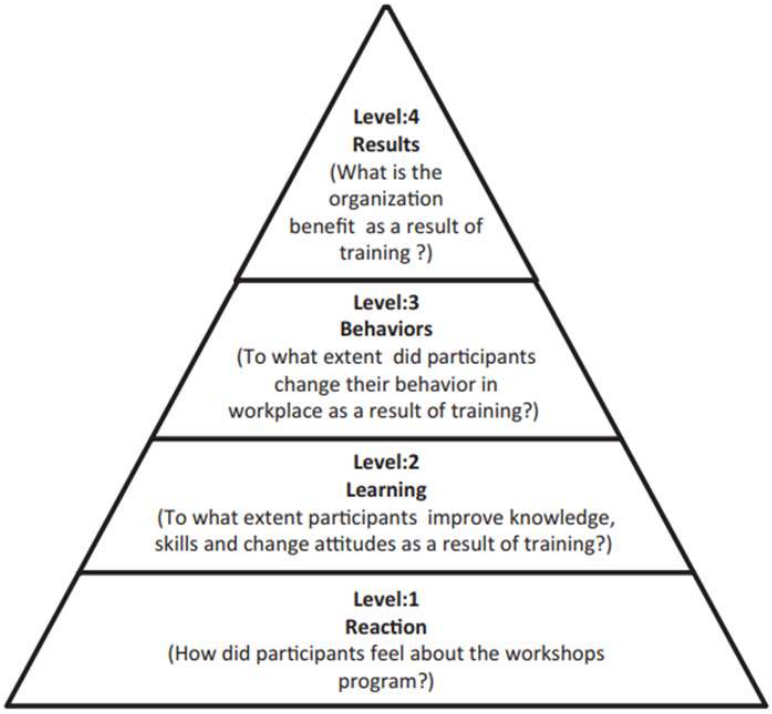

Figure 1. Kirkpatrick model for program evaluation (Modified from Kirkpatrick & Kirkpatrick 2006).

Livelihood training programs, as part of the community extension projects of higher education institutions, should carefully consider the advantages and disadvantages of the different evaluation models. This thoughtful consideration is essential for developing a tailored approach that aligns with the specific needs of the community and the overarching goals of the

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higher education institution. Emphasis on the learning process and tangible outcomes is recommended as it resonates with the multifaceted role of higher education institutions in fostering community development and skill enhancement (Musal et al., 2008).

An ideal evaluation method for a dishwashing liquid-making workshop, as a community extension project, should not only be reliable, valid, acceptable, and cost-effective but should also align with the higher education institution's commitment to community engagement and practical skills development. The assessment outcomes, spanning participant satisfaction, knowledge and skills improvement, behavioural changes, and primary outcomes, offer valuable insights into the extension project's impact and contribute to the higher education institution's broader community service goals (Morrison, 2003).

While evaluations of training programs leading to livelihoods are often reported, it is essential to acknowledge that there may be limited data available, especially from developing countries. This article represents one of the initiatives to evaluate a dishwashing liquid-making training program, specifically as an extension project of a higher education institution. The focus is on assessing participant's satisfaction, improved knowledge and skills related to dishwashing liquid production, behavioral changes, and the primary outcomes such as enhanced performance in the dishwashing liquid production business. The study aims to guide those involved in planning and enhancing similar extension projects aligned with the mission of higher education institutions.

Statement of the Problem

The study aimed to evaluate the effectiveness of dishwashing liquid production training by employing the Four Stages Evaluation Model developed by Donald Kirkpatrick.

Specifically, the study answered the following questions:

1. To what extent did the training become helpful?

2. What is the level of knowledge and skills among participants before and after the training?

3. What are the changes in their behavior after the training?

4. What is the assessment of the results of the training?

Methodology

Design

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The study utilized the Kirkpatrick four stages of evaluation model to assess the training on dishwashing liquid making. The levels encompassed in the evaluation include reaction, learning, behavior, and results.

