A SWOT analysis of In-Service Training Programs for Agricultural Extension Workers in Southern Punjab, Pakistan

Article · December 2024

CITATIONS
4

READS
79

4 authors, including:

Muhammad Hamid NAWAZ Khan
Islamia University of Bahawalpur
22 PUBLICATIONS **90** CITATIONS
SEE PROFILE

Muhammad Ismail Kumbhar
Sindh Agriculture University
26 PUBLICATIONS **43** CITATIONS
SEE PROFILE

Habibullah Magsi
Sindh Agriculture University
112 PUBLICATIONS **1,487** CITATIONS
SEE PROFILE

Traditional Journal of Law and Social Sciences
ISSN 2957-5753 (Print) 2957-5761 (Online)
July-December 2024, Vol. 03, No. 02, [84 –98]
Published: 31st December 2024
https://ojs.traditionaljournaloflaw.com/index.php/TJLSS

RESEARCH PAPER

A SWOT analysis of In-Service Training Programs for Agricultural Extension Workers in Southern Punjab, Pakistan

Muhammad Hamid Nawaz Khan[1*] Muhammad Ismail Kumbhar[2] Aijaz Ali Khooharo[3] Habibullah Magsi[4]

[1] PhD Scholar, Department of Agricultural Education Extension & Short Courses, Faculty of Agricultural Social Sciences, Sind Agriculture University, TandoJam, Pakistan
[2]Department of Agricultural Education Extension & Short Courses, Faculty of Agricultural Social Sciences, Sind Agriculture University, Tandojam, Pakistan
[3]Professor and Dean, Department of Agricultural Education Extension & Short Courses, Faculty of Agricultural Social Sciences, Sind Agriculture University, TandoJam, Pakistan
[4] Professor & Chairman, Department of Agricultural Economics, Faculty of Agricultural Social Sciences, Sind Agriculture University, TandoJam, Pakistan
**Corresponding Author hamid.nawaz@iub.edu.pk*

ABSTRACT

This research examines strengths, weaknesses, opportunities, as well as threats (SWOT) of in-service training programs extension workers in agriculture sector in Southern region of Punjab, Pakistan. The population comprised of extension workers across Punjab, a sample size of 300 respondents was randomly selected from five districts in the southern region. Data was collected using a structured interview schedule. The findings revealed that key strengths included the effectiveness of training methodologies, alignment with the specific needs of extension workers, and the integration of technology. However, weaknesses such as poor communication of training opportunities, limited supervisor support, and a lack of engaging training methods were significant barriers. Opportunities identified included the adoption of emerging technologies, partnerships with educational institutions, and online learning platforms, while threats like natural disasters, competing organizations, and resource constraints posed challenges. The study highlights the need for better communication, flexibility, and innovation to enhance the efficiency of in-service training programs.

Keywords: In-service Trainings, Extension workers, SWOT, Effectiveness, South Punjab.

INTRODUCTION

The delivery of high-quality services in the field of agriculture extension is significant to agricultural growth. Agricultural extension services originated on a worldwide scale as an institutional tool to promote rural development and modernize agriculture (Baiyegunhi et al. 2019). Extension programs provide growers with appropriate and recent knowledge to assist agriculturalists to address problems related to farming and to make appropriate agricultural

decisions (Moyo and Salawu, 2018). The government has made significant efforts to promote the agriculture sector, including adopting sophisticated technological initiatives to boost crops both quantity and quality. This field is closely linked to other areas of the economy and plays a significant role in advancing the socioeconomic growth of nations.

Agricultural extension encompasses numerous kinds of agricultural development tasks, for instance sales of farm produce, credit, supplies, and marketplaces, as well as unconventional agriculturally relating continuing adult education with various people, including farmers, young people, and the general public, in order to increase farm output and revenue (agricultural production performance as well). Today's educational programs given by agricultural workers are more diverse as compared to ever before, and they will be in the same direction to evolve for matching the demands of their clients for giving the importance of sustainability in today's world, Extension worker are required to have more knowledge and fulfil rising expectations of a diversified farming community (Surudhi et al., 2017).Growth in agriculture has a significant impact on rural livelihoods, not merely by raising revenue but additionally by giving capital and to other than agriculture enterprises (Johnson, 2000; Lanjouw and Lanjouw, 2001; Haq, 2003). Appropriate utilization of talent and expertise is dependent on the seamless flow of information in the market, which serves as a crucial component of the agricultural and rural development processes. The overall agricultural development process revealed poor links between its many components (Sharma, 2003; Mubangizi et al., 2004; Khan and Akram, 2012). Around the world, around 6,00,000 extension personnel provide agricultural knowledge to farmers (Maalouf et al., 1991), with public extension accounting for 95% (Davidson et al., 2001). But severe concerns have been raised concerning the industry's performance as well as capabilities, casting questions on the viability of the network of public extensions. According to Rogers (1987), the success of public extension in developing nations has always remained dismal, with agricultural technology failing to reach farmers.

