

Motivations of Fish Farmers in El-Sharqia Governorate to Use Social Media Applications in Aquaculture

Shereen Magdy Sayed Hassan¹, Zeinab M. Abdelrahman¹, Mohamed El-Said El-Basiony¹,
Zeinab.M.A.Abd El-Azeem²

ABSTRACT

The current research aims to identify the degree of use and trust of fish farmers in social media applications within the field of aquaculture, to identify the motivations of fish farmers for using social media applications in aquaculture, to identify the extent of fish farmers' use of social media applications in fish farming and to identify the advantages and disadvantages of using social media applications in aquaculture. To achieve the research objectives, a random sample of fish farmers who use social media applications in the field of aquaculture in El-Sharqia Governorate was selected. The sample consisted of 75 fish farmers, representing approximately (75%) of the total 100 farmers participating in one of the fish production groups. An electronic questionnaire was designed and collected through a group of fish farmers on the WhatsApp application during April and May 2024. Frequencies, percentages, arithmetic mean, standard deviation, range, and mode were used to analyze the research data. Results indicate that:

- 1- Approximately (93.3%) of the respondents prefer social media platforms, and about (82.7%) prefer WhatsApp as a means of communication.
- 2- The most widely used social media application among fish farmers is WhatsApp, used by about (98.7%) of respondents, followed by YouTube (64%) and Facebook (61.3%).
- 3- The communicative and advisory motivations are the primary reasons for using social media applications in the field of aquaculture. Farmers' communicative and advisory motivations are in the high category, approximately (100%), indicating that farmers have a high responsiveness to advisory information in the field of aquaculture.

Keywords: Motivations - Fish Farmers - Social Media Applications - Aquaculture Field.

INTRODUCTION

Fish are an important source of food necessary for building the human body because they provide animal protein essential for maintaining human health. Fish protein is easy to digest, absorb, and metabolize compared to the protein found in red meat and poultry. Additionally, fish contain fatty acids necessary to

protect humans from heart diseases and circulatory disorders (Nasser, 2015).

Egypt suffers from a shortage of animal protein due to the small size of its livestock and limited capacity to increase it. Therefore, Egypt has recently turned to aquaculture to bridge the food gap, producing new, fast-growing, high-quality fish strains to ensure food security, increase export rates, reduce import rates, and meet local market needs (Hassan *et al.*, 2022).

Aquaculture is a rapid solution to the shortage of animal protein. Fish primarily depend on manufactured feed, and balanced diets must be available to provide fish with the necessary nutritional needs for their vital functions and productivity. Feed costs represent more than 60% of the final product cost of fish, so attention must be paid to nutrition, adopting modern methods to reduce feed costs, and considering the nutritional requirements necessary for the optimal diet (ElKadi and Ghal, 2022).

Given the importance of the agricultural extension system, which plays various roles that help in developing the behavior of workers, it acts as a link between fish farmers and research centers by conveying production problems to research centers and providing fish farmers with new innovations in aquaculture to bring about desirable behavioral changes in their knowledge, skills, and attitudes, reflecting on increasing the productivity of the aquaculture sector (Abdelrahman, 2007).

Fish farmers play an equally important role in aquaculture. Aquaculture relies heavily on fish farmers as they are responsible for thinking, managing, and practicing. Efforts must be made to develop their behavior regarding using social media applications by providing them with correct knowledge, practices and change of their attitudes about using these applications in aquaculture.

However, one of the problems of the agricultural extension system is not appointing new extension agents. Therefore, it was necessary to turn to social media applications like Facebook, WhatsApp, YouTube, and Telegram to overcome most problems facing traditional agricultural extension methods, such

DOI: 10.21608/asejaiqjsae.2024.389679

¹Department of Rural Society and Agricultural Extension, Faculty of Agriculture, Ain Shams University.

²Department of Animal Production, Faculty of Agriculture, Ain Shams University.

Received, September 25, 2024, Accepted, October 30, 2024..

as the lack of transportation means, geographical distance, and to increase the effectiveness of the extension service, delivering information and knowledge to all rural areas, and achieving rural and agricultural development (Abdul Wahid, 2015).

Electronic services facilitate work and speed up its execution, leading to the advancement of various services, including extension services, which have greatly developed with the development of electronic services, whether web services, mobile services, or various electronic applications, including social media applications (Farag *et al.*, 2018).

Therefore, social media applications play an important role in improving communication between the agricultural extension sector and agricultural research from side and the farmers from another side. These applications have various advantages, including transfer solutions farmers' problems quickly, providing a browsing system for extension bulletins and economic data that help in marketing, opening a dialogue between agricultural producers for a specific crop under the supervision of an expert in that crop, allowing farmers to send a problem directly, search for a solution, and send the solution to the farmer via their email. The Agricultural Extension and Rural Development Research Institute and research stations collaborate to quickly solve farmers' problems and ensure they receive scientific solutions to these problems (Salim *et al.*, 2021). Also, the universities participate in that.

Social media applications have become a widespread cultural phenomenon due to their popularity and ease of communication, allowing individuals to exchange ideas and information without geographical barriers, thus replacing traditional methods with internet communication outlets, including social media applications (Ahmed, 2022).

Motivations are states or predispositions that we do not directly observe but infer from the general direction of behavior. For example, if the behavior is directed toward using social media applications, we infer the motivation behind this use. Therefore, motivation is considered a predisposition with two aspects: an internal driving aspect and an external goal or objective that the behavior aims to achieve.

