



## Functional Competency of Agriculture Extension Workers in a Philippine Country

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Adult and Lifelong Learning, Agricultural Extension Workers, Continuous Professional Development, Functional Competencies

### Abstract

This study aimed to assess the functional competency level of agricultural extension workers (AEWs), as the sector's non-formal education service providers in a Philippine country. The study employed a mixed methods approach by integrating both qualitative and quantitative methods. Data were analyzed using descriptive and inferential statistics. Results showed that the functional competencies of AEWs are at an average level, with four competencies rated as high namely extension methods and tools, agricultural extension programme management, adult learning of behavioral change, and community mobilization. Meanwhile, the role of extension in supporting value chain, agricultural entrepreneurship, and risk mitigation and adaptation in extension and advisory services ranked as the lowest competencies. Results also showed that there are significant relationships between current competencies and years of service in the local government units, highest educational attainment, and years as focal persons in banner commodity programs. This study shall build an understanding of the current level of functional competencies of AEWs in Philippine country. Results could also be considered as a basis for adult educators in designing curriculums and adopting methods and strategies fitting for the professional needs of AEWs not only in the Region and other parts of the world.

### 1. Introduction

Every profession requires competencies to appropriately deliver desired outcomes. Professionals are expected to acquire a range of knowledge, skills, and attitudes that will enable them to engage in all activities for their well-being, as well as the community's development. This competency is referred to as functional competency. The term "functional competency" describes a person's particular knowledge, skills, and abilities that allow them to carry out tasks, duties, and responsibilities in a given professional setting. It includes technical expertise, the ability to solve problems, and the application of knowledge in a real-world setting that is pertinent to a particular position or job (Ismail et al., 2020). Therefore, functional competency can be understood as a subset of competencies tailored to the specific requirements and demands of a particular functional area or professional role. It involves the practical application of knowledge and skills to achieve optimal performance in a given job or task (Hatcher et al., 2013).

Agricultural extension, on the other hand, is a long-term community profession equipping the socio-economic associated rural population, such as farmers and fishers, with appropriate knowledge, skills, and technical resources to enhance their livelihoods. Agricultural Extension Workers (AEWs) are expected to have the right fit of functional competencies, with the right balance of technical knowledge plus skills to manage social processes. AEW capacitates the stakeholders through capacity-building interventions for the farmers and fishers through training, advisory services, and complementary activities (Grove, 2020; Davis & Sulaiman, 2015; ATI, 2016).

In the Philippines' agricultural context, extension plays a crucial role in sustainable agricultural development. The profession involves strengthening the capacities of farmers and fisherfolk along the areas of the value chain linking with up-to-date knowledge, technology, and practices. Therefore, AEWs are expected to have functional competencies in the pre-production, production, and post-production technologies; marketing; value-adding techniques and

methodologies; and facilitation for exchanges between and among all key players in the agricultural innovation system sector (ATI, 2019). Agriculture extension workers were likewise tapped to ensure proper delivery of quality agricultural extension, through utilization of various modalities such as non-formal education. Hence, the demand for advanced techniques and related knowledge; and the ability to develop comprehensive technology transfer approaches are prevailing in the profession (ATI, 2016).

AEWs further support the extension service by addressing the empowerment of farmers and fishers towards a food-secured nation and alleviation of poverty worldwide, as stipulated by the United Nations 2030 Agenda for Sustainable Development – Goal 2. Enhancing the farmer's and fishers' productivity, resilience, and competitiveness are among the many complex considerations of the extension service as a profession. Thus, the facilitation of the flow of information in the agricultural innovation system, amidst challenges and threats, is seen as a vital contribution of the AEWs to its clientele. (ATI, 2022) Moreover, promotion of access to technologies, be it from the production to post-harvest technologies, and non-formal education such as training, educational exposures, and other capacity-building activities, lobbying agricultural-related policies to policymakers and various stakeholders, and expanding access to finance and financial services are among their roles. These roles further complement the claim of the Food and Agriculture Organization (n.d) in investing in key players in the agricultural innovation system as key to eradicating poverty, hunger, and malnutrition in rural areas.