The agricultural context outlined previously highlights the critical role that effective mechanisms for producing and distributing agricultural information play in the overall health of the sector. These mechanisms are essential for disseminating knowledge about innovative or enhanced agricultural practices, as well as providing farmers with vital data regarding credit and marketing opportunities. Extension services, in particular, function as an essential channel to facilitate this. For example, there may be a dearth of skilled workers capable of providing farmers with current information. Furthermore, the present infrastructure for communication may be inadequate, resulting in disruptions or interruptions in knowledge distribution. Additionally, the guidance offered could occasionally be modified to the unique requirements of local farmers, creating a gap between what is offered and what is truly beneficial in reality. To solve these problems, it is critical to establish focused methods that increase extension service providers' capability and reach. This might include spending money on extension worker training courses, strengthening the system for communication, and generating more localized and applicable information that is tailored to farmers' individual situations. Furthermore, developing collaborations between government agencies, non-governmental organizations, and the commercial sector can contribute to a more integrated approach to agricultural information distribution. Tackling such challenges is more than just about enhancing extension capabilities; it's

also critical to increasing the agricultural sector's overall efficacy in reaching food security goals. Finally, this is going to have an important role in promoting sustainable development since a well-informed agricultural sector is better able to adapt to problems such as climate change, market volatility, and changing consumer preferences. In conclusion, tackling the issues encountered by extension services is a critical step towards developing an efficient agricultural sector capable of meeting the demands of both current and future generations. As a result, relegated farming community ought to raise farm output as well as family income to feed their families in a better way and contribute to food safety based on sustainable agriculture.

CONCEPTUAL AND THEORETICAL FRAMEWORK

The conceptual and theoretical framework of this study is grounded in the principles of professional development and adult learning theories, particularly Knowles' Andragogy Theory, which emphasizes self-directed learning, experiential engagement, and relevance to practical work. The SWOT analysis serves as an analytical tool to assess the internal and external factors influencing the effectiveness of in-service training programs for agricultural extension workers in Southern Punjab, Pakistan. This framework integrates theories of capacity building and organizational learning, recognizing that continuous skill enhancement is essential for improving agricultural advisory services. By examining the strengths, weaknesses, opportunities, and threats associated with these training programs, the study provides a structured approach to evaluating their impact, identifying gaps, and proposing reforms. Furthermore, the framework considers the role of digital transformation and institutional support in optimizing training outcomes, ensuring that extension workers are equipped to address evolving agricultural challenges efficiently.

SWOT ANALYSIS

According to a survey of SWOT literature, Faesel and Hill (1995) used SWOT analysis for the first time in agriculture. They discovered that due to Poland's inadequate infrastructure, the growth of the food industry was difficult (Benzaghta *et al.,* 2021). Following Faesel and Hill's (1995) work, numerous research studies in the agriculture industry have used SWOT analysis, especially in developing nations. Moreover, doing a SWOT analysis for business relating to farms, as the initial stage in strategic planning of the process . The method must assist farmers in identifying domains whereby their skills and possibilities are most likely to lead to success. In contrast, doing a SWOT analysis revealed combinations of threats and weaknesses (Zoller & Bruynis, 2007).

SWOT analysis assesses a company's strategic outlook in marketplaces centered on its strengths, weaknesses, opportunities, and threats. Examining a company activity's strengths along with flaws is the most effective way to evaluate its performance. Evaluating literature has been used in several domains, including management, social media, health, education, marketing, and agriculture (Benzaghta *et al.,* 2021). Faesel and Hill (1995) utilized the SWOT approach to analyze Poland's deficient infrastructure for agriculture during its conversion to the fruit sector. Scholars such as Damianos and Skuras (1996), Garnevska *et al.,* (2007), Diamantopoulou and Voudouris (2007) and Ommani (2011) have used SWOT analysis in agriculture research.

Previously, there was limited literature on the SWOT approach in Pakistan's agriculture industry. Akhter and Pirzada conducted a SWOT analysis of Pakistan's agriculture industry in 2014. Primary data for the empirical research was gathered using qualitative questionnaires from EFS across several locations. Batool and Nazir (2024) investigated agricultural growth using the SWOT technique, providing a summary of the agriculture industry, highlighting key traits, inherent restrictions, and difficulties. With the goal of simplifying performance and productivity in accordance with Pakistan's long-term growth, water management, techniques used in irrigation, value addition, storage, and marketing systems are essentially be changed and modernized throughout the food supply chain. The assessment focusses on the agriculture industry in Mirpur Khas (Sindh). A basic frequency distribution analysis was used to apply the SWOT approach. The research identified the strengths as well as weaknesses in the specified area of agriculture. Brohi *et al.,* (2020) evaluated the efficiency of the agriculture sector in Mirpur Khas (Sindh). The SWOT approach was used to do basic frequency distribution analysis. The inquiry identified the strengths and weaknesses of agriculture in the specified area.