Research Problem:

The problem of the agricultural extension system lies in not appointing new agricultural extension agents to solve the problems of fish farmers and not activating electronic agricultural extension to serve the fisheries sector. However, recently, there has been a significant trend towards social media applications that provide the most suitable communication environment for fish farmers. This has driven fish farmers to use social media applications, representing a shift in how they obtain

information and fulfilling the human need for social interaction between fish farmers and among themselves and with specialized researchers.

In light of the above, the research problem is formulated in the following questions:

1. What is the degree of use and trust of fish farmers in social media applications within the field of aquaculture?
2. What are the motivations of fish farmers for using social media applications in aquaculture?
3. What is the extent of fish farmers' use of social media applications in fish farming?
4. What are the advantages and disadvantages of using social media applications in aquaculture?

Research Objectives:

1. To identify the degree of use and trust of fish farmers in social media applications within the field of aquaculture.
2. To identify fish farmers motivations for using social media applications in aquaculture.
3. To identify the extent of fish farmers' of social media applications in fish farming.
4. To identify the advantages and disadvantages of using social media applications in aquaculture.

First: The Theoretical Framework

Motivations:

Motivations are defined as the self-driven force that moves and directs an individual's behavior towards achieving a goal they feel is necessary or of personal or psychological importance (Abdelrahman, 2015). They include desires, needs, and similar forces that guide human behavior towards specific goals, resulting from internal or external processes that stimulate enthusiasm, determination, and drive to perform a particular task (Mohamed, 2018).

Dawwam (2018) views motivations is a psychological state that encourages an individual to think or act in a specific way to achieve a level of satisfaction for a particular situation or set of needs.

Alkhwaja and Albalushi (2020) defines motivations as internal stimuli that drive and direct an individual's behavior towards achieving a specific goal. They are the force that drives a certain behavior, urging the individual to act to achieve a need or goal.

Social Media Applications: Social media applications are digital communication tools that facilitate interaction between groups of people and serve as mediums for information exchange worldwide, such as Facebook, YouTube, and WhatsApp (Chepkirui, 2021). Dollarhide (2021) describes social media applications as computer-based technology that facilitates the sharing

of ideas and information through virtual networks and communities.

Social media applications are defined as a group of internet-based applications built on the ideological and technological foundations of the web, allowing users to create and share content (Husin and Hanisch, 2008).

Thus, social media applications provide new ways for individuals to communicate in a digital environment, enabling them to meet and gather on the internet, exchange benefits and information, and form new friendships with people of different ages, genders, and from all over the world, despite differences in awareness, thinking, and culture (Kamel, 2015).

Motivations for Using Social Media Applications:

Mamish and Hadid (2017) identified the factors driving individuals to use social media applications as follows:

1. **Family Problems:** The family provides protection, stability, and security. When an individual lacks this integrated environment, it creates social disruption, leading them to seek alternatives to compensate for the deprivation, such as the absence of parental roles.
2. **Leisure:** Mismanagement of time or failure to utilize it properly makes an individual feel its lack of value, leading them to seek ways to fill this time, including using social media applications for entertainment.
3. **Unemployment:** One of the significant social problems individuals face, driving them to create solutions to their situation, even if they are virtual. This situation causes resentment towards society for not providing job opportunities and expressing capabilities and ideologies, forming relationships with virtual individuals to defraud and deceive.
4. **Curiosity:** Social media applications create a virtual world full of renewed ideas and techniques that entice individuals to try and use them, whether in their scientific, practical, or personal lives. Social media platforms are based on the idea of attraction and curiosity.
5. **Friendship and Networking:** Social media applications have facilitated the formation of friendships, as these networks combine real and virtual friendships, providing an opportunity to connect with individuals from the same community or different communities.

Importance of Motivations:

Mohamed (2018) stated that their importance lies in:

1. Helping individuals to increase their knowledge of themselves and others, driving them to act according to different circumstances and situations.

2. Making individuals more capable of interpreting others' behavior.
3. Enabling the prediction of human behavior if their motivations are known, thus directing their behavior towards certain beneficial directions for both themselves and society.
4. Playing a significant role in extension and psychological therapy due to their importance in explaining individuals' responses and behavior patterns.

Electronic Fish Farming Extension:

Fish farming guidance plays an important role in educating, training, and raising awareness among fish farmers to acquire appropriate skills and enhance the efficiency of practices in aquaculture (Abdelrahman, 2007).

Thus, electronic extension is a type of extension that uses various extension methods to provide remote extension services through social media applications and information technology, where the elements of electronic extension are the agent, the agented, the extension process, and the communication tool (Abdel Bari, 2023).

Aquaculture:

Aquaculture is defined as the cultivation of aquatic organisms under specific conditions that allow humans to control and manage the breeding processes, including the type of water (breeding medium), nutrition, reproduction conditions, disease prevention, and predators, from stocking larvae to harvesting for marketing, aiming to produce food for human consumption while achieving the highest return on investment within the unit of time without disrupting the natural environmental balance as much as possible (Al-Mursi, 2008).

It is also defined as the cultivation and development of fish in a confined aquatic environment under controlled conditions of nutrition, growth, reproduction, and harvest, using production factors optimally to obtain the largest quantity of high-quality fish, considering economic factors and environmental dimensions (Bakir, 2011).

Reasons for Fish Farmers' Use of Social Media Applications:

Abdullah and Al Rewany (2021) mentioned the reasons for fish farmers' use of social media applications:

1. Social media applications are widely used on mobile networks.
2. Access to production and marketing information.
3. Dissemination and exchange of information about agricultural innovations.

