



Mobilization of Cyber Extension Participants to Build Household Food Security

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Abstract: Youtuber, Tiktokers and content creator exist on internet who actively showing agricultural information in limited land, hydroponic cultivation also tips for utilization home yard as plantation productive a form public participation in an attempt to increase agricultural in micro scale. The impressions agricultural innovative and creatives from content creators in internet is a phenomenon change occurs paradigm education present that openly also no need to rely on employment of counseling functional with status State Civil Apparatus. Absence content creator information about alternative agricultural can categorize to participant cyber extension in order to build food resilience at the household level. Cyber extension that is conducted on public became concept participative counseling that are relevant developed when limited quantity human resources agricultural counselors, procurement material and support facilities. Purpose: studies on existence participant cyber extension to design programs and strategy mobilize content creator into intensify extension utilization home yard to plant productive to build food resilience household. This study improving concept counseling based society and mobilization power source theory. Method: systematics literatur review with qualitative approach. Result: (1) Need to be given coaching or mentoring for participants especially content creator to produce mater that are educative and solutive for society who want start plating at home yard (2) Giving appreciation or reward to participant who active and creative doing cyber extension.

Keywords: Cyber extension; Food resilience; Mobilization; Participant

Introduction

The issue of food availability has become a serious discussion at every general assembly of the United Nations (United Nations) and has become the main agenda of the Food and Agriculture Organization (FAO). FAO is giving serious attention because the food crisis is not only threatening poor and developing countries, but the tendency for the continued decline in the supply of biological and animal food has also occurred in a number of developed countries in mainland Europe and North America. The global food crisis hitting the world is caused by three phenomena C, namely Climate change, Covid-19 and Conflict. Before the Ukrainian conflict occurred, food prices continued to

soar, the main factor being drought affecting major crop-producing countries as well as food supply chain shocks impacted by the Covid-19 pandemic (Irawan 2022).

Global climate change is mentioned as the main factor in the continued depletion of food availability in the world. Erratic climate, weather that is increasingly experiencing anomalies, including changes in the structure or quality of agricultural land soil is the trigger for the low production of biological food. For example, the problem of unstable corn production in Malang, East Java, is caused more by climate change due to global warming (Herlina and Prasetyorini 2020). Land use that has not been maximized is due to limited human resources (HR) who are active in the agricultural, plantation and livestock sectors, including factors of

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changes in lifestyle and developments in the social situation of the community which have also influenced the habits or traditions of previous generations in seeking food availability. The declining interest of vulnerable young people aged 20 to 30 years to continue their parents' profession to become farmers is more because working in cities is more promising and guarantees a future than being a farmer (Syaprin et al. 2020).

The potential for a food crisis that threatens Indonesia is a contradictory situation between the reality of the high population increase and the availability of agricultural land. Considering that Indonesia has a fixed area of agricultural land but on the other hand population growth is increasing, this condition causes agricultural land to become increasingly narrow. If left unchecked, an imbalance will occur which will result in not being able to meet the food needs of the population (Moniaga, 2011). The phenomenon of the global crisis and the macro problems faced by the Indonesian nation must be handled in a systematic and structured manner. However, at the same time, economic and financial pressures on society, including the Covid-19 pandemic, have forced innovation and creativity in seeking food availability independently. Utilization of limited land such as yards and management of productive plants through hydroponic techniques is an alternative for generating plant-based food and nutrition security.

Utilization of the yard of the house as an area for growing consumption crops such as vegetables, tubers, fruits and herbs or live pharmacies, is an alternative to increasing food security and nutrition in household settings. Empowering households or families to develop micro-scale agriculture or plantations is a realistic step that can be applied immediately and can be felt with significant benefits even in a limited capacity. Family empowerment can be increased through cooperation between husband and wife in building entrepreneurship according to their potential (Sugiarti & Anwas, 2022). Activities such as the development of Sustainable Food Home Areas (KRPL) function to develop the ability of families and communities to meet food and nutritional needs with the aim of creating independent and prosperous families and communities (Alhudhori, 2017).