SWOT analysis has been a meticulously planned methodology that estimates the strengths, weaknesses, opportunities, and threats (SWOT) of any project and /or commercial venture. SWOT analysis can be performed on items, places, professions, or individuals. It involves determining the objective of project or business and identifying the inner and peripheral components which are both beneficial and detrimental in achieving the desired outcome (Sharma and Singh, 2010).Ommani (2010) suggested that the SWOT analysis approach categories of information collected during a scientific investigation as internal (strengths and weaknesses) or external (opportunities and threats).

Organizations utilize SWOT analysis, which is particularly useful in social science research projects, to evaluate their opportunities, threats, weaknesses, and strengths (Gill *et al.*, 2017; Helms and Nixon, 2019; Osita *et al.,* 2014). These components are segregated into two groups: external (opportunities and threats) and internal (strengths and weaknesses). When both internal and external variables coincide, an advantageous alignment occurs, setting up the company for success. Strategic planning, problem-solving, marketing, organization, and crisis management are just a few of the situations in which SWOT analysis may be used.

A modified SWOT analysis matrix was used by asking respondents to recognize the strengths, weaknesses, opportunities, and threats facing the EFS for In-service training conducted by the department. This analysis serves as an effective research instrument for enhancing decision-making in complex systems by organizing and compiling relevant information (Helms and Nixon, 2010). While SWOT is often applied in evaluating agricultural education systems (Aiyelaagbe *et al.,* 2016; Tukundane *et al.,* 2015; Alonge, 2006), we believe it can also provide a comprehensive overview of the entire system. In our context, we used the SWOT components to represent both internal attributes__strengths and weaknesses related to individuals and organizations—and external factors—opportunities and threats within the broader enabling environment for agricultural extension development. We modified the SWOT framework based on our findings that respondents often discussed "opportunities" in conjunction with strengths and recommendations for improving the in-service training system for Extension Field Staff (EFS).

Consequently, our study presents strengths, weaknesses, and threats before discussing opportunities and recommendations.

In-service training for agricultural workers is essential for improving farm productivity, enhancing food security, and promoting sustainable agricultural practices. The agricultural sector is undergoing significant changes due to technological advancements, climate change, and evolving market demands, making continuous professional development necessary for workers in this field (Aker, 2011; FAO, 2017).

Extension staff require regular training to stay up to date on the newest agricultural technologies to operate efficiently. Training enriches the knowledge, competence, and attitude of the workforce whilst also extending its expertise (Marquardt, 1996). Training is vital not only for increasing efficiency, but also for motivating and inspiring employees by informing them of the importance of their professions and providing them with all the knowledge they require to do them (Qayyum et al., 2011). Training might easily be divided into two types: pre-service and in-service. Pre-service training is farther intellectual in character as well as is provided via official associations, whereas it is initiated periodically by organizations to innovate farmers and extension workers (Swanson et al., 1998). It can help with the enhancement and improvement of the professional skills and abilities of workers and experts of agriculture extension. Furthermore, research indicates that the in-service training requirements of agricultural extension professionals tend for shift with time (Roberts and Dyer, 2004). Suitable and timely in-service training for extension educators to ensure that they are well-prepared to face changing agricultural situations are the need of time. To produce highly competent agricultural extension field workforce, in-service education programs must be improved and extended (Joerger, 2002). As agricultural technology evolves swiftly, extension workers may lack the necessary skills, competences, and creativity. In this scenario, programming and in-service training with the aim of competency-based outcomes can help to improve the professional abilities and competencies of extension workers and specialized. (Vijayaragavan et al. 2005).

Keeping this in mind, current study was led for analyzing the strengths, weaknesses, opportunities, and threats (SWOT) of in-service training programs for agricultural workers in the South region of Punjab, Pakistan, a region that needs the state's entirely focus to reorganize and transform the present framework of the agriculture extension program in order to implement valuable initiatives to provide advisory services and information related to agriculture to the rural farming community. As a result, underprivileged farmers ought to improve both their agricultural output and income from farming to better nourish their households and contribute to sustainable agriculture-based food security.

METHODOLOGY

The population of the research was agriculture workers in agriculture extension department of Punjab. A sample of 300 field staff was selected from five districts of the south region of the province. A well-developed research tool, interview schedule was developed to gather data, which was prepared in English, but the interviews were conduct in National local languages “Urdu, Saraiki and Punjabi”. Data collected was analyzed using SPSS, results were presented in frequencies/counts percentages, means and standard deviation values. Researcher used a 5-Point

Likert scale and rank order to assess the expertise and competencies of extension worker's opinions regarding in-service training programs.

RESULTS

The findings of this study were comprised of the socioeconomic characteristics of all respondents.

Demographic information of respondents

The respondents' demographics are thought to have a significant role in determining whether or not they are aware of and embrace current manufacturing practices (Hassan 2015; Ali *et al.,*2021; Jones, and Garcia (2021); Thompson and Smith (2016).Similarly, Rehman *et al.,* (2013) found a substantial correlation between farmers' socioeconomic characteristics and their ability to obtain agricultural knowledge in order to embrace new technologies. It is believed that a person's attitude and behavior can be influenced by their demographic characteristics. Given the significance of these variables, data has been supplied on the respondents' age, professional education, duration of service, family history, agricultural experience, and attendance at in-service training courses and refresher courses.