4. Ease of communication with extension workers, researchers, and agricultural companies
5. Quick transfer of agricultural information and communication with a larger audience of farmers.
6. Reducing farmers' social isolation and enabling them to communicate with each other.
7. Considered a successful marketing tool for various agricultural products.
8. Easy access, low cost, and multiple uses.

Second: Previous Studies

Research on agricultural practices, social media usage, and extension services has evolved over time, addressing key challenges and opportunities faced by farmers. Starting from the earliest studies, Al-Deeb (2009) focused on identifying the most effective extension methods used in fish farming and evaluating their effectiveness from farmers' perspectives. The results highlighted video films, extension bulletins, and seminars as the most effective methods, but also identified significant challenges such as the absence of extension workers, lack of experience, and inadequate technical recommendations.

Building on this, Afasha (2010) investigated the factors influencing the adoption of fish farming innovations. Afasha's study revealed that most fish farmers did not attend seminars or participate in local organizations. Instead, they relied on relatives, neighbors, personal experience, and extension magazines for information. Key challenges included high feed prices, difficulties in water management, lack of training programs, and high production costs, issues that persisted despite the extension methods identified in the earlier study by Al-Deeb (2009).

In a related study, Al-Rayes *et al.* (2016) examined the challenges faced by fish farm owners in Damietta governorate. The findings highlighted persistent economic challenges such as high feed prices, high establishment costs, and elevated seedling prices, alongside marketing challenges like monopolization by traders and low sales prices. These challenges mirrored those found in earlier fish farming research and continued to affect the sector.

Moving to a broader agricultural focus, Abdullah (2017) explored the challenges encountered by fish farm owners in Kafrelsheikh governorate. Abdullah's study revealed that agricultural extension, pricing, marketing, and production issues were still the most pressing concerns. Similar to the findings of Al-Deeb (2009), 100% of respondents agreed that the absence of an extension role significantly hampered the development of fish farming in the region.

While fish farming challenges persisted, studies in 2017 expanded to address broader usage of electronic

media in agriculture. Ahmed (2017) examined the usage patterns of educated individuals with electronic media, particularly Facebook. The study found that 62.7% of respondents used social media, with 91.2% specifically using Facebook. Despite this high usage, 55.9% of respondents expressed only moderate trust in the information shared on social media, highlighting the need for more reliable sources of agricultural information.

Shifting to the agricultural sector's use of technological advancements, Ramadan (2018) focused on farmers' awareness of technological methods in animal production. Ramadan's study showed that only 4.55% of respondents had high motivation to adopt technological methods, but this motivation was significantly correlated with factors such as age, education level, and farming experience. This research highlighted the potential for further technological adoption if proper incentives and extension were provided.

Continuing the theme of social media in agriculture, Abdel-Ghany (2019) explored farmers' willingness to use social media for agricultural extension services. The results indicated that 69.3% of respondents were willing to adopt social media for extension, with 90.8% considering it their most-used platform. Despite this enthusiasm, challenges such as poor internet connectivity and weak mobile networks in rural areas hindered effective information dissemination, echoing concerns about access and reliability raised in earlier studies.

Expanding on the social media theme, Hussein (2020) assessed the extent of social media usage among youth and its impact on their value systems. Hussein's findings showed that Facebook had the greatest influence on respondents' values and behaviors, ranking first in terms of shaping social values and community habits. This study linked well with previous research on social media usage patterns, demonstrating its far-reaching influence beyond agricultural extension alone.

In another exploration of social media's role in agriculture, Ismail (2021) investigated how farmers use social media and the benefits they derive from it. Ismail's study revealed that 71.6% of respondents gained significant benefits from social media for agricultural extension, although only 56% reported moderate levels of actual usage. These findings aligned with the earlier studies by Abdel-Ghany (2019) and Ahmed (2017), which identified high potential for social media in agriculture but highlighted on-going issues with access and trust.

Finally, Fath El-Bab (2023) examined the specific websites and applications favoured by farmers for obtaining agricultural information. The study found that

71.25% of respondents preferred using the WhatsApp platform, with 35% favouring written content and 31.25% opting for video content. However, 56.25% of respondents also noted the need for further verification of the information found on these platforms, underscoring the continued challenges of reliability and accuracy in online agricultural information, as noted in earlier studies on social media use.

Commentary on Previous Studies:

The current study aligns with previous research by confirming the growing importance of social media in agricultural extension, as observed in studies by Abdel-Ghany (2019) and Ismail (2021). Like earlier studies, it highlights the potential of social media as a tool for information sharing, while also addressing on-going issues such as limited trust in online content and technological barriers.

Building on past research, the current study is benefits from these insights by focusing specifically on the motives of fish farmers. It adds a localized understanding of how farmers perceive and use social media, offering practical implications for enhancing agricultural extension services through targeted digital platforms.

Third: Operational Definitions:

Motivations: This is the factors that drive fish farmers to use social media applications in the field of aquaculture. These motivations include social & cultural motivations, production motivations, economic motivations, psychological and recreational motivations, and communication & advisory motivations.

Social Media Applications: This is the applications that allow users to communicate and share information related to aquaculture. Fish farmers can communicate with others and build relationships through these applications (WhatsApp, YouTube, Facebook, Telegram, and Twitter).

Aquaculture: This is the farming of fish in a controlled aquatic environment where human can manage the conditions and provide food to achieve the highest possible yield of high-quality fish for maximum production benefit.

Fourth: Methods:

The study relied on the social survey method by sampling to understand the motivations of fish farmers in El-Sharqia Governorate for using social media applications in the field of aquaculture.