With this, strengthening AEW's capabilities is thus necessary to equip them with relevant competencies which will enable them to perform their duties effectively and adapt to the ever-changing needs of the agriculture extension system, the environment, and their clientele (ATI, 2019; Swanson & Rajalahti, 2010). Moreover, considering policies being implemented for the development of the sector such as the implementation of the Mandanas-Garcia Ruling of the Supreme Court signed in 2021 which stipulates the full devolution of basic services to LGUs, the call for continuous development and improvement of the knowledge, skills, and attitudes of AEWs is a most vital asset in extension services (Tan, 2022). Further, strengthening capabilities and retooling of the manpower through capacity building of LGUs to implement and integrate multiple agriculture and fisheries programs will support the implementation of the Province-led Agriculture and Extension Systems (PAFES), as in line with the full devolution of AFE services at the local government level, as initiated by the Department of Agriculture (Gasmen, 2020).

Studies likewise showed that modernizing extension and advisory services should be taken to upgrade the competencies of extension personnel and their clients. These AEWs likewise needed to be regularly updated to adapt to the ever-changing environmental conditions. As agricultural extension manpower serves as the most vital asset in extension services, strengthening their capacities, as to make them better leaders, entrepreneurs, and decision-makers, and helping them organize themselves into effective associations, institutions, and constituents is crucial and necessary. Thus, enough well-trained personnel are key to a successful extension system (Kante et al., 2016).

Given the threats and emerging trends needed within the sector, linking, and building new capacities geared towards a more competitive human resources of the agricultural extension professionals should be considered to address internal and external challenges of the sector, specifically the profession. Likewise, rationally addressing the issues through taking advantage of opportunities should be considered to make the sector's extension more inclusive, responsive, efficient, and effective. Thus, given the continuous and multi-level efforts of the national and local government in addressing the curbing of poverty in the rural and the agricultural sector, the use of global function competency standard as a basis for assessing the current functional competency in the local context could provide clarity on the claimed existing competency gaps in the sector. Lastly, comprehensive capability building should be instituted in all non-formal education extension providers for clientele development.

Due to the lack of published studies on the Philippine current competency level of AEWs as in line with the global sphere of andragogy in agricultural extension and advisory services, as well as the capacities of agricultural extension workers towards fully devolved extension services, this study addressed the following questions:

1. What is the level of functional competencies of agricultural extension workers vis-à-vis global competencies standards based on the New Extensionist Concept (GFRAS, 2017);
2. Is there a significant relationship between current functional competency level guided by the McClelland's Needs Theory and:
  - 2.1. Years of experience in the local government unit;
  - 2.2. Highest educational attainment; and
  - 2.3. Years of affiliation in the sector as focal person of banner commodity program?

The study specifically (i) determined the level of functional competencies of agricultural extension workers vis-à-vis global competencies standards based on the New Extensionist Concept (GFRAS, 2017); and (ii) analysed the relationship of current functional competency level guided by McClelland's Needs Theory.

## **2. Materials and Methods**

### **2.1 Research Design**

To assess the functional competency level of the Philippine Agricultural Extension Workers positioned in the local government units in Central Luzon Region (Region III) based on the global competency standards, the researcher employed survey research. Survey research was also used to measure the cognitive beliefs, feelings, self-reported behaviours, dispositional states, and communication networks in large populations (Baxter & Babbie, 2004), to elicit pertinent data. Specifically, a web-based survey method was employed due to its flexible design options, lower delivery cost, and accessibility (Jang & Vorderstrasse, 2019).

### **2.2 Research Participants**

The respondents of the study were agricultural extension workers holding permanent positions in the local government units of the Central Luzon Region. These are professional agricultural extensionists who are degree holders, licensed, trained, and/or with advanced formal studies. Simple random sampling was used so that all agricultural extensionists in the region had an equal chance of being included in the study. Moreover, this method is considered the least biased method of sampling (Jawale, 2012). Using a random number method, the researcher assigned every agricultural extensionists in the region a number. Further, the sample size was computed using Slovin's Formula with a margin of error of 5% and a confidence level of 95% hence the sample size of this study is 308. The sample size was equivalent to 23% of the total population.