Category	**Frequency (f)**	**Percentage (%)**
Age (in years)		
20-30	78	26.00
31-40	84	28.00
41-50	120	40.00
50 and above	18	6.00
Education		
3 Years diploma	71	23.66
B.Sc. (Hons.) Agri	125	41.66
M.Sc. (Hons.) Agri	92	30.66
Ph.D. (Agri)	12	4.02
Service Length (No. of years spent in job)		
1-5	95	31.67
6-10	110	36.67
11-15	73	24.33
16 and above	22	7.33
Family Background		
Farming	195	65

Non-Farming	105	35
Training (Attended)		
On job training	227	75.67
Refresher course	191	63.67
No. of trainings		
No	11	3.67
1-5	171	57.00
6-10	86	28.67
11or above	32	10.66

Table 1: Demographics of Agricultural workers (N=300)

Table 1, summarizes results of the information gathered from agricultural workers, demonstrate that 26% respondents were primarily from the 20–30 age group, (28 %) from 31-40 years and just 6.0% were older than 50 years old. Regarding the education of respondents, 41.66% were B.Sc. (Hons) Agri 30.66% M.Sc. (Hons) Agri. whereas 23.66 % were with 3 years diploma and only 4.02% were those having Ph. D Agri. Above table also clarifies the distribution of respondents according to their period of service showing 36.67% with 6 to 10 years of service, 31.67% with 1-5 , 24.33% 11-15 years and only 22% of respondents fall in category 16 and above years length of service. Further, the table also shows 65 % of respondents had farming family background, 75.67% participated in on-the-job training programs, 63.67% attended refresher courses ,96.33% participants completed one or more training and refresher courses and only 3.67% respondents were who never attended such training or refresher courses.

The demographic analysis of the agricultural extension workers reveals an experienced workforce, with a significant percentage having completed professional training programs and coming from farming backgrounds. These characteristics indicate that the field personnel are well-positioned to conduct effective agricultural extension services. However, there is still an opportunity to increase access to training opportunities, particularly for people with little or no prior training, to maintain continuous skill development across the workforce.

Swot Analysis of Opinions of Respondents Regarding In-Service Trainings

SWOT analysis is particularly useful for finding areas for improvement and may analyze strengths, weaknesses, opportunities, and threats. In addition, the SWOT analysis is a systematic planning tool used to assess strengths, weaknesses, opportunities, and threats. SWOT analysis enables us to concentrate on our strengths, minimize our weaknesses, along with making full use of the opportunities accessible to agricultural field staff.

While our guided questions on 5 point-Likert scale comprising on strongly disagreed to strongly agreed (1=Strongly Disagree, 2= Disagree, 3= Neutral,4=agree and

5=strongly Agree) led respondents to articulate issues under a SWOT framework. Agricultural workers' responses were analyzed and are presented in the following table 2 as means, standard deviations and rank order calculated on the frequencies of responses on the above mentioned 5-point Likert scale.

INTERNAL FACTORS							
Strengths (Statements)	Mean	±SD	Rank Order	**Weaknesses (Statements)**	Mean	±SD	Rank Order
S3: The training methodologies employed are effective in enhancing the skills and knowledge of agricultural workers.	4.55	0.72	1	W5: The organization struggles to effectively communicate in-service training opportunities to agricultural workers.	3.83	1.07	1
S4: Agricultural workers feel motivated to participate in in-service training programs.	4.34	0.85	2	W9: The organization faces challenges in providing timely and relevant in-service training to agricultural workers.	3.77	1.29	2
S1: The existing in-service training programs align well with the specific needs of agricultural workers.	4.33	1.02	3	W8: Agricultural workers perceive a lack of support from supervisors and managers in participating in in-service training.	3.74	1.27	3
S6: The current in-service training programs contribute positively to the overall job satisfaction of agricultural workers.	4.29	0.93	4	W3: A lack of content alignment between that of in-service training and the specific needs of agricultural workers.	3.67	1.28	4
S9: The organization has successfully integrated technology into in-service training for agricultural workers.	4.28	0.86	5	W1: Agricultural workers face challenges in accessing relevant in-service training resources and materials.	2.72	1.29	5
S10: Agricultural workers believe that the current in-service training programs contribute to their career growth within the organization.	4.26	0.81	6	W2: The current in-service training programs lack flexibility to accommodate the varying schedules of agricultural workers.	2.50	1.42	6
S8: The organization has a dedicated team that effectively manages and coordinates in-service training for agricultural workers	4.16	0.94		W4: Agricultural workers face difficulties in applying the skills learned during in-service training to their daily tasks.	2.26	1.23	
S5: The organization has a strong culture of continuous learning and development for agricultural workers.	4.15	0.99		W6; There is a lack of recognition and rewards for agricultural workers who actively engage in in-service training.	2.20	1.06	
S2: Agricultural workers currently have easy access to relevant training resources and materials.	4.07	1.08		W7: The training methodologies used are not adequately engaging for agricultural workers.	1.96	1.80	9
S7: Agricultural workers have a high level of confidence and trust in the	4.01	0.93	10	W10: The current in-service training programs do not effectively address the	1.96	0.86	9