Research Sample:

A random sample of 75 fish farmers using social media applications for aquaculture in El-Sharqia Governorate was selected, representing approximately 75% of a larger group of 100 participants engaged in a production community. Data collection was conducted via an electronic questionnaire distributed through a WhatsApp group of fish farmers during April and May 2024. The collected data were analysed using frequencies, percentages, arithmetic mean, standard deviation, range, and mode.

Sample description:

- Personal Characteristics of the Surveyed Fish Farmers:

The results shown in Table (1) indicate that approximately (45.3%) of the surveyed individuals fall within the age range of 40 to 50 years. This age group is characterized by greater work capacity, effort, responsibility, and the ability to acquire various skills and experiences. Additionally, around (52%) of them have higher education, which suggests they are more capable of understanding and adopting modern technologies and new applications that can enhance their productivity and improve the marketing of their products. Furthermore, about (46.7%) of the respondents indicated that their years of experience in aquaculture range from 7 to 13 years, reflecting farmers' need for experiences that increase their knowledge and enhance their ability to adopt new applications. Approximately (93.3%) of the respondents prefer social media, with around (82.7%) favouring WhatsApp due to its ease of use. Moreover, about (92%) of the respondents do not participate in rural organizations, attributed to a lack of awareness among farmers about the role of these organizations and the benefits they provide.

Table 1. Distribution of the Surveyed Fish Farmers According to Their Personal Characteristics

Personal Characteristics of the Surveyed Farmers	Number	%	Personal Characteristics of the Surveyed Farmers	Number	%
1. Age:			9. Preferred Internet Sites:		
Age group 7-13 years	20	26.7	News websites	-	-
Age group 14-20 years	34	45.3	Educational websites	5	6.7
Age group 21-27 years	21	28	Entertainment websites	-	-
Total	75	100	E-commerce websites	-	-
2. Educational Level:			Social Media Sites	70	93.3
Reads and writes	-	-	Total	75	100
Primary school	-	-	10. Preferred Communication Method:		
Secondary education	36	48	Facebook	13	17.3
Higher education	39	52	Twitter	-	-
Total	75	100	WhatsApp	62	82.7
3. Years of Experience in Aquaculture:			Telegram	-	-
Age group 7-13 years	35	46.7	YouTube	-	-
Age group 14-20 years	26	34.7	Total	75	100
Age group 21-27 years	14	18.6	11. Device Used for Communication:		
Total	75	100	Mobile phone	37	49.3
4. Farm Sector:			Personal computer	-	-
Government sector	3	4	Both together	38	50.7
Private sector	72	96	Total	75	100
Total	75	100	12. Hours of Social Media Use:		
5. Farm Area:			1-2 hours	33	44
Age group 4-9 acres	26	34.7	3-4 hours	42	56
Age group 10-14 acres	31	41.3	Total	75	100
Age group 15-20 acres	18	24	13. Sources of Information Related to Aquaculture:		
Total	75	100	Training courses	5	6.7
6. Type of Ponds:			Consulting family and friends	20	26.7
Earth ponds	75	100	Educational websites on the internet	23	30.6
Concrete ponds	-	-	Trial and error	27	36
Plastic tanks	-	-	Reading books and guides	-	-
Total	75	100	Total	75	100
7. Cultivation Method Used:			14. Membership in Rural Organizations:		
Extensive	5	6.7	Non-member	75	100
Semi-intensive	70	93.3	Ordinary member	-	-
Intensive	-	-	Committee member	-	-
Total	75	100	Board member	-	-
8. Type of Fish Cultivated:			Total	75	100
Tilapia	8	10.7	15. Participation in Rural Organizations:		
Buri	-	-	Always	-	-
Mullet	-	-	Rarely	6	8
Mixed	67	89.3	No	69	92
Total	75	100	Total	75	100

Source: Field research sample

Sample Size = 75 Individuals

RESULTS AND DISCUSSION

Objective (1): Identify the degree of use and trust of fish farmers in social media applications in the field of aquaculture.

Values were assigned as follows: (3) always, (2) sometimes, (1) not at all, as a numerical indicator to measure this variable, The results in Table (2) showed that the most used social media application by fish farmers is WhatsApp, with approximately (98.7%) of the respondents using it, followed by YouTube (64%), and Facebook (61.3%). These applications are the easiest to use in providing information related to

aquaculture. The least used applications are Telegram (40%) and Twitter (12%) due to the respondents' limited knowledge of these applications.

Values were assigned as follows: (4) high trust, (3) medium trust, (2) low trust, (1) no trust, as a numerical indicator to measure this variable, The results in Table (3) showed that fish farmers have high trust in WhatsApp (97.3%), followed by YouTube (58.7%), and Facebook (52%), due to the reliability of information related to aquaculture. The least trusted applications are Twitter (88%) and Telegram (61.3%) due to the unreliability of some information related to aquaculture.