There have been many examples of success from micro-scale farming and plantation activities such as those carried out by housewives who are members of the Family Welfare Empowerment Team (TP PKK) in Antapani Kidul Village, Antapani District, Bandung City. Where after being given knowledge and training in growing vegetables with verticulture techniques in the yard of the house was able to improve production and meet local food needs (Kusumo et al., 2020). The problem is in an effort to arouse community interest, especially households to be moved to use their yards as agricultural land or micro-plantations, the community

needs to be given information and socialization gradually and continuously as well as stimulants to participate in developing agriculture or plantations in their yards. Ideally, the role of functional extension agents, private extension workers and self-supporting extension agents in the field of agriculture will play a role in arousing interest as well as raising awareness in the community to build food security, but the fact is that there are limited capacities and abilities of extension agents to enter the household realm. As happened in agriculture on marginal land in Bogor and Pontianak which shows the importance of strengthening extension institutions and the capacity of extension workers to increase the productivity and welfare of farmers (Amanah et al., 2008).

Simultaneously with the limited extension activities and the performance of functional extension workers, on the other hand there are people present who are actively broadcasting material about farming on limited land using the internet network. A number of articles or shows regarding the use of home yards, hydroponic farming technique guides to tutorials on marketing organic vegetable production are becoming increasingly easy to find on social media such as Facebook, Instagram and Twitter or through the YouTube and TikTok applications. For example, the presence of the Pasar Hidroponik account on Facebook has recorded 24 thousand members, or the abangsayurorganik account on Instagram which has 7,443 followers and YouTube Tanahara with 17.5 subscribers.

The presence of thematic micro-scale agriculture or plantation accounts on social media as well as the YouTube and TikTok applications, is basically included in outreach activities in cyberspace or known as the concept of cyber extension. The concept of cyber extension itself is a mechanism for disseminating information and dissemination that is educating the wider community and certain targets by utilizing internet channels and large data storage spaces or Big Data in cyberspace (Sumardjo, 2017). Since the early 2000s, cyber extension activities have become the domain of the agricultural sector in order to take advantage of advances in Information and Communication Technology (ICT) as a means of education and uploading the latest innovations. Specifically, the Ministry of Agriculture, on the advice of the Professor of Extension Science at the Bogor Agricultural Institute (IPB), Prof. Sumardjo, opened an Indonesian Ministry of Agriculture Cyber Extension account on YouTube. The cyber extension was launched by the Ministry of Agriculture to become a forum that can be used by extension workers both at the central and regional levels to disseminate agricultural technology innovations, while the material presented includes how to build food security at the family, village, sub-district to district/city levels (Adriyani, 2019c).

Counseling in cyberspace conducted by the Republic of Indonesia's Ministry of Agriculture and functional extension workers who are trying to be creative, however, is still not significant enough to reach 53.73 percent of Indonesia's population who use the internet (BPS, 2020). Likewise, support from creative content creators, YouTubers or Tiktokers to mobilize people to be encouraged to utilize limited land or at least be involved in farming or plantation management, in fact has not maximally attracted people's attention because data shows that people's internet consumption is still dominated by mere entertainment and hobbies.

This study follows up on several previous studies related to cyber extension, such as research conducted by Oos M Anwas with the title "Utilization of Media in the Development of Agricultural Extension Competence" which focuses on the intensity of media use and the dominant factors influencing media utilization related to extension competence and dominant factors influencing extension agents and formulating strategies for developing competency extensions based on media utilization (Anwas, 2009). Furthermore, Adekoya's research on communication and counseling via the internet which formulates a model of agricultural communication strategy and transformation in rural areas (Adekoya, 2007).

Followed by Fauziah Yulia Adriyani's research entitled "Utilization of Cyber Extension as a Media for Dissemination of Agricultural Innovation by Agricultural Extension in Lampung Province," (Adriyani, 2019a), then added to the research conducted by Budi Cahyono, Retno Setyowati, and Hanifah Ihsaniyati with the title "Adoption of Cyber Extension by Agricultural Extension Workers (PPL) and Factors Affecting," (Cahyono et al., 2020), followed by research conducted by Dede Saputra entitled "Effectiveness of Utilizing Cyber Extension as a Media for Obtaining Agricultural Information," (Saputra, 2019). As well as research conducted by Sumardjo with Retno Sri Hartati Mulyandari, (2010) with the title "Cyber Extension Implementation in Agricultural Innovation Communication," and reinforced by research by Retno SH Mulyandari, Lukman Mohammad Baga and Sumardjo, (2010) with the title "Cyber Extension Opportunities and Challenges in Agricultural Extension Revitalization.