effectiveness of the in-service training provided.				diverse learning preferences of agricultural workers.			
Overall	4.24			Overall	2.84		
External factors							
Opportunities (Statements)	Mean	±SD	Rank Order	Threats (Statements)	Mean	±SD	Rank Order
O1: There are emerging technologies that could enhance the delivery and effectiveness of in-service training for agricultural workers.	4.34	0.88	1	T6: Unforeseen external events, such as natural disasters, may disrupt the delivery of in-service training.	4.47	0.85	1
O6: The organization can explore partnerships with educational institutions for specialized in-service training programs.	4.33	0.87	2	T3: Competing organizations may offer more attractive in-service training opportunities for agricultural workers.	4.36	0.87	2
O7: The availability of online learning platforms presents an opportunity to enhance the accessibility of in-service training.	4.26	0.90	3	T2: Rapid changes in technology may reduce several in-service training contents outdated	4.20	0.89	3
O4: Agricultural workers have expressed interest in specific topics or areas for additional in-service training.	4.18	0.91	4	T1: Economic downturns or budget constraints may impact the organization's ability to fund in-service training programs.	3.93	1.07	4
O2: The organization has opportunities to collaborate with external experts or institutions to enhance in-service training.	4.15	0.94	5	T7: Changes in market demand for specific agricultural products may influence the relevance of in-service training.	3.89	1.20	5
O8: Agricultural workers may benefit from mentorship programs linked to in-service training initiatives.	4.08	1.01	6	T10: The organization may encounter challenges in keeping up with evolving industry standards and best practices for in-service training.	3.82	1.10	6
O5: There is a growing trend in the industry that aligns with the skills targeted in in-service training.	4.03	0.80	7	T4: Political or regulatory changes may impact the availability or focus of in-service training programs.	3.81	1.09	7
O3: Government initiatives or grants are available to support and expand in-service training for agricultural workers.	3.99	1.04	8	T9: Global events, such as pandemics, may impact the feasibility of conducting in-person in-service training sessions.	3.76	1.19	8
O10: External industry events or conferences can serve as valuable supplements to in-service training for agricultural workers.	3.80	1.21	9	T8: The organization may face resistance from agricultural workers who are resistant to change or new learning methods.	3.66	1.99	9

O9: The organization can explore cost-sharing models with employees to fund advanced in-service training.	3.34	1.11	10	T5: The organization may face difficulties in retaining qualified trainers or facilitators for in-service training.	3.59	1.07	10
Overall	4.05			Overall	3.94		

Table-2: Swot Analysis of Mean, Standard Deviation and Rank Order of Descriptive Values of Opinions of Respondents Regarding In-Service Trainings

This study carried a SWOT analysis on in-service training programs for agricultural workers, evaluating respondents' impressions using mean scores, standard deviations, and rank order for recognizing the programs' strengths, weaknesses, opportunities, and threats. The findings provide vital information about how these training programs are regarded and the possibilities for development. Results are in two components as internal and external factors. The internal factors are further divided into Strengths and weaknesses of training programs. Reponses regarding internal factors of in-service training as strengths and weaknesses as shown in the above table 2 are as follows.

On asking questions regarding strengths of in-service training organized by the department, respondents indicated numerous significant benefits of in-service training programs. The highest-ranked i.e. 1st rank, strength (4.55, ±0.72) was the efficacy of training techniques in improving agricultural workers' skills and knowledge (S3). This shows that the training programs are successful in their core goal of skill development, which is critical for increasing agricultural output. This is rational with prior research that emphasizes the significance of good training in improving work performance and productivity (Armstrong, 2012).

Furthermore, agricultural workers reported a high level of motivation to participate in training programs (S4) (4.34± 0.85), ranked 2nd, suggesting that these kinds of initiatives have been well received and lead positively to worker engagement, followed by the connection of the training with employees' specific needs (S1) (4.33± 0.72). Rated third, indicating that the training content is relevant and useful, a factor highlighted by adult learning research (Knowles, Holton, and Swanson, 2014).

The positive impact on work satisfaction (S6, mean = 4.29, SD = 0.85) is also con siderable, consistent with research linking employee satisfaction to successful learning and devel opment programs (Noe, 2017).Overall, the positives include a strong training system with high w orker satisfaction, effective approaches, and technological integration (S9, Mean = 4.28, S.D = 0. 99), which were placed 5th and 6th , respectively.