Environment

This study was conducted in Sogod, Southern Leyte. The Municipality of Sogod is located in the middle of Southern Leyte Province and strategically situated along the Philippine-Japan Highway (PJH) that links the Island of Mindanao to the South and the Island of Luzon to the North. Sogod is located 112 kilometers south of Tacloban City, the region's capital, and 72 kilometers from Maasin City, the provincial capital. The Municipality of Sogod comprises 45 barangays. Eighty percent (80%) of the barangays are located inland or in mountainous areas.

Respondents

The training was attended by young parents from San Jose, Sogod, Southern Leyte. There were 30 respondents to the study.

Instrument

The training evaluation utilized the four levels of the Kirkpatrick model, employing both formative and summative approaches. The formative evaluation focused on scrutinizing program implementation and identifying strengths and weaknesses related to aspects such as publicity, organization, delivery and staffing, quality of content, availability of educational resources, the balance between knowledge building and applicability, participant-staff interaction, and feedback on participant performance. The Kirkpatrick model, as illustrated in Figure 1, includes Level 1 (Reaction), Level 2 (Learning), Level 3 (Behavior), and Level 4 (Results). Level 1 assesses participants' feelings about the training, while Level 2 examines how much participants improve knowledge, skills, and attitudes. Level 3 investigates the behavioral changes resulting from the training, and Level 4 explores the organizational benefits resulting from the training. The summative evaluation was done to gauge the impact of the program, specifically on the acquisition of knowledge and skills, changes in practices, and the extent to which participants implemented changes in their families and community. Additionally, the summative evaluation was conducted to identify the training components that were particularly effective in these regards. This comprehensive approach allowed for a thorough assessment of the training program's impact.

Data-Gathering Procedure

The researchers coordinated with the BLGU San Jose in Sogod, Southern Leyte. Before the data was collected, the researchers explained the research's scope and purpose, and informed consent was signed by all respondents who agreed to participate in the study. If dissatisfied, they had the right to withdraw from the analysis without being questioned.

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During the implementation of the training on dishwashing liquid-making, the data were gathered using a combination of quantitative and qualitative methods. Participants were instructed to complete various assessment tools during each session, including pre-training multiple-choice questions (MCQs), daily feedback questionnaires, an overall training evaluation questionnaire, and post-training assessments. The pre-test and post-test aimed to measure the changes in participants' knowledge, understanding, and application of dishwashing liquid production techniques, formulation, and basic concepts in chemical mixing.

The MCQs in both pre-test and post-test were developed based on the training objectives and content blueprint, adopting a format with single best-answer options. Each test comprised 20 MCQs designed to assess participants' fundamental applied knowledge regarding dishwashing liquid production.

To gauge the participants' overall satisfaction with the training, a 5-point Likert scale questionnaire was administered. Additionally, another 5-point Likert scale questionnaire was administered to assess the participants' abilities and attitudes towards dishwashing liquid production. This included evaluating their capacity to do effective product formulations, their willingness to initiate production projects, and their proficiency in developing suitable production processes.

Following each training session, the organizing committee surveyed participants' activities in dishwashing liquid production through various means such as email, phone calls, or face-to-face communication.

Data Analysis

The study design for participant's acquisition of knowledge and skills was quasi-experimental. The differences among participants' activities were measured before and after the session, and the differences between the pre-test and post-test were used to estimate the effect of the intervention. Data were analyzed using several methods due to the diversity of the collected data and significant values were calculated using SPSS software. T-test was used to compare the difference between the two means of the pre-tests and post-tests.

Ethics

Ethical considerations were considered in undertaking this study to prevent any possible misconduct. At the start, the respondents' voluntary participation was stressed. They were assured of their right to privacy and to secure all information about their identities. They were informed about their right to choose whether to disclose their identity or not. Either way, the welfare of the participants remained protected, as stated in the consent form.

