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## Article

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# Co-creative media: Capacity building with participatory communication to adopt good agricultural standards practice for people's health

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## ABSTRACT

The World Health Organization (WHO) has used communication methods to promote the international ban of the agricultural pesticides paraquat, glyphosate and chlorpyrifos. This ban has led to misunderstanding among farmers who still use these chemicals, which may be available under different brand names. Communication with the non-scientific community is uncertain leading to miscommunication, especially where scientific language is used. Governments have banned the use of these agricultural chemicals. The scientific arguments are not necessarily understood by farmers so they may ignore the prohibition and continue using them or other similar chemicals. This study uses story-telling and qualitative research methods where a questionnaire is combined with the content analytical technique. The quantitative research method was used to collect data in the field where 351 participants took part. Participatory action research is a method where community farmers engaged in self-reflection on the impact of chemicals on their fields, their health and the health of others. Their understanding of the non-chemical usage model and good agricultural practice farmers in the vicinity, especially as they were personally involved in the creation of the media from script preparation, to acting, filming, and evaluating the final docu-dramas. The findings of the docu-drama programmes of 5 GAP farmers are presented to identify the perception of how to avoid using chemicals and their solutions for tangerine farmers through a manual that is the media output from the project and the resulting findings suggesting that the factors related to the effectiveness of scientific communication are divided into pull factors and push factors.

## Introduction

An international ban on the three agricultural pesticides of paraquat, glyphosate and chlorpyrifos was placed by the World Health Organization. This ban has been publicised by governments around the world, including Thailand (Retrieved from <https://www.paneurope.info/old/Archive/Paraquat/banned.html>) and has also been communicated through various media to rural communities and farmers (Figs. 1-12)

However, there has continued to be a level of misunderstanding about these bans by farmers who use these chemicals. As may be noted later, there is divided opinion among farmers over the use of these chemicals as to their agricultural value and the danger they pose to the environment and human health. Another important issue for farmers is what they can do to protect their crops from pests if they cannot use these or other similar chemicals.

The difficulty here is that the retail market for fresh fruit and

vegetables demands high-quality produce and farmers have come to believe that only by using chemical herbicides and insecticides is it possible to produce crops that meet such expectations. According to Stevens et al. (2021) paraquat (1,1'-dimethyl-4,4'-bipyridinium dichloride, [PQ]) is a non-selective herbicide, in that it kills any plant with the characteristics such as the leaf type and other characteristics that the herbicide is intended to affect, making it environmentally destructive. The fact that it has been available commercially for more than 50 years adds to the urgency of banning this substance.

Another herbicide is Glyphosate N-(phosphonomethyl) glycine, which is also a broad-leaf and grass herbicide, which is also harmful to the environment in that it is not selective in the plants that it destroys, therefore it is destructive to vegetation, and therefore to the environment. It can also be used to destroy aquatic vegetation, making it highly destructive as it can enter aquatic environments through run-off.

Communication Science identifies and describes a positive approach

Abbreviations: PAR, Participatory Action Research; GAP, Good Agriculture Practice.

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to communication (Jongsuksomsakul, 2021) to provide people with information and knowledge on topics relevant to them. In the situation considered in this current research, the topic of interest is the use of dangerous agricultural chemicals, the reasons for banning them and to fully inform farmers of these bans, and how to protect themselves from the dangerous effects of the chemicals. Notwithstanding advances in medical science, particularly in the development of primary health care and enhancing public health, there are still health problems, often serious, arising from the use of chemicals in the home and the workplace. The case under consideration was the use of dangerous agricultural chemicals and the dangers of exposure to these chemicals in rural communities.

In the current study, the subject to be addressed was the use of the three banned chemicals by farmers growing tangerines. The fundamental problem addressed in the research was conflict of interest in rural communities arising from the government policy banning the use of the chemicals, with the community divided between those who supported the ban and had taken steps to implement alternative pest and weed control strategies, and those who did not support the policy because of the way information was presented and the distrust and misunderstandings that had resulted from the poor communication of the information by both government and other media sources.

Some accepted the information that the chemicals could be harmful to themselves, the community, and the environment, and had decided to find alternatives such as working with natural products that could reduce the presence of insect infestations and weeds, allowing them to produce good quality citrus fruit without the need to use potentially hazardous chemicals. Others, however, remained unconvinced and had decided to continue the use of chemicals as they had always done.

In this study, the researcher promulgated the various community stories with the co-creative message designed from discussions and focus group meetings in the community, with community involvement. To achieve successful communicative outcomes, the researcher produced a series of videos in the form of 'docudramas' in which the tangerine farmers themselves were the actors. These were then screened and evaluated by the community.

This form of communication uses a community participation approach that involves all members of the community. In this study, the community story with the co-creative message, presented as these videoed 'docudramas', were screened and evaluated by the community. This is the basis of this form of communication: community participation

that involves the lived experience of the community members presented and evaluated by every-one in the community.

### Research objectives

- 1) To collaborate with farmers in Measin on the