This is based on the problem of limited capacity and functional extension human resources to carry out cyber extensions, as well as the existence of cyber extension

participants from content creators, who sporadically and have not been focused on conducting outreach to the community. So a study was conducted on how to mobilize cyber extension participants to build food security in household settings. The research questions that arise are, (1) What is the role of cyber extension participants in conducting food security counseling, (2) What is the strategy for mobilizing cyber extension participants to accelerate counseling to the community about building household food security.

The purpose of this study is to describe and analyze the role of cyber extension participants in an effort to build household food security, as well as to design programs and strategies to mobilize cyber extension participants in intensifying counseling on the use of yards for productive plants to build household food security. The benefit of this study is to get an overview (description) of the existence as well as the role of counseling participants in cyberspace, and can formulate strategies in empowering participants to jointly and purposefully conduct outreach to the community. This is done so that they are motivated to strengthen household food security through the use of limited land, yards and efficient farming techniques. The study of mobilizing cyber extension participants to build household food security is a representation of a participatory counseling concept by the community. The theory of resource mobilization is to utilize and encourage resources to carry out social change movements (Putra et al., 2021).

Conceptual framework

Cyber extension participants are individuals or community groups from professionals or ordinary people who act as content creators, YouTubers and TikTokers who then participate in holding outreach in cyberspace. Counseling conducted via the internet or called cyber extension regarding agricultural practices or farming on limited land is based on educational, promotional motives and in order to maintain existence as activists in cyber space. Agricultural extension material on limited land is then broadcast via the Youtube or TikTok application which is connected to the participants' social media. In the end, agricultural cyber extension activities on limited land are expected to be able to encourage efforts to increase food security at the household scale.

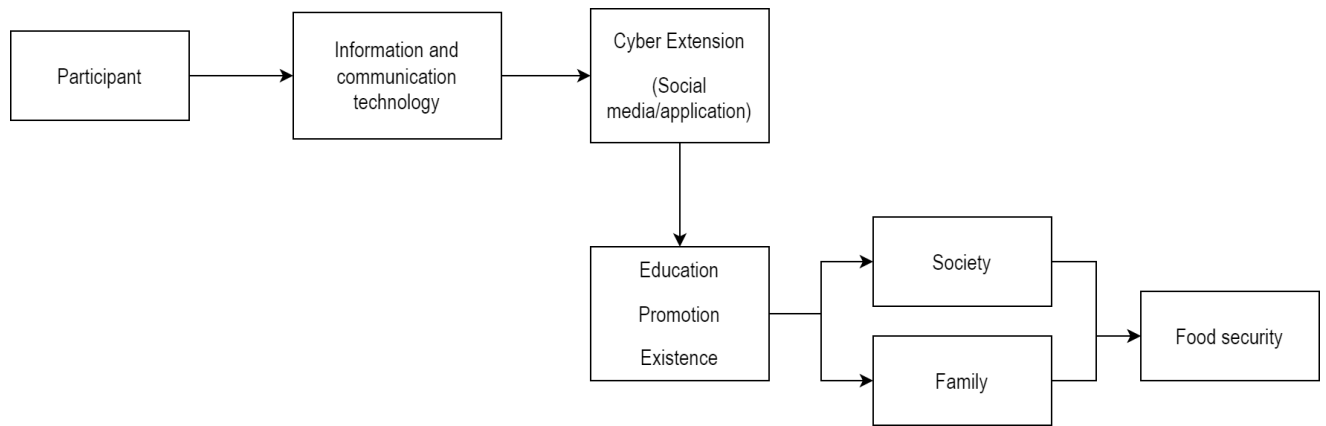


Figure 1. Cyber Extension Concept Framework

Method

SLR Method

The study of the existence of household food security cyber extension participants was carried out using the Systematic Literature Review (SLR) method with a qualitative approach. Systematic Review Literature Review is carried out by collecting, synthesizing and analyzing research articles on certain topics (Memon et al. 2020). Based on a literature review that comes from primary sources such as scientific journals, as well as secondary sources in the form of archives, documentation and news. Furthermore, the results of tracking and reviewing are analyzed to build propositions regarding the role of cyber extension participants and to formulate strategies to mobilize participants in conducting food security counseling.