Table 2. Distribution of respondents according to the use degree of social media applications by fish farmers in the field of aquaculture

Category	Degree of Use						Mode	Maximum	Minimum
	Not at all		Sometimes		Always				
	%	Number	%	Number	%	Number			
WhatsApp	-	-	1.3	1	98.7	74	3	3	2
YouTube	-	-	36	27	64	48	3	3	2
Facebook	-	-	38.7	29	61.3	46	3	3	2
Telegram	58.7	44	40	30	1.3	1	1	3	1
Twitter	88	66	12	9	-	-	1	2	1

Source: Field research sample

Sample Size = 75 Individuals

Table 3. Distribution of respondents according to the trust degree of fish farmers in social media applications in the field of aquaculture

Category	Degree of Trust								Mode	Maximum	Minimum
	No Trust		Low Trust		Medium Trust		High Trust				
	%	Number	%	Number	%	Number	%	Number			
WhatsApp	-	-	-	-	2.7	2	97.3	73	4	4	3
YouTube	-	-	4	3	37.3	28	58.7	44	4	4	2
Facebook	-	-	-	-	48	36	52	39	4	4	3
Telegram	61.3	46	16	12	22.7	17	-	-	1	3	1
Twitter	88	66	8	6	4	3	-	-	1	3	1

Source: Field research sample

Sample Size = 75 Individuals

Objective (2): Identify the motivations of fish farmers towards using social media applications in the field of aquaculture.

There are five types of motivations for fish farmers towards using social media applications in the field of aquaculture (communication and advisory motives, social and cultural motives, productive motives, economic motives, psychological and recreational motives), each with a set of statements.

Firstly: Communication and advisory motives were measured through 14 statements, such as the ability to repeatedly publish extension messages to fish farmers, quick access to aquaculture information, the opportunity to view and benefit from websites related to fisheries worldwide, overcoming the significant shortage of agricultural extension, the ability to save extension messages and refer back to them when needed, easy comprehension of information through images and videos, diversity in presenting information about Fish wealth through social media, quick transmission of fish farmers' problems to research institutions for solutions, strengthening the relationship between the agricultural extension system and fish farmers, continuous updates on aquaculture information as new information becomes available, the most suitable means for delivering extension messages in case of alerts about aquaculture problems, reaching the largest number of fish farmers in different locations, publishing extension videos about manufactured feed to guide fish farmers, exchanging ideas about manufactured feed among farmers.

The results in Table (4) showed that communication and extension motives are the most significant reasons for using social media applications in aquaculture. Farmers' communication and extension motives fall in the high category, around (100%), indicating a high response to extension information in aquaculture.

Secondly: Social and cultural motives were measured through 8 statements, such as communicating with friends and relatives in distant places, obtaining general information, following current news and events, forming friendships with other farmers, increasing

knowledge about social issues and problems, celebrating and offering congratulations on occasions and holidays, providing assistance to other farmers, learning about the customs of other Farmers.

The results in Table (4) showed that most farmers' social and cultural motives fall in the high category, around (70.7%), indicating strong social relationships among farmers through social media.

Thirdly: Productive motives were measured through 6 statements, such as obtaining information on fish production, communicating with specialists in aquaculture, watching videos on aquaculture, obtaining information on manufactured feed, participating in dialogue and discussion with fish farmers, learning about issues in aquaculture.

The results in Table (4) showed that most farmers' productive motives fall in the high category, around (68%), indicating that farmers can adopt modern applications that improve their production efficiency in aquaculture.

Fourth: Economic motives were measured through 5 statements, such as buying fish fry, marketing fish, following prices of manufactured feed, monitoring farm tool costs, advertising their own product.

The results in Table (4) showed that most farmers' economic motives fall in the medium category, around (54.7%), indicating that farmers can apply marketing information to enhance their products and increase income.

Fifth: Psychological and recreational motives were measured through 4 statements, such as entertainment and leisure, reducing life pressures, minimizing feelings of loneliness and boredom, following celebrities and artistic news.

The results in Table (4) showed that most farmers' psychological and recreational motives fall in the high category, around (92%), indicating that social media applications significantly reduce stress and improve the psychological state of farmers.

Table 4. Distribution of respondents according to their motivations for using social media applications in the field of aquaculture

Motivations for using social media in aquaculture:															
	Communication & Advisory			Social & Cultural			Productive			Economic			Psychological & Recreational		
Minimum	25			11			9			7			6		
Maxmum	28			16			12			10			8		
Mode	28			16			12			8			7		
Category	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Number	-	-	75	-	22	53	-	24	51	-	41	34	-	6	69
Percentage	-	-	100	-	29.3	70.7	-	32	68	-	54.7	45.3	-	8	92

Source: Field research sample Sample Size = 75 Individuals

Objective (3): Identify the extent to which fish farmers use social media applications in aquaculture.

The results in Table (5) show that approximately (100%) of the respondents obtain their information from a WhatsApp group that sends information or advice about fish, and about (80%) of the respondents obtain their information from the Central Laboratory for

Fisheries Research group on Facebook. Approximately (69.3%) of the respondents get their information from educational videos on YouTube, and around (54.7%) of the respondents get their information from the Agricultural Extension page on Facebook, which can be attributed to the availability and reliability of aquaculture-related information on these platforms.

Table 5. Distribution of respondents according to their sources of information related to aquaculture

Sources of information for fish farmers related to aquaculture:										
Statements	No		Sometimes		Always		Mode	Maximum	Minimum	
	%	Number	%	Number	%	Number				
1. A WhatsApp group related to aquaculture.	-	-	-	-	100	75	3	3	3	
2. The Central Laboratory for Fisheries Research group on Facebook.	20	15	-	-	80	60	3	3	1	
3. Educational videos on YouTube.	-	-	30.7	23	69.3	52	3	3	2	
4. The Agricultural Extension page on Facebook.	6.7	5	38.6	29	54.7	41	3	3	1	
5. The General Authority for Fish Resources Development website.	40	30	17.3	13	42.7	32	3	3	1	
6. Online training courses.	33.3	25	26.7	20	40	30	3	3	1	
7. Agricultural extension magazines online.	49.3	37	24	18	26.7	20	1	3	1	
8. A Telegram group that sends information or advice about fish.	81.3	61	10.7	8	8	6	1	3	1	
9. The Egypt Agricultural Channel page on Facebook.	81.3	61	13.4	10	5.3	4	1	3	1	
10. The Agricultural Research Center website.	86.7	65	8	6	5.3	4	1	3	1	

Source: Field Research Sample Sample Size = 75 Individuals

Meanwhile, about (42.7%) of the respondents get their information from the General Authority for Fish Resources Development website, around (40%) from online training courses, approximately (26.7%) from agricultural extension magazines and bulletins online, about (8%) from a Telegram group that sends information or advice about fish, and around (5.3%) of the respondents obtain their information from the Agricultural Research Center website, which is attributed to the limited aquaculture-related information on these platforms.