Majority of respondents were composed of female (56%) and males (44%). Most of them belong to the youngest age range of 24 to 35 years old (39%) and in the lower mid-range of 36 to 47 years old (31%). There were also some who belong to the upper mid-range of 48 to 59 (21%) and the oldest age range of 60 years old and above (26 or 8%). In terms of civil status, more than half of the population are married (177) while 37% are single (115). In terms of focal years, most of the respondents (68%) had affiliation to banner commodity programs such as rice, corn, and high-value crops for less than a year to less than 7 years. The percentage was then followed by 20% of respondents serving as focal persons for at least 6.73 years to 13.44 years. Majority of the respondents (208 or 68%) had rendered service from less than a year to less than eight years while there were few remaining had rendered service from "more than 30 years to 38 years" and "more than 38 years to more than 45 years", respectively. The majority of the respondents had obtained bachelor's degree (79%); while there were numbers of them who had obtained master's degree (18%), and few who had earned a Diploma/Vocational course (3%) and Doctorate Degree (3 or 1%).

### **2.3 Instrumentation**

The data were collected using web-based survey method. The questionnaire was written in English and was composed of two parts. Part one asked about the respondents' socio-demographic characteristics while Part two asked about their level of functional competencies based on the Role of Extension Agents in the Agricultural Innovation System (GFRAS, 2017). Moreover, a pretest of the structured web-based survey was conducted on experts and policymakers to validate the questionnaire for appropriateness and the applicability of the content. Computed Cronbach's alpha is at 0.925 hence instrument used was with a high level of reliability.

### **2.4 Data Analysis**

The study employed both descriptive and inferential statistics to analyse and interpret data. Specifically, a five-point Likert Scale ranging from very low (1) to very high (5) was employed to self-assess the respondents' global competencies given the structured questions about their respective skill sets.

Frequency counts, percentages, and averages were also computed. In addition, chi-square test analysis and Person Product Moment Correlation Coefficient or Pearson  $r$  were also used to determine the association of 12 functional competencies with the following functional competencies with the following aspects: a. Years of experience in the local government unit; b. Highest educational attainment; and c. Years of the focal ship in agriculture banner programs. The correlation coefficient's interpretation was derived from the research conducted by (Cardino & Ortega-Dela Cruz (2020) and Schober et al. (2018). Moreover, inferential analysis was employed, such as Analysis of Variance (ANOVA) to analyse the difference in the level of functional competency between male and female respondents and across their level of education and civil status.

## 2.5 Ethical Considerations

Voluntary participation of the respondents was employed wherein they were free to opt in or out at any point during the survey and/or interviews. Respondents were provided with informed consent and personally identifiable data was not collected. Moreso, the data gathered was treated with full confidentiality.

## 3. Results and Discussion

### 3.1 Level of Functional Competencies of the AE Providers

The overall mean of 3.54 reveals that the competencies of the agricultural extension workers in the agricultural innovation system vis-à-vis global competencies standards based on the New Extensionist Concept (GFRAS, 2017) were at an average level as well as with most of the competencies (Table 1).

Table 1. Self-assessed level of functional competencies of agricultural extension workers

Competency	Mean	Indicator
Extension methods and tools	3.94	High
Agricultural extension programme management	3.81	High
Adult learning of behavioural change	3.75	High
Community Mobilization	3.67	High
Farmer organizational development	3.63	Average
Professional ethics	3.58	Average
Gender in extension and advisory services	3.49	Average
Facilitation and development	3.38	Average
Basic knowledge management and extension	3.34	Average
Risk mitigation and adaption in extension and advisory services	3.33	Average
Agricultural entrepreneurship	3.32	Average
Role of extension in supporting value chain	3.27	Average

Standard Deviation: 0.04

As observed in Table 1, the four competencies that were found at a high level include extension methods and tools (mean=3.94), agricultural extension program management (mean=3.81), adult learning and behavioural change (3.75), and community mobilization (3.67). Meanwhile, the lowest competencies, although indicated as average level are the role of extension in supporting the value chain (mean=3.27), agricultural entrepreneurship (mean=3.32), and risk mitigation and adaption in extension and advisory services (mean=3.33).

#### High Self-rated Competencies

**Extension Methods and Tools.** Weighted mean on specific competencies in terms of innovation and development and extension and major extension services resulted in a high competency with both mean equal to 3.68. This indicates that AEWs in Region 3 are conscious about their roles in the development of farmers, likewise on their roles in innovation. Moreso, their strong judgment about their level of knowledge in major extension approaches and their capability of differentiating and selecting appropriate methods and tools based on the program goals and local concepts. The use of appropriate methods, messages, and tools of education and information is of paramount importance in extension. The competency of extension professionals was evaluated based on how familiar they are with various emerging technologies and how effective they are in communicating the tools and methods.