Data analysis

Data analysis was carried out by collecting journals related to cyber extension, participants and participatory counseling and food security using the Science Direct and Mendeley applications to obtain research results relevant to the topic of mobilizing cyber extension participants.



Figure 3. Collecting data to the national library



Figure 4. Conducting a systematic literature review.



Figure 2. Following a discussion by a Guest Lecturer at IPB that inspired research.

Result and Discussion

Literature Review

Searching a number of primary data sources in the form of scientific journals, reference books and news coverage in the mass media, is part of the literature review activity. A literature review was conducted to build a synthesis of what is meant by cyber extension, who are the participants in cyber extension and what is wrong with household food security. Based on the

construction and synthesis of the three concepts mentioned, these constructions form the basis for preparing propositions regarding the role and strategy of mobilizing cyber extension participants to build household food security.

Cyber extension is an extension concept that utilizes internet-based ICT advances. The presence of digital communication technology in the form of devices such as mobile phones, smartphones or Android has become a communication channel for organizing counseling to certain target audiences and the wider community. Cyber extension is not only a means for extension workers to convey messages from communicators or researchers in the form of information and innovation, but cyberspace is also a source of data for extension workers and the user community to update their knowledge and insights (Sumardjo 2020).

So far, extension in the field of agriculture still uses conventional methods such as through television and radio, but in its development it has begun to switch to the use of digital media to carry out cyber extensions, as was done by Kakoa agribusiness extension workers in Manokwari, West Papua, which is discussed in the research (Fangohoi & Sugiyanto, 2016). Cyber extension is a media for disseminating agricultural innovations based on Communication Information Technology (ICT) (Adriyani, 2019b). The results of evaluating the implementation of cyber extensions show significantly that extension in cyberspace can help revitalize agriculture (Siahaan et al., 2018).

Research on the continuous evolution of communication technologies is driving changes in human behavior, whereby the use of ICT in counseling and consulting is becoming more relevant. For this reason, Bangladesh has launched an ICT-based service that allows traditional counseling to be converted into digital form. The condition of changing communication channels that were previously one-way (traditional) such as via radio, television and so on becomes the internet and that provides space for creating two-way communication. In addition, the smooth running of extension services through ICT depends on the views of extension workers in utilizing ICT itself (Khabir et al., 2022). ICT in the form of television and radio electronic media as well as cellular telephones (cell phones) as a source of information has been widely used by farming communities in Khyber Pakhtunkhwa Province in Pakistan (Aldosari et al., 2019). Small farmers in Sub-Saharan Africa are doing the same thing in improving their food security using interactive radio and ICT (Hudsson et al., 2017).

The use of cyber extensions to increase the production and quality of agricultural products has been carried out by agricultural extension workers in Lampung province who have a total of 1,641 extension workers, where cyber extension is an agricultural

innovation communication method by utilizing the media by integrating information technology to speed up information that can be received by users (Sumardjo and Mulyandari 2010). Through the cyber extension, it is hoped that extension workers will actively disseminate technological innovations that have been tested in their respective regions (Adriyani 2019c).

Previously, cyber extension activities were classified as counseling with a mass approach, in which the messages conveyed were disseminated via the internet. At first, as counseling through conventional mass media such as newspapers, radio and television was only direct but unidirectional, but after convergence to multiplatform media, it turned out that interaction was possible. This means that communication and counseling with a mass approach has the potential to become an interactive extension channel (Ambardi & Harumike, 2015). The internet with various applications (sites) and social media has facilitated outreach activities in cyber space. Without having to rely on conventional mass media or online media, now extension workers can optimize the use of Facebook, Instagram, Twitter or YouTube and Tiktok to convey counseling messages. Based on research on the use of social media in agricultural extension activities, it can be categorized as high for using Facebook and WhatsApp and moderate for YouTube and Instagram (Suratini et al., 2021).