Results

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Table 1. *Demographic Characteristics of the Participants*

Demographic Characteristics	Participants
Employment Status	
Employed	**0**
Unemployed	**30**
Marital Status	
Married	**15**
Not married	**15**
Highest Educational Attainment	
Elementary Graduate	**13**
High School Graduate	**15**
College Level/ Graduate	**2**
Age Range	
18-24 years	**15**
25-30 years	**10**
31- 35 years	**5**

The demographic characteristics of the participants, as outlined in the provided data, offer valuable insights into key aspects such as employment status, marital status, highest educational attainment, and age distribution. First, the employment status of all 30 (100 %) (participants reveals a uniform trend, with every individual being currently unemployed. In terms of marital status, the participants are evenly split between married and unmarried individuals, each comprising 50% of the total. Examining the highest educational attainment, most of participants, accounting for 15 (50%) of the total, have completed high school. Notably, 13 (43.33%) of participants hold an elementary graduate status, while a smaller percentage 5 (6.67%) have attained a college level or graduate education. This educational diversity emphasizes the need for a flexible and inclusive training approach that considers varying literacy levels among participants, ensuring that content is accessible and beneficial to all. The age distribution among

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the participants is categorized into three ranges. The largest group falls within the 18-24 age range, constituting 50% of the participants. The demographic characteristics provide a comprehensive picture of the participants, highlighting areas of commonality and diversity.

Participant's Perception of the Training

The data gathered at the commencement and conclusion of each session indicates diverse responses among participants, particularly concerning the initial Kirkpatrick level, as shown in Table 2. Among the 30 young mothers who participated in the workshops, a significant majority, constituting 77.6% (23 participants), completed both the pre-test and post-tests. This high completion rate suggests a substantial engagement with the educational content provided. However, 22.4% (7 participants) did not complete the pre-test, leading to their exclusion from the post-test analysis. This subgroup of non-completers may signify individuals encountering challenges or constraints that hindered their full participation in the assessment process, indicating a potential area for further investigation or intervention. Based on participant satisfaction, the data reveals that 24.1% (7 participants) expressed a high level of contentment with the program. On the other hand, a significant majority, comprising 53.4% (16 participants), indicated an appreciation for the program but proposed areas for improvement at various levels. This feedback emphasizes the significance of continual program evaluation and enhancement, considering participant input to ensure a more tailored and practical learning experience. The varied responses among participants at the initial Kirkpatrick level highlight the intricacy of assessing the overall impact of the workshop program. Many completed assessments and conveyed satisfaction, a noteworthy portion provided constructive feedback for improvement. This highlights the dynamic character of educational programs and the need for continual assessment and modification to accommodate participants' varied needs and expectations within the small cohort of thirty participants.

Table 2.*Participants' Responses and Comments.*

Categories	Participants
Positive Feedback:	
Positive overall workshop experience	77.6% (23 participants)
Positive feedback with appreciation for specific activities	24.1% (7 participants)
Favorable response to small group sessions	10.3% (3 participants)
Positive remarks on workshop organization	5.2% (2 participants each)
Acknowledgment of the relevance and benefits of topics	5.2% (2 participants)
Recognition of the practical application of dishwashing liquid making	3.4% (1 participant)

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Acknowledgment of the relevance and benefits of topics	5.2% (2 participants)
Positive Feedback with Improvement Suggestions:	
Positive Feedback with suggestions for improvement	53.4% (16 participants)
Desire for more exercises and small group sessions with a preference for fewer lectures	24.1% (7 participants)
Suggestions to extend the workshop from 3 days to 5 days	14.7% (4 participants)
Interest in additional hands-on training	6.0% (2 participants)
Recommendations for better time management	3.4% (1 participants each)
Request for more facilitators	2.6% (3 participants)
Suggestion to improve training materials	2.6% (3 participants)
Negative Feedback:	
Negative workshop experience	22.4% (7 participants)
Dissatisfaction due to low voice and thick accents of speakers	8.6% (3 participants)
Concerns about the short time allocated for lengthy topics	7.8% (2 participants)
Critique of workshop organization	3.4% (1 participant)
Complaints about improper time management during sessions	2.6% (1 participant)

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Table 3. *Scores achieved by the participants in multiple-choice questions (MCQs) assessment.*