**Agricultural Extension Programme and Management.** Agricultural extension faces the challenge of establishing a well-managed, effective, and accountable system that meets the needs of many farmers engaged in diverse and complex farming systems as well as effectively monitoring, evaluating, and assessing the impact of extension services. Under this competency, respondents rated themselves as having a high judgment on their leadership, motivation, and group dynamics (mean=3.68) and good time management and defining goal (mean=3.67). However, in terms of specific competencies such as theories and practices of agricultural extension management, approaches in management strategies of extension organizations, extension programs, and program planning, managing organizational conflict and resolution, involvement of farmers and tools in program planning, organizational theories, and human resources, management of informational systems, and monitoring and evaluation for effective management, respondents assessed themselves as to having average competencies.

**Adult Learning of Behavioural Change.** With this study, it was found that most agricultural extension workers can understand how social and cultural norms influence people's behaviour. Specifically, the respondents highly understand behaviour change (mean=3.70). However, respondents rated themselves as average in terms of facilitating learning and behaviour change (mean=3.56), training design for behaviour change (mean=3.44) and evaluating educational programme (3.43).

#### Average self-rated Competencies (Three Lowest Competencies)

Agricultural Entrepreneurship. Among the 12 functional competencies, agricultural entrepreneurship was rated as the lowest with mean=3.32. Respondents rated themselves as having average competency in evaluating the key skills involved in running a business (mean=3.28), identifying markets, mapping resources, and conducting business planning (mean=3.20), financial management, sales, and risk management (mean=3.24) and building business and managing relationships (mean=3.24). Results of the study showed that agricultural extension workers are average in their understanding of the concept of agripreneurship as well as basic principles of financial management and other business and management-related concepts.

Role of Extension in Supporting Value Chain. Results showed that agricultural extension workers in Central Luzon have an average rating in terms of their self-competency in supporting value chain concepts and principles specifically in the agricultural market, value chain, and key actors (mean=3.24), market linkage methods (mean=3.24), and analysing markets and value chains (mean=3.24).

Risk Mitigation and Adaptation in Extension and Advisory Services. It was also found that the self-assessed competency level of AEWs in Central Luzon is at an average level (mean=3.33). Respondents have average ratings in terms of understanding risk and risk management (mean=3.34), adaptation in the context of climate change (mean=3.43), the role of extension advisory service in adaptation and risk management (3.30), and tools for assessing risk and identifying adaptation strategies (mean=3.26).

### 3.2 Relationships Between Current Functional Competency Level and Sociodemographic Characteristics

The complex relationships between sociodemographic characteristics—such as age, sex, education, and years of experience—and how they affect agricultural extension workers' functional competency are examined in this section. Specifically, the results of the chi-square test of the significant relationship between current functional competency level and sociodemographic characteristics of agricultural extension workers in the agricultural innovation system based on McClelland's Needs Theory are discussed.

#### Years of Experience in the Local Government Units

Results revealed that there is a significant relationship existed between the current functional competency level in terms of the “role of extension in supporting value chain” and the year in service in the local government unit of the agricultural extension workers ( $X^2(20, n=308) = 52.161; p=.000$ ). Meanwhile, all other competencies were found to have no significant relationship with the years of service in the local government units.

The findings implied that the role of extension in supporting the value chain among agricultural extension workers is provocatively related to the duration of their stay in the local government unit. It shows that the longer the agricultural extension workers stay in a local unit the more they can understand how farmer organizations are categorized and the different services they provide. As they stay longer in the unit, they would be more familiar with the definition and differentiated mandate of farmer organizations and the functions of farmer organizations. Moreover, the agricultural extension workers can provide more input on the sustainability of farmer organizations as they stay longer.

Results also showed that despite their average self-assessed level on these competencies, the Needs Theory of McClelland's as represented by the need for power is being supported. Thus, AEWs are conscious of their job performance and their capabilities as a professional serving in the local government units considering all the key actors and challenges considering the work-related demands alongside the facilitation of their career growth in their respective offices.