Based on a number of literature regarding what was discussed, it can be synthesized that cyber extension is an extension mechanism in the form of information dissemination, socialization as well as persuasive communication that utilizes internet-based digital communication technology. Cyber extension is not limited to the study of the internet as a communication channel or medium for delivering extension messages, but also examines cyberspace as a repository as well as a source of digging up information for extension workers and the general public. Implementation of cyber extension can be done through multiplatform mass media, online media, social media and other types of applications that are easily accessible to the public.

At the same time, there are also extension institutions that function as motivators to increase the capacity of extension workers in managing or utilizing digital-based information. So it becomes important to review the adequate capacity or competence of extension workers in managing and accessing information by utilizing technology accessed through cyber extensions including in the use of language and then repackaging it so that it is easily understood by both extension workers and beneficiaries (Mulyandari, 2011).

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Cyber extension participants, Agricultural extension activities are usually carried out by an extension worker who acts as a facilitator in delivering innovation results or programs from researchers, academics or the government (Adawiyah et al., 2018), then in its development extension also involves the participation of community leaders, experienced farmers or other related parties who also play a role as extension participants. The existence of participants in an extension system has a strategic and significant role that has a relationship with the level of agribusiness performance as happened in cocoa plantations in Aceh Province, Indonesia (Iskandar et al., 2020).

Cyber extension participants are individuals or groups of people from the community who participate in counseling, education as well as promotion through internet channels. Specifically, the cyber extension participants in question are those who present material relating to the use of limited land and yards for micro-scale or home-class farming or gardening. Including content creators (content creators) farming guides with hydroponic techniques and learning materials for producing organic plants can be identified as participants in agricultural cyber extension.

The term participants in an extension are those (individuals or groups) who voluntarily or on their own initiative carry out information dissemination and outreach activities with the aim of increasing the knowledge of the target audience. Extension participants can come from companies or corporations, also known as private extension workers who care about agriculture or plantations whose job is to help partner farmers (Sulandjari & Muhyiddin, 2020). Meanwhile, self-help extension workers come from ordinary people or farmers themselves who have been provided with training to carry out agricultural extension. With the involvement of farmers as self-help agricultural extension agents, they produce alternative solutions to empower farmers in carrying out extension services (Permono et al., 2020).

As for content creators, YouTubers or TikTokers, they cannot be classified as independent extension workers, let alone private extension workers, because the capacity and competence to conduct measurable and organized counseling is not attached to the cyber extension participants. Several participants on social

media such as those named *abangsayurorganik* (Instagram), *Pasar Hidroponik* (Facebook) and *Tanahara* (YouTube) provided education in the form of guidelines or instructions for managing home gardens to produce organic vegetable products. But after a more in-depth analysis, the existence of information and tutorial accounts is also a commodification of social media as a means of expanding marketing networks. This value added motivation has relevance to the cyber extension function as a means of marketing, trade transactions and network expansion as well as a medium for exchanging information (Dasli et al., 2015).

Significantly, a synthesis can be compiled regarding cyber extension participants for food security, namely all members of the community, both individuals and groups who carry out counseling via the internet regarding various efforts to improve household-scale food security. The participants can come from various professional backgrounds such as students, students, housewives, entrepreneurs, farmers including extension workers themselves who take the initiative to publish articles or videos on the internet with related materials in efforts to improve food security such as urban farming.), hydroponic farming techniques, use of yards and other similar materials.

Food security has been on the Government's agenda in the 2022-2024 National Development by prioritizing programs to increase availability, access, and quality of food consumption (Humas@ekon.go.id, 2021). This condition shows that the problem of food availability is a serious problem faced by the Indonesian nation. Along with the Covid-19 pandemic, climate change with global warming, even based on the records of the Regional Disaster Management Agency (BPBD) there were around 500 heads of families experiencing hunger and some having lost their lives plus the rampant crop failure due to extreme weather causing Indonesia to experience a food crisis (Fitria, 2022).