Sessions	Pre-test Mean ±SD	Post-test Mean ±SD	P Value
1st session	8.50 ±3.2	19.80 ±2.5	0.001
2nd session	6.60 ±4.3	18.40 ±3.9	0.003
3rd session	7.80 ±5.6	19.10 ± 2.2	0.001
4th session	8.30 ±4.7	20.00 ±5.1	0.005
5th session	4.80 ±8.3	16.40 ± 6.9	0.108
Overall	**7.15 ±4.4**	**18.24 ±4.4**	**0.005**

Fundamental understanding and cognitive abilities related to the creation of dishwashing liquid

For the second level of the Kirkpatrick model, participants asked to respond to multiple-choice questions (MCQs) derived from the training objectives. Initially, the mean scores at the baseline (pre-test) ranged from 4.60 ± 8.3 to 8.50 ± 3.2. In contrast, the post-test mean scores have significantly improved, ranging from 16.40 ± 6.9 to 19.80 ± 2.5. This indicated a noteworthy enhancement in post-test scores compared to baseline scores across all workshops ($p < 0.005$). Participant's achievements demonstrated an increase in basic knowledge and cognitive skills scores of 56.5%, 59.0%, 56.5%, 58.5%, and 59% during the first, second, third, fourth, and fifth workshops, respectively (Table 3). The average score for all five workshops at baseline was 7.15 ± 5.0, and it increased to a post-test score of 19.80 ± 2.5.

Primary results of the workshops at the third and fourth tiers of the Kirkpatrick model

Following the workshop, it was observed in the follow-up that out of the 30 participants, 23 individuals (76.7%) had started the process of manufacturing their own soap and started selling it. There is no available follow-up data for individuals who did not partake in the pre and post-tests. The participants organized themselves into an organization. They also participated in trade shows in order to expand their market reach and make connections with a broader audience. Notably, participants actively participated in trade shows in Sogod and other Southern Leyte regions, and they formally registered the dishwashing product with the Department of Trade and Industry (DTI). The detailed breakdown of costs, sales, and profits illustrates a stable production environment and consistently positive financial outcomes. There is proof of consistent achievement across the association's 20-cycle span, with a cumulative profit of Php 44,045 being produced. These results highlight the operation's efficacy and viability, showing consistent profitability and the possibility of long-term financial stability.

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Table 4. *Profit*

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Cycle	Cost & Expenses	Unit	Price/ Unit	Sales	Profit
1	Php 632	32	35	Php 1,120.00	Php 593
2	Php 632	35	35	Php 1,225.00	Php 593
3	Php 632	35	35	Php 1,225.00	Php 593
4	Php 1,896	35	35	Php 1,225.00	Php 593
5	Php 1,896	60	80	Php 4,800.00	Php 2,904
6	Php 1,896	60	80	Php 4,800.00	Php 2,904
7	Php 1,896	60	80	Php 4,800.00	Php 2,904
8	Php 1,896	60	80	Php 4,800.00	Php 2,904
9	Php 1,896	60	80	Php 4,800.00	Php 2,904
10	Php 1,896	60	80	Php 4,800.00	Php 2,904
11	Php 1,896	60	80	Php 4,800.00	Php 2,904
12	Php 1,896	60	80	Php 4,800.00	Php 2,904
13	Php 1,896	60	80	Php 4,800.00	Php 2,904
14	Php 1,896	60	80	Php 4,800.00	Php 2,904
15	Php 1,896	60	80	Php 4,800.00	Php 2,904
16	Php 1,896	60	80	Php 4,800.00	Php 2,904
17	Php 1,896	60	80	Php 4,800.00	Php 2,904
18	Php 1,896	60	80	Php 4,800.00	Php 2,904
19	Php 1,896	60	80	Php 4,800.00	Php 2,904
20	Php 1,896	60	80	Php 4,800.00	Php 2,904
Total	**Php 37, 920**	**930**	**1, 480**	**Php 92, 500.00**	**Php 44,045**

Additionally, the training fosters Empowerment and Economic Sustainability by equipping participants with the skills to explore entrepreneurial opportunities The establishment of small businesses not only increases daily income but also imparts crucial skills, cultivating self-reliance and economic sustainability. Additionally, the program fosters networking and community organization, as seen by the formation of participant associations, which indicate increased community cohesion and provide chances for cooperation and assistance. In the end, imparting information to families and communities guarantees a long-lasting favorable impact, setting off a chain reaction that advances the growth of the community. The program's results go beyond short-term improvements; they offer long-term advantages for community development, family life, and economic empowerment.

Discussion

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Kirkpatrick's initial evaluation level gauges participants' responses to various aspects of training, including the resource person, setting, materials, and learning activities. Most participants expressed satisfaction with the training on dishwashing liquid production. Moreover, participants who expressed a preference for the training offered valuable recommendations for enhancing the program in different fields. Some of these recommendations that were considered and implemented in the later training sessions were exercises addition, small group discussions, and compressed lectures. A small number of participants expressed dissatisfaction noting things like some speakers' low voices and heavy accents, topics that were too long for the training period, objections from the company, and problems with time management. The organizing team for the training understood how important it was to actively seek out suggestions for enhancements rather than just assessing participant dissatisfaction. The input provided by the participants regarding their dissatisfaction was helpful in addressing possible problems with detailed and doable recommendations. The committee immediately addressed complaints or difficulties with inadequate solutions after carefully examining participant comments and satisfaction scores. For example, a recommendation from the first day of the second workshop to have more small group talks was put into practice in the days that followed, giving additional time in the program for these kinds of activities. Participants had expressed gratitude for this adjustment in the pertinent areas by the third day of the program. This strategy not only motivates participants physically and psychologically, but it also cultivates a sense of personal recognition. The organization advances with each session, motivating participants to work toward accomplishing its goals. In the second session, participants expressed a need for more practical application of concepts learned in lectures, leading to the introduction of hands-on tutorials in the third session. In the fifth session, the program structure underwent extensive modifications to ensure a seamless progression from one step to another in dishwashing liquid production, followed by packaging and sealing.

Numerous organizations have historically relied on Kirkpatrick's first level as the exclusive method for evaluating programs (Morgan & Casper, 2000). Positive satisfaction scores, however, do not ensure that program content will be acquired and subsequently applied (Baldwin & Ford 1988). Kirkpatrick's second level evaluates participants' level of learning. After the training, participants' mean score on pertinent basic knowledge and cognitive skills increased from 8.50 ± 3.2 at baseline to 19.80 ± 2.5. In similar ways, mean scores improved for participants in the second, third, fourth, and fifth sessions. Except for the fifth workshop, participants' pertinent basic knowledge and skills improved significantly overall ($p < 0.005$). Despite an increase in scores in the sixth workshop, the difference was not statistically significant ($p = 0.108$).

Assessing Kirkpatrick's third and fourth levels poses a considerable challenge for any program organization committee and is recommended to occur after completing evaluations at levels one and two (Smidt et al., 2009). Of the thirty participants in this study, twenty-three (76.7%) started the process of making and selling their own dishwashing liquid. Although

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outcome metrics are the primary means of determining the efficacy of training, it has been noted that program participants may possess the information, skills, and attitudes imparted throughout the course without any assurance of their application in their respective professional positions (Baldwin & Ford, 1988; Rouse, 2011). The training did show that most participants thought they could make dishwashing liquid and conduct business, but these improvements cannot be exclusively attributable to the instruction. It's possible that additional confounding variables, such the individuals' past experiences and outside influences, influenced their capacity to generate dishwashing liquid. However, it is anticipated that the abilities gained via training will aid in it. The study's conclusions highlight how participant input on educational programs can lead to necessary program improvements, which in turn improves organizational performance.

Conclusion

Participants' feedback is essential for improving the way that training on the manufacture of dishwashing liquid is delivered. In addition, the instruction was found to be effective and in accordance with international standards for high-quality education. It effectively met each participant's individual demands, which made them feel more competent and confident about themselves. The kind of assistance provided to trainees may vary depending on the many settings in which the training course will ultimately be implemented. The recommendations made for enhancements give insightful perspectives into the training procedure and help to meet the expectations of participants whose demands were not entirely satisfied.

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