Objective (4): Identifying the Advantages and Disadvantages of Using Social Media Applications in Fish Farming

The results in Table (6) show that approximately (100%) of the respondents indicated the advantages as outlined in the table, due to the abundance of fish farming-related information on social media

applications. About (98.7%) of the respondents use social media applications to discuss general topics and use images and videos related to fish farming, while approximately (97.3%) use social media applications to search for interests and pursuits, help farmers to know other farmers from other countries, and save time in obtaining information about manufactured feeds.

The results in Table (7) indicate that approximately (100%) of the respondents have limitations to the most beneficial means of communication without awareness or mention of other means, the spread of some unscientific ideas about manufactured feeds, and the practical application of most fish farming information, especially those taken from non-specialists. About (97.3%) of the respondents indicate the absence of experienced fish wealth experts, while approximately (2.7%) of the respondents indicate a lack of trust in fish farming information through social media.

Table 6. Distribution of Respondents According to the Advantages of Using Social Media Applications in Fish Farming

Advantages of Social Media Applications:								
Statements	No		Yes		Mode	Maxmum	Minimum	
	%	Number	%	Number				
1. Communication between friends and relatives in specific areas.	-	-	100	75	2	2	2	
2. Exchange of personal information, photos, and videos.	6.7	5	93.3	70	2	2	1	
3. Creating opportunities for acquaintance and friendship.	-	-	100	75	2	2	2	
4. Building social relationships.	-	-	100	75	2	2	2	
5. Facilitates communication with service providers outside their official working hours.	6.7	5	93.3	70	2	2	1	
6. Eases communication beyond the premises of service providers.	-	-	100	75	2	2	2	
7. Helps in knowing local and global news and events.	5.3	4	94.7	71	2	2	1	
8. Farmers share information related to fish farming with other farmers.	4	3	96	72	2	2	1	
9. Allows any farmer to publish knowledge and information.	-	-	100	75	2	2	2	
10. The ability to broadcast various information about fish farming.	7	3	96	72	2	2	1	
11. Used by farmers to identify fish farming problems.	-	-	100	75	2	2	2	
12. Easy to delete, add, and modify fish farming information.	7	5	93.3	70	2	2	1	
13. Saves effort in finding solutions to fish farming problems.	-	-	100	75	2	2	2	
14. Ease of using images and videos related to fish farming.	1.3	1	98.7	74	2	2	1	
15. Saves time in obtaining information about manufactured feeds.	2.7	2	97.3	73	2	2	1	
16. Searching for interests and pursuits.	2.7	2	97.3	73	2	2	1	
17. Helps farmers to get to know other farmers from other countries.	2.7	2	97.3	73	2	2	1	

Source: Field Research Sample

Table 7. Distribution of Respondents According to the Disadvantages of Using Social Media Applications in Fish Farming

Disadvantages of Social Media Applications:		No		Yes		Mode	Maxmum	Minimum
		%	Number	%	Number			
1.	Limitation to the most beneficial means of communication without mentioning other means.	-	-	100	75	2	2	2
2.	Spread of some unscientific ideas about manufactured feeds.	-	-	100	75	2	2	2
3.	Practical application of fish farming information, especially those taken from non-specialists.	-	-	100	75	2	2	2
4.	Absence of experienced fish wealth experts.	2.7	2	97.3	73	2	2	1
5.	Lack of trust in fish farming information through social media.	97.3	73	2.7	2	1	2	1

Source: Field Research Sample

Recommendations:

Based on the research findings, the following recommendations are made:

1. Intensify and activate effective information sources on social media to enhance fish farmers' knowledge of fish farming recommendations.
2. Continuously update information related to fish farming on social media.
3. Provide extension information through the creation of an agricultural YouTube channel to broadcast programs related to fish farming.
4. Intensify online training courses for fish farmers in the field of fish farming.
5. Raise awareness among fish farmers about the role of rural organizations and encourage participation in them to benefit from the services these organizations offer.
6. The General Authority for Fish Wealth Development is developing electronic extension applications for smartphones to provide information on fish production in marine fisheries.
7. The Agricultural Extension workers create websites dedicated to information about fish production and aquaculture.
8. The Ministry of Agriculture is creating electronic applications for fish farmers similar to the applications implemented for other crops, such as the "Hodhod" application and the "Mohsuli" application.

REFERENCES

- Abdel Bari, M.T.M.M. 2023. Effectiveness of an electronic selective guidance program to develop empathy and altruism in improving social intelligence among university students. PhD thesis, Faculty of Education, Psychology Department, Sadat University, p. 56.
- Abdel-Ghany, M.M.M. 2019. A study of readiness for using social media in agricultural extension in Assiut governorate. Arab Univ. J. Agric. Sci., Ain Shams Univ. Cairo, Egypt. 27: 1783-1801.
- Abderahman, Z.M. 2007. The role of fish farming guidance in raising awareness among fish farming workers to reduce fish pollution in Damietta governorate. Master's thesis, Faculty of Agriculture, Ain Shams University, pp. 2, 38.
- Abderahman, Z.M. 2015. Watch motivation young people university to Turkish drama: a case study on the students of the faculty of agriculture, Ain Shams University J. Agric. Econ. Soc. Sci. 6: 1799 – 1821.
- Abdul Wahid, M.A.M. 2015. The use of information and communication technology by agricultural extension workers in extension work in Sohag governorate. Jordan J. Agric. Sci. 11: 539-550.
- Abdullah, A.M.A. 2017. Obstacles of fish farming among owners of fish farms in Kafr ElSheikh governorate. J. Sustain. Agric. Sci. 43: 43-56.
- Abdullah, I. and M.A.M. Al Rewany. 2021. The use of social media in agricultural extension in Beheira governorate. Al-Azhar J. Agric. Res. 46: 238-249.
- Afasha, M.H.M.K.H. 2010. Factors affecting the adoption of fish farm owners of fish farming innovations in Sharkia governorate. Master's thesis, Faculty of Agriculture, Agricultural Economics Department, Zagazig University.
- Ahmed, F.Y.A. 2017. The impact of social media on value change among rural youth in Sohag Governorate. PhD thesis, Faculty of Agriculture, Rural Society Department, Assiut University.

- Ahmed, S.M.A. 2022. Farmers, attitudes towards use of social media in agricultural extension work in Fayoum governorate. *Alex. Sci. Exch. J.* 43: 1411-1426.
- Al-Deeb, A.D.E. 2009. Determinants of the effectiveness of extension methods in the field of fish wealth development in Egypt. PhD thesis unpublished, Faculty of Agriculture, Ain Shams University.
- Alkhwaja, A.M.S. and Sh.M.A.K. Albalushi. 2020. Motives for using social media among post-basic education students (11-12) in Al-Buraimi Governorate schools in the Sultanate of Oman. *J. Educ. Psychol. Sci.* 4: 43 -63.
- Al-Mursi, R.H. 2008. Economics of fish farming in Egypt. Master's Thesis, Faculty of Agriculture, Agricultural Economics Department, Zagazig University, p. 7.
- Al-Rayes, M.H., M.A. Abu Al-Naja and E.M. Ibrahim. 2016. Problems of fish farm owners in Damietta governorate. *Mansoura J. Agric. Sci.* 7: 164- 173.
- Bakir, M.N. 2011. Integrated fish farming systems. Guidance Publication, General Authority for Fish Resources Development, p. 8.
- Chepkirui, A. 2021. Impact of social media on agricultural extention. *IDOSR J. Arts Humanit.* 6: 51-58.
- Dawwam, F.H.A. 2018. University students' motivation to use social networks and their relation to their values. *J. Home Econ.* 28: 769- 824.
- Dollarhide, M. 2021. Social media: definition, effects, and list of top apps. Investopedia. <https://www.investopedia.com/terms/s/social-media.asp>
- ElKadi, S.M.A. and H.W. Ghal. 2022. The Economics producing of the optimal diet for fish in the New Land. *J. Agric. Econ. Soc. Sci.* 13: 81-87.
- Farag, M.A., A.A. Ali, and F.K. Kamel. 2018. The necessity of electronic extension service for the application of modern agricultural methods. Fifteenth Scientific Conference of the Agricultural Extension Society: The Future of Electronic Agricultural Extension in Egypt "Towards Smart Agricultural Extension Service", Agricultural Extension Society, October 28-29, p. 55.
- Fath El-Bab, A.M. 2023. Evaluation of websites and electronic applications used by farmers as a source of agricultural information in Assiut governorate. *J. Agric. Econ. Soc. Sci.* 14: 269-275.
- Hassan, H.M.A., I.M.S. Newisar, H.M.I. Fouda and H.M. Hamed. 2022. A study of some variables affecting the knowledge needs of fish farmers in Sharkia governorate. *Zagazig J. Agric. Res.* 49: 879-895.
- Husin, M.H. and J. Hanisch. 2008. Social media mining, Retrieved October 23, 2021, from, https://link.springer.com/content/pdf/10.1007%2F978-1-4939-7131-2_95.pdf
- Hussein, M.M.M. 2020. The role of social media in changing the concept of work culture among young people. Master's thesis unpublished, Faculty of Arts, Media Department, Mansoura University.
- Ismail, I.A.M. 2021. Attitudes of farmers towards using social media to receive agricultural extension recommendations in one of the villages of al Bustan area in al Buhaira governorate. *Alex. Sci. Exch. J.* 42: 1359-1373.
- Kamel, A.A.M. 2015. The role of social media on youth awareness in political participation: a field study in social anthropology. *J. Serv. Center Res. Consultation. Fac. Arts Menoufia University.* 50: 235-311.
- Mamish, S. and L. Hadid. 2017. Motivations for using social media and its impact on social capital, university of continuing education khenchela. International Scientific Conference "Options for Developing and Sustaining Social Capital: Cross-Sectional Views", October 8-10, p. 11.
- Mohamed, B.A.S. 2018. Work motivations and their impact on employees' creativity: a case study on the Sudanese expatriate affairs organ from 2011 to 2016. Master's thesis, Faculty of Administrative Sciences, International University of Africa, pp. 11, 13.
- Nasser, Sh.M.S. 2015. An economic study of fish production in Egypt and the most important problems of fish production in Assiut governorate. *Assiut J. Agri. Sci.* 46, 86.
- Ramadan, N.M.M. 2018. Study of the factors affecting the level of farmers' adoption of technological methods in animal production in Sharkia governorate. PhD thesis, Faculty of Agriculture, Agricultural Economics Department, Zagazig University.
- Salim, S.M., S. Mohamed, A. Al, M. Abdullah, E.A. Fishawy, T. Mohamed and M. Ibrahim. 2021. Attitudes of agricultural extension agents towards the use of electronic communication in agricultural extension. *Zagazig J. Agric. Res.* 48: 579-597.

الملخص العربي

دوافع مزارعي الأسماك بمحافظة الشرقية لاستخدام تطبيقات التواصل الاجتماعي في مجال الاستزراع السمكي

شيرين مجدي سيد حسن ، زينب محمود عبدالرحمن، محمد السعيد البسيوني، زينب محمد علي

1- أن حوالي (93.3%) من المبحوثين يفضلون مواقع التواصل الاجتماعي وحوالي (82.7%) من المبحوثين يفضلون الواتس اب كوسيلة تواصل.

2- أن أكثر تطبيقات التواصل الاجتماعي استخداماً لمزارعي الأسماك هو تطبيق الواتس اب حوالي (98.7%) من المبحوثين ويليه تطبيق اليوتيوب حوالي (64%) من المبحوثين ثم تطبيق الفيس بوك حوالي (61.3%) من المبحوثين.

3- أن الدوافع الاتصالية والإرشادية هي أكثر الدوافع لاستخدام تطبيقات التواصل الاجتماعي في مجال الاستزراع السمكي، فالمزارعون تكون دوافعهم الاتصالية والإرشادية في الفئة المرتفعة حوالي (100%) وهذا يعني أن المزارعون استجابتهم عالية للمعلومات الإرشادية في مجال الاستزراع السمكي.

الكلمات المفتاحية : الدوافع - مزارعي الأسماك - تطبيقات التواصل الاجتماعي - مجال الاستزراع السمكي.

استهدف البحث الحالي التعرف علي درجة استخدام وثقة مزارعي الأسماك بتطبيقات التواصل الاجتماعي في مجال الاستزراع السمكي، والتعرف علي دوافع مزارعي الأسماك نحو استخدام تطبيقات التواصل الاجتماعي في مجال الاستزراع السمكي، والتعرف علي درجة استخدام مزارعي الأسماك لتطبيقات التواصل الاجتماعي في الاستزراع السمكي، والتعرف علي مميزات وعيوب استخدام تطبيقات التواصل الاجتماعي في مجال الاستزراع السمكي.

ولتحقيق أهداف البحث تم اختيار عينة عشوائية من مزارعي الأسماك الذين يستخدمون تطبيقات التواصل الاجتماعي في مجال الاستزراع السمكي بمحافظة الشرقية بلغ قوامها 75 من مزارعي الأسماك يمثلون حوالي (75%) من إجمالي 100 مزارع مشترك بأحد الجروبات الإنتاجية، وتم تصميم استمارة إستبيان إلكتروني جمعت من خلال جروب لمزارعي الأسماك علي تطبيق (الواتساب) خلال شهري إبريل ومايو 2024، وتم استخدام التكرارات، والنسبة المئوية، والمتوسط الحسابي، والانحراف المعياري، والمدي، والمنوال لتحليل بيانات البحث.

وتمثلت أهم النتائج فيما يلي:

APPENDIXES

Table 1. Foreign direct investments and economic development indicators for Egypt over the period (2005-2023)
US\$ billion

Year	Inflows foreign direct investments	Outflows foreign direct investments	Net foreign direct investments	GDP	National Income	Total Capital Formation	Inflation %	Unemployment %
2005	4.14	0.23	3.90	89.60	89.35	16.11	4.87	11.05
2006	9.10	2.99	6.11	107.43	107.96	20.12	7.64	10.49
2007	13.08	2.03	11.05	130.44	131.61	27.20	9.32	8.80
2008	17.80	4.57	13.24	162.82	164.18	36.45	18.32	8.52
2009	12.84	4.72	8.11	189.15	189.30	36.30	11.76	9.09
2010	11.01	4.25	6.76	218.98	214.62	42.70	11.27	8.76
2011	9.57	7.39	2.19	235.99	229.94	40.36	10.06	11.85
2012	11.77	7.79	3.98	279.12	272.64	44.73	7.11	12.60
2013	10.27	6.52	3.75	288.43	281.03	40.99	9.47	13.15
2014	10.86	6.68	4.18	305.60	298.33	41.69	10.07	13.11
2015	12.55	6.17	6.38	329.37	323.67	47.06	10.37	13.05
2016	12.53	5.60	6.93	332.44	327.97	50.00	13.81	12.45
2017	13.37	5.43	7.93	248.36	243.79	42.58	29.51	11.77
2018	13.16	5.44	7.72	262.59	256.31	49.13	14.40	9.86
2019	16.39	8.16	8.24	318.68	307.67	63.91	9.15	7.85
2020	15.84	8.38	7.45	383.82	372.46	61.39	5.04	7.97
2021	13.92	8.70	5.21	424.67	412.27	64.43	5.21	7.44
2022	22.21	13.27	8.94	476.75	460.98	81.14	13.90	7.34
2023	23.05	13.01	10.04	395.93	378.61	50.99	33.88	7.31

Source: Collected and calculated from World Bank database, www.worldbank.org