#### Highest Educational Attainment

The test analysis yielded that the highest educational attainment of the agricultural extension workers showed significant relation to their functional competency level in terms of “extension methods and tools ( $X^2(6, n=308)=23.623; p=.001$ )”; “agricultural extension programme management ( $X^2(15, n=308)=53.417; p=.000$ )”; “basic knowledge management and extension ( $X^2(15, n=308)=19.985; p=.043$ )”; “facilitation and development ( $X^2(15, n=308)=19.176; p=.033$ )”; “community mobilization ( $X^2(15, n=308)=20.744; p=.028$ )”; and, “sex in extension and advisory services ( $X^2(15, n=308)=17.762; p=.000$ ). While remaining functional competencies: professional ethics, adult learning of the behavioural change, farmer organizational development, the role of extension in supporting value chain, agricultural entrepreneurship, and rural advisory services evaluation, indicated no significant relationship with the highest educational attainment.

The results implied that educational attainment is very much relevant to the competency level of an agricultural extension worker. Moreso, the results are supported by the achievement motivation aspect wherein they were able to accomplish mastery of a certain field of expertise. The way he or she decided or think about what extension methods and tools are useful, or the way he or she manages agricultural extension program along with the application of basic



knowledge management and extension, facilitation and development and community mobilization were most likely to depend on the theories and philosophy she or he learned from his/her formal education. This is also true in how she applied his/her knowledge of gender in extension and advisory services. This could mean that professional development and attending graduate studies would be very helpful to any extension agent as they pursue their career and profession in an agricultural institution. Moreover, it is also worth mentioning that reputable agricultural and related field academic institutions are thereby needed to expand the functional competencies, as mentioned by the key informant.

Years of affiliation in the sector as the focal person of the banner commodity program

Results also revealed that the agricultural extension workers' focal years were significantly related to their functional competency level (Appendix 7) in terms of "basic knowledge management and extension ( $X^2(18, n=308) = 30.064$ ;  $p=.000$ )"; "facilitation and development ( $X^2(18, n=308) = 38.645$ ;  $p=.011$ )"; "community mobilization ( $X^2(18, n=308) = 30.626$ ;  $p=.000$ )"; and "risk mitigation and adaptation in extension and advisory services ( $X^2(24, n=308) = 40.728$ ;  $p=.000$ )". Meanwhile, remaining competencies such as the extension methods and tools, agricultural extension programme management, professional ethics, farmer organizational development, the role of extension in supporting the value chain, agricultural entrepreneurship, and gender in extension and advisory services showed no significant relationship with the years of affiliation in the sector as focal person of banner commodity program.

The findings implied that the focal years of the agricultural extension workers or their years of affiliation in any efforts to professionalize agricultural extension as a profession are very much relevant and important in the development or acquisition of the basic knowledge management and extension, facilitation, and development, community mobilization, and rural advisory services evaluation. Thus, as argued by McClelland's Needs Theory one's needs for belongingness and relatedness serve as one of the motivations. Their professional affiliation gained them knowledge and information that supports agricultural extension workers' understanding of different types of management and extension that exist as well as different communication models and the intermediary role of extensionists such as communicating media and tools and the concept of facilitation for change as a core function in agricultural innovation.

Table 2 shows the relationship among the sociodemographic characteristics and functional competency of the AEWs. Pearson correlation coefficient reveals a moderate positive the relationship between education and functional competency ( $r(308) = 0.317$ ;  $p=.000$ ), a weak positive relationship between age ( $r(308) = 0.263$ ;  $p=.004$ ), years of experience ( $r(308) = 0.269$ ;  $p=.003$ ) and years of the focal ship ( $r(308) = 0.227$ ;  $p=.026$ ). The results are all statistically significant. On the contrary, a trivial negative relationship was found between functional competency and sex ( $r(308) = -0.091$ ;  $p=.113$ ) as well as civil status ( $r(308) = 0.102$ ;  $p=.073$ ).

Table 2. Correlation coefficients of the variables

Functional Competency	r	p
Age	0.263	0.004**
Civil Status	0.102	0.073
Education	0.317	0.003**
Sex	-0.091	0.113
Years of Experience	0.269	0.003**
Years of Focal ship	0.227	0.026*

\*\*significant at the 0.01 level; \*significant at the 0.05 level

Analysis of Variance indicates significant differences in the functional competency across levels of education  $F(3, n=308) = 3.805$ ,  $p=.011$ . Tukey's honestly significant difference (HSD) post hoc test specifies that the differences in the functional competency occurred between the groups of agricultural extension workers with bachelor's, and master's degree. However, no significant difference in the level of functional competency was found between male and female respondents  $F(1, n=308) = 3.399$ ,  $p=.066$  as well as across their civil status  $F(3, n=308) = 1.505$ ,  $p=.213$ .