Responding to the question EFS regarding weaknesses of Inservice training programs, the above table shows results as notable weaknesses were identified, the findings show considerable problems for in-service training programs for agricultural workers. The highest-ranked i.e. rank 1st issue (W5) represents the organization's difficulty communicating training opportunities, (3.83±1.07), showing consistency in replies. This conclusion is consistent with prior research that has identified communication gaps as a barrier to successful professional growth in agriculture (Smith et al., 2016; Jones and Brown, 2019). Similarly, (W9) ranked 2nd (3.77±1.29),

addressing the difficulty of providing timely and relevant training, which has been identified in research on the gap between training schedules and the seasonal nature of agricultural employment (Rivera et al., 2018; Barrett et al., 2020).

The findings shown in the above table also show that W8 workers feel unsupported by management when participating in training and ranked 3rd (3.74±1.27) which is consistent with wider labor research that identifies managerial participation as crucial to training success (O'Neill, 2015; Decker et al., 2016) followed by (W3) ranked 4th (3.67 ±1.28),the inconsistency between training materials and workers' particular expectations underscores a common problem in adult education: as reported by a "one-size-fits-all" approach fails to satisfy industry-specific requirements (Booth and Carroll, 2018; Howard et al., 2021).

Lower-ranked items, such as W6 (lack of recognition for training involvement) and W7 (engagement level of methodology), scored less than 2.5, indicating that, while essential, these aspects are less pressing than logistical and content-related challenges (2.20±1.06) and (1.96 ± 1.80) and ranked 8th and 9th respectively. These findings are reinforced by Galbraith and Walker's (2018) research, which shows that while recognition and engaging approaches can improve training impact, they are secondary to structural challenges such as communications and applicability.

The overall weakness score (Mean=2.84) suggests significant room for improvement, particularly in terms of engagement and applicability of the training content. The research findings imply that in order to increase the efficacy of in-service training for agricultural workers, organizations should prioritize clear communication, assure training relevance, and provide management assistance. Focusing on these critical fields may result in an increased number of contented and competent agricultural staff, hence increasing production along with skill acquisition.

As the respondents were asked questions regarding external factors, opportunities and threats, collected information analyzed and results in the above table reflected There are various options for increasing the efficacy of in-service training. The most major opportunity ranked 1st(O1) (4.34 ±0.88) is to improve training delivery by harnessing new technology. With the fast evolution of e-learning platforms and digital technologies, the organization has the ability to make training more accessible and efficient, as evidenced by recent research on technology-enhanced learning (Bates, 2019).

Furthermore, forming partnerships with educational institutions (O6), (4.33±0.87) and utilizing online learning platforms (O7), (4.26± 0.90) offer opportunities for specialization and broader access to training content, ranked 2nd and 3rd respectively This is in line with research on the benefits of collaborations in educational and corporate training environments (Friedman, 2020).

The overall average for possibilities (mean = 4.05) indicates a potential terrain for future improvements, particularly through the integration of technical advancements and collaborative techniques.

Respondents also identified numerous threats that might put in risk the effectiveness of the training programs. The most serious danger ranked 1st (4.47± 0.85) is the possible disruption caused by unanticipated external occurrences, such as natural catastrophes, which might impede the delivery of in-service training (T6). This discovery is especially pertinent in light of global occurrences the pandemic like COVID-19, which has had a significant influence on training and training globally (Crawford et al., 2020).

Another significant threat as competition from other organizations that offer more appealing training options (T3) (4.36±0.87), ranked 2nd. It indicates an atmosphere of competition in which agricultural workers may be persuaded by firms who offer enhanced or flexible educational opportunities. Accelerated technology advancements, ranked 3rd, (T2), (4.20±0.89) also provide a difficulty, since old training material might rapidly become obsolete. This problem is being addressed in research on the rapid rate of technical improvements in companies (Eynon and Malmberg, 2021).

The overall threat score (mean=3.94) indicates that, while the organization is well-positioned to capitalize on numerous possibilities, external influences such as competition, economic downturns, and technological advances may represent considerable dangers.

According to the results, agricultural workers' in-service training programs are typically highly regarded, have effective approaches, and have enthusiastic participation. Nonetheless, the shortcomings point to crucial areas that require development, especially in terms of making training more interesting and useful for daily use. The company has several chances to improve its training programs, particularly by integrating technology and forming alliances with academic institutions. It must, however, be aware of the outside risks, such as competition and financial limitations which might endanger the viability of these initiatives.

To sum up, this SWOT analysis offers a thorough assessment of the condition of agricultural workers' in-service training programs today. Future to improve these programs' efficacy, accessibility, and sustainability can be influenced by the knowledge gathered. Future studies should concentrate on examining solutions for the shortcomings that have been found, especially those pertaining to participation and the usefulness of the training materials.

CONCLUSION

SWOT Analysis is used to judge a company's existing situation before deciding on a new strategy. Essentially, the collected information on strengths and possibilities provided the agriculture field personnel with a clear grasp of the internal positive factors that needed to be enhanced further. Similarly, gathered knowledge on vulnerabilities and dangers has offered important insights into early warning and preparation for external negative influences. Analysis of limitations might give guidance for policy frameworks aimed at ensuring the efficient operation of these agricultural extension specialists.