The facts show that there is still a lot of food that is consumed by the people of Indonesia is an imported product. The Covid-10 pandemic forced countries that previously supplied their food production to Indonesia, such as India, to stop shipping wheat and so on (Panjaitan et al., 2020). Including Indonesia, it also stopped exporting cooking oil to meet domestic needs which were scarce (Setiawan, 2022).

After the pandemic passed, it turned out that food availability did not necessarily improve because access to and distribution of food was still experiencing problems due to social and security restrictions. Meanwhile, on the other hand, global climate change, natural disasters and other global problems make the potential for a food crisis all over the world more vulnerable (Fitra, 2022). Based on the score of the Global Food Security Index, Indonesia has a score of 60.2 points in 2022 but is predicted not to last long and tends to be

at risk if there are no significant and national steps to increase production while building food security. Another cause is limited land because it is currently difficult to increase the extensification of agricultural areas because some of the land has changed its function to non-agriculture (Yunita et al., 2011).

One of the closest, fastest and realistic efforts to be carried out is how to increase the participation or involvement of the smallest community, namely the family, to help build food security. At present, developing animal food security at the family level has more obstacles and risks, such as exposure to viruses, livestock diseases, livestock manure and so on. The most realistic thing to do is for households to develop micro-scale agriculture or plantations. For example planting productive crops that are usually consumed daily such as kale, spinach, mustard greens, cucumbers (vegetables), potatoes, cassava, carrots (tubers) and the like. Selection of plant species and planting techniques that are appropriate and efficient need to be educated to the public.

Analysis and Discussion

Furthermore, through analysis and literature review, propositions were prepared (1) The role of cyber extension participants can be equated with the existence of independent extension workers in agricultural extension coming from among the farmers themselves who have already adopted information and innovations. And it can come from farmers who have been successful first and then take the initiative to share their life experiences (testimony) with other farmers. However, the concept of participatory counseling carried out by independent extension workers through the process of transformation of non-formal education and empirical experience has been proven to increase the independence of farmers in managing farming (Ahmad, 2017). On the other hand, participants in cyber counseling come from content creators who don't have to be farmer-based with various professional backgrounds such as students, traders, housewives including celebrities. Not all have agricultural education or training, nor empirical experience. The material presented is predominantly in the form of testimonial reports or agro-tourism, as was done by the Tanahara account on YouTube.

Proposition (2) for the strategy of mobilizing cyber extension participants in an effort to invite and mobilize the community to participate in building household food security. Mobilization of participants in organizing cyber counseling is part of the concept of community-based counseling. As is the theory of Resource Mobilization (Anthony Oberschall), where this theory states that a social change will not work well and will not even occur if it is not able to manage let alone have no resources. The resources in question are material in

nature such as infrastructure, foreign exchange and other natural wealth. While non-material resources are thoughts, ideas and humans as agents of social change. Mobilizing the community to increase household food security through the use of yards and mastery of hydroponic farming techniques is an envisioned social change. However, this change will not occur without involving the community as participants in the extension.

After obtaining the resources, the factor of the method or strategy applied to manage the participants will determine the achievement of the results. Looking at non-material resources, namely cyber extension participants who are quite potential, seeing the quantity or number of actors, as well as the use of internet channels and cyberspace is able to reach a wider target or audience. The recommended strategies are: (a) Embracing or recruiting content creators, YouTubers or TikTokers who have participated in broadcasting messages or educational content related to efforts to improve food security at the household level. (b) Give appreciation to cyber extension participants in the form of awards and incentives so that they are always motivated to present literative shows or articles. (c) Provide education and assistance to participants to produce interesting and quality material.

Conclusion

In conclusion, the presence of extension participants in cyber space (Cyber Extension) has a significant role in adding educational and inspirational alternative broadcasts in order to improve food security at the household scale. Participants who come from content creators represent community-based participatory counseling. The recommended strategy is holding embrace or recruitment from content creators, YouTubers or TikTokers who display educational messages or content related to efforts to improve food security at the household scale. Then give appreciation to cyber extension participants in the form of awards and incentives so that they are always motivated to present literative impressions or articles. Another strategy is to provide education and assistance to participants to produce interesting and quality material on the use of limited land and household plots, as productive micro-agriculture facilities so that people are interested, increase their knowledge, then are motivated to participate in activities to build food security in household arrangement.

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