### 3.3 Discussions

According to Davis and Sulaiman (2015), to be effective agricultural extension workers, being aware of the changing tools and approaches that best fit the conditions of the clientele is necessary. This includes determining and assessing the appropriate method and tools that deal with agricultural challenges including climate change, high-value markets, and natural and human resources management.

Extension professionals should be able to utilize knowledge management in terms of usage of ICTs, information access, data storage, and analysis; provision of information via local radio stations, the Internet, and mobile phones;

utilization of audiovisual materials for teaching adults; and designing educational and informational materials based on client's needs and contexts (Chikaire et al., 2018).

Moreover, extension activities are developed through programmed development which should be strategically planned through continuous learning through a proactive, responsive, and collaborative approach that will adhere to the growth and development of farmers and other stakeholders (Manfre et al., 2015). Extension professionals, according to Chikaire et al. (2018), have the challenge to lead, coordinate and facilitate these diverse stakeholders. Extension professionals uphold stakeholders' participation and ownership in the programs. Moreover, they should understand group dynamics, work in a team and encourage teamwork in their organizations; basic approaches to conflict resolution; facilitation and the role of facilitators; major political forces that operate in the communities; the use of various leadership approaches depending on their work contexts; the practice of consensus decision making among clients and stakeholders; barriers to participation and/or learning; interaction of diverse individuals and groups to create partnerships and networks; and delegation of tasks to staff members.

According to Rodriguez (2016, as cited in GFRAS, 2017), farmers, generally, are creatures of habit, often very risk averse, and do not necessarily like being encouraged to change the way they do things. There are many reasons people choose not to change their behaviour or adopt new practices. Likewise, rural advisory services are believed to help stimulate behaviour change in its target clients - the farmers and fisherfolks. With this, the role of agricultural extension workers highlighted in this competency is the level of expectation towards providing and educating its clients through various interventions and strategies. AEWs are required to be well equipped in providing basics of behaviour change within the agricultural innovation system context, as well as the components that influence the facilitation of learning. AEWs are also expected to be knowledgeable on the differences between adult and youth learners and education, and how they could be able to apply principles to provide appropriate training development based on its learning assessment and importance.

Furthermore, agricultural extension workers are expected to be cognizant of what's and why's of community mobilization. What are their roles in gender and youth in overcoming and preventing divisions as well as building existing diverse and inclusive communities? This also includes their understanding of appropriate approaches such as planning and analysing, interpreting, and applying solutions to problems in the community. The development of various leadership skills and styles that fit every situation and the creation of sustainable resource mobilization towards effective community management (GFRAS, 2017). Agricultural extension workers' competencies will tremendously help the government in implementing agricultural development programs in their respective areas, based on the planned field activities. Agricultural extension workers, in implementing the agribusiness extension of rice fields, in addition to being supported by the technical competencies such as competencies to cultivate the rice field, the AEWs also need to have managerial competencies that are closely related to sustainable agribusiness management such as marketing, and access to working capital. Therefore, the farmers will feel that they are being assisted in developing and increasing the rice field agribusiness through agricultural development programs to increase the rice field productivity (Srnita, 2017). From the results of the study by Rahyunanto et al. (2020), the most visible role of agricultural extension workers is the role of agricultural extension workers as educators. This is by extension activities as an educational process. Agricultural extension workers through extension activities make farmers know, want, and able and increase their knowledge, be more critical, and able to understand the phenomena that are developing in society so that when people apply a technology, they know exactly what, and how should something new be implemented. The study by Ferris (2016) mentioned that over the past 30 years, there has been a major shift in agricultural markets and the international trade of agricultural products specifically in developing countries. There is an increasing pressure of farmers to commercialize their operations thus changing driving factors like declining land size, in which farmers need more intensive production systems to support the rapid demand of the rising costs complementing the demands for a larger income.