The study found that agricultural workers' demographic factors had a substantial impact on their awareness and adoption of contemporary farming methods. The responders have a solid basis of professional education, agricultural experience, and involvement in training programs, proving

the workforce's capacity to provide successful extension services. Though the training programs have characteristics including effective methodology, strong worker motivation, plus congruence with participant requirements, they also confront substantial problems. These might include communication obstacles, a lack of management support, and training content that is not aligned with sector demands. External options, such as using technology and developing educational alliances, offer a viable way to improve training delivery. Nevertheless, concerns related to competition, technology obsolescence, and external disruptions highlight the importance of strategic planning in maintaining program performance. The findings highlight the necessity of a responsive, well-structured, and adaptive training system in sustaining agricultural labor competency as well as efficiency.

Recommendations

To increase the effectiveness as well as sustainability of in-service training programs, employers ought to concentrate on resolving significant deficiencies.

Firstly, improving communication techniques and ensuring timely dissemination of training opportunities will increase employee engagement and awareness. Secondly, adapting training materials to specific sector demands while offering continuous management assistance will increase participation and relevancy. Incorporating technology improvements, such as e-learning platforms and digital tools, may increase access and training efficiency. Thirdly, Collaborations with academic institutions and research organizations can bring extra resources and knowledge, encouraging innovation in training delivery. Fourthly, Contingency plans should be devised to meet interruptions and competition, and training content should be updated on a regular basis to stay up with technological advances. Through managing such problems, organizations may provide a dynamic, inclusive, and effective training environment that promotes employee growth and productivity in agriculture.

REFERENCES

Agholor, I.A., N. Monde., A. Obi. and O.A. Sunday. 2013. Quality of extension services: A case study of farmers in Amathole. J. Agric. Sci., 5(2): 204-212. https://doi.org/10.5539/jas.v5n2p204

Aiyelaagbe, I. O., Harris, P. C., & Olowe, V. I. O. (2016). Skills gaps in organic agriculture and SWOT analysis in higher educational institutions (HEIs) in Anglophone West Africa. Organic Agriculture, 6(2), 109-118.

Ali, M., Hussain, I., Ullah, R., & Ullah, S. (2021). Training needs assessment of extension workers for agricultural development in Khyber Pakhtunkhwa province of Pakistan. *Journal of Agriculture and Rural Development in the Tropics and Subtropics*, *122*(1), 1–13.

Alonge, A. J. (2006). Participatory approach to secondary agricultural education program improvement: A SWOT analysis of secondary agriculture program in Trinidad. Association of International Agricultural and Extension Education: proceedings of the 22nd annual meeting. Clearwater Beach, FL.

Armstrong, M. (2012). *Armstrong's Handbook of Human Resource Management Practice*. Kogan Page Publishers.

Baiyegunhi, L.J.S., Z.P. Majokweni. and S.R.D. Ferrer. 2019. Impact of outsourced agricultural extension program on smallholder farmer's net farm income in Msinga, KwaZulu-Natal, South Africa. Technol. Soc., 57: 1-7. https:// doi.org/10.1016/j.techsoc.2018.11.003

Batool, S., & Nazir, M. (2024). Swot Analysis and Strategy option in Development: A Case of Pakistan's Agriculture Sector. *Pakistan Journal of Agriculture, Agricultural Engineering and Veterinary Sciences, 39*(2), 149–156. https://doi.org/10.47432/2023.39.2.10

Benzaghta, M. A., Elwalda, A., Mousa, M. M., Erkan, I., & Rahman, M. (2021). SWOT analysis applications: An integrative literature review. Journal of Global Business Insights, 6(1), 55-73. https://www.doi.org/ 10.5038/2640-6489.6.1.1148

Brohi, S., T. A. Khuhro, S. Kalwar, A. A. Brohi, Y. K. Brohi and A. A. Rajput. 2020. Assessment of agriculture sector using SWOT analysis: A case study of Mirpur Khas, Sindh. Sindh University Research Journal (Science Series), 52 (04) 369-374.

Crawford, J., Butler-Henderson, K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., & Magni, P. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching, 3*(1).

Damianos, D. and D. Skuras. 1996. Farm business and the development of alternative farm enterprises: An empirical analysis in Greece. Journal of Rural Studies, 12 (3): 273- 283.

Davidson, P. Andrew, Ahmad, M & Ali, T. (2001). Dilemmas of agricultural extension in Pakistan: Food for thought, Agricultural research and extension network, Network Paper No. 116, ISBN 085003 543 0

Faesel, Uwe., and R. Hill. 1995. Poland′s fruit industry in transition. British Food Journal, 97 (1): 21-26.

Garnevska, E., J. R. Edwards and D. R. Vaughan. 2007. SWOT analysis of the horticultural farms in the Plovdiv region of Bulgaria. Bulgarian Journal of Agricultural Science, 12: 353-361. National Centre for Agrarian Sciences.

Gill, T., Ricciardi, V., Bates, R., & James, D. (2017). Capacity development in agricultural education and training in Cambodia: A SWOT analysis. Journal of International Agricultural and Extension Education, 24(1), 34- 51. doi: 10.5191/jiaee.2017.24105.