According to Ferris and Irwin (2012), one of the main purposes of extension services is to support rural farmers in improving their livelihood prospects. It is believed that to be able to provide a supporting mechanism to farmers, agricultural extension workers need to provide more than production-based services. Further, their awareness and familiarity with the market where the farmers operate, and their understanding of the value chain will help farmers determine appropriate market opportunities.

The study of Hachigonta (2016) focused on the need to focus on the approaches to risk and adaptation management, assessment and developing intervention of risk in the agricultural context, resilience in the context of risk, understanding how improved risk planning can increase identification and adaption of farming strategies, climate change concepts and how extension professionals can be equipped to better manage risk and uncertainties. Ani and Correa (2016) noted that support and continuous capacity building of extension workers are necessary to facilitate community-based and participatory approaches to enhance their technical knowledge and skills to become effective civil servants. Sustainable rural development depends on the efficacy of agricultural extension services. Therefore, it is critical to understand how these sociodemographic aspects affect extension workers' capabilities.

Numerous studies have demonstrated the positive correlation between the level of education attained by agricultural extension workers and their functional capacity. Higher education also tends to provide stronger knowledge, analytical skills, and a better understanding of the fast-evolving agricultural technologies to extension agents. Using important research from Aregaw et al. (2023), Bahua (2016), Naji and Ali (2023), and Omotesho et al. (2021), their findings revealed association between educational attainment and extension workers' competence in effective communication, embracing technology, and problem-solving techniques. The dynamics of gender are important in the agricultural industry. Studies (Ali et al., 2016, Doss, 2019 & Singbo et al., 2021) indicate that gender may have an impact on extension workers' functional competency and agricultural productivity. The efficacy of male and female extension workers may be affected differentially by variables like societal expectations, resource accessibility, and discriminatory practices. This could have an impact on the success of extension programs as a whole.

Although one important element affecting agricultural extension workers' functional competency has been shown to be their age. This study supports the findings Suvedi et al. (2018) and Hauk et al. (2018) who found no significant difference among age, experience, and level of competency as well no significant relationship between age and technology acceptance of various technologies respectively.

#### 4. Conclusion and Recommendations

The study highlights the functional competencies of agricultural extension workers in a developing country such as the Philippines. Results showed that their competencies were at average level vis a vis global competencies standards based on the New Extensionist Concept (GFRAS, 2017). However, they obtained a high level of competencies in extension methods and tools, agricultural extension program management, professional ethics, adult learning of the behavioral change, and community mobilization. Likewise, there were significant relationships between the years of experience in the local government unit and functional competency level in terms of the "role of extension in supporting value chain" as well as between "highest educational attainment and the extension methods and tools, agricultural extension programme management, basic knowledge management and extension, facilitation and development, community mobilization, and gender in extension and advisory services"; and between "focal years and essential knowledge management and extension, facilitation and development, community mobilization, and rural advisory services evaluation. Nevertheless, the study found no significant relationships between sociodemographic characteristics and other competency areas. Results also revealed significant differences in the functional competency across levels of education specifically between the groups of agricultural extension workers with bachelor's, and master's degree.

The findings of this study shall serve as a starting point for the development of educational planning programs for the agricultural extension providers' policymakers and other related development institutions and organizations. Gathered data shall also build an understanding of the current level of functional competencies of AEWs in the region. Results could also be considered as a basis for adult educators in designing curriculums and adopting methods and strategies fitting for the professional needs of AEWs in the Region. Agricultural Extension Providers' Policy makers, through the Department of Agriculture, are encouraged to create or expand their scholarship programs in partnership with reputable academic institutions to motivate their agricultural extension workers to pursue their studies and career ladder in their respective local government units. Moreover, gathered data could provide a basis to the trainers, curriculum developers, module developers, and instructional designers for enhancing existing capability-building learning programs, specifically on improving competency areas of professional ethics, adult learning of the behavioural change, farmer organizational development, and agricultural entrepreneurship. The promotion of adult learning by intensifying continuous professional development program initiatives shall also be considered by the agricultural extension providers' policymakers to promote further institutionalization of agricultural extension as a profession. Lastly, for future researchers, an in-depth study that will explore the experiences of agricultural extension workers in the agricultural innovation system and validation of the gathered data with the clientele is also recommended to further analyse and explore the competencies of agriculture extension providers in not only the context of a developing country such as the Philippines but in other countries around the world.

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