Haq. 2003. Human Development in South Asia 2002, P: 24. Published by Oxford Univ. Press. Karachi, Pakistan.

Hassan, S. (2015). Extension services in Pakistan: History, current status, and future prospects. *Journal of Agricultural Research, 53*(4), 567–578.

Helms, M. M., and Nixon, J. (2010). Exploring SWOT analysis - where are we now? A review of academic research from the last decade. Journal of Strategy and Management, 3(3), 215-251. doi.org/10.1108/1755425101106483 7

Joerger, R.M. (2002). A comparison of the in-service education needs of two cohorts of beginning Minnesota agricultural education teachers. J. of Agric. Educ. 43(3): 11-24.

Johnson, D. G. 2000. Population, food and knowledge. Amer. Econ. Rev., 90: 1–14.

Jones, M., & Garcia, A. (2021). Exploring the relationship between farming experience and skill acquisition in agricultural extension workers. *Agricultural Education Research Journal, 36*(2), 89–104.

Khan, A. and M. Akram. 2012. Farmers' perception of extension methods used by Extension Personnel for dissemination of new agricultural technologies in Khyber Pakhtunkhwa, Pakistan. Sarhad J. Agric. 28(3):511-520

Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2014). *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development*. Routledge.

Lanjouw, J.O. and P. Lanjouw. 2001. The rural non-farm sector: issues and evidence from developing countries. Agric. Econ. 261: 1–23.

Maalouf, W.D., Adhikarya, R & Contado, T. (1991). 'Extension coverage and resource problems: the need for publicprivate co-operation', in W.M. Rivera and D.J. Gustafson (eds). Agricultural extension: Worldwide, Amsterdam, Elsevier.

Marquardt M. J. (1996). Building the learning organization, McGraw Hill companies Inc.

Moyo, R., and A. Salawu. 2018. A survey of communication effectiveness by agricultural extension in the Gweru district of Zimbabwe. J. Rural Stud., 60: 32-42. https://doi.org/10.1016/j. jrurstud.2018.03.002

Mubangizi, N., M.N. Mangheni, and C.J. Garforth. 2004. Information sources and constraints under national agricultural advisory service program, of service providers in Uganda. Uganda J. Agric. Sci., 257–64.

Noe, R. A. (2017). *Employee Training & Development*. McGraw-Hill Education.

Ommani, A. R. 2011. Strategies of rural development in Shoushtar Township of Iran (Applying SWOT method). Journal of American Science, 7 (1): 969-972.

Osita, I. C., Onyebuchi, I., & Justina, N. (2014). Organization's stability and productivity: the role of SWOT analysis. International Journal of Innovative and Applied Research, 2(9), 23–32. Retrieved from http://journalijiar.com/uploads/2014- 10-02_231409_710.pdf

Qayyum, O., R.B.M. Yusoff, K. Azam and A. Khan. (2011). Relationship of training program effectiveness and behavior of teaching staff. World J. Soc. Sci. 1(4): 207- 216.

Rivera, W. M., & Alex, G. (2004). Extension system reform and the challenges ahead. *The Journal of Agricultural Education and Extension,* 10(1), 23-36.

Rivera, W. M., Gustafson, D. J., &Leeuwis, C. (Eds.). (2018). *Agricultural extension: Worldwide institutional evolution and forces for change.* Cambridge University Press.

Sharma, D., & Singh, V. (2010). ICT in universities of the Western Himalayan Region of India II: A comparative SWOT analysis. International Journal of Computer Science Issues, 7(1), 62-71.

Sharma, R. 2003. Effective networking of research and extension through information technology. APO study report on integration of research and extension. Asian Productivity Org, Tokyo, Japan.

Smith, A., Taylor, J., & Scott, P. (2016). Employee training and development: A case study of industry practices. Journal of Human Resource Development, 41(3), 78-95

Surudhi, M .Asokhan, M & Arunachalam, R.(2017) Utilization Pattern of Extension Tools and Methods by Agricultural Extension Agents. Journal of Extension Education,2,29, DOI: https://doi.org/10.26725/JEE.2017.2.29.5838-5849

Thompson, A., & Smith, J. (2016). Family background and skill development in agriculture: A longitudinal analysis. *Agricultural Education Research Journal, 22*(4), 167–183.

Tukundane, C., Minnaert, A., Zeelen, J., & Kanyandago, P. (2015). Building vocational skills for marginalized youth in Uganda: A SWOT analysis of four training programs. International Journal of Educational Development, 40, 134-144.

Yaseen, M., Xu, S.W., Yu, W. and Hassan, S. (2016) Farmers' Access to Agricultural Information Sources: Evidence from Rural Pakistan. Journal of Agricultural Chemistry and Environment, 5, 12-19. http://dx.doi.org/10.4236/jacen.2016.51B003

Zoller, C., & Bruynis, C. (2007). Conducting a SWOT analysis of your agricultural business. The Ohio State University. *World Bank Agriculture and Rural Development Discussion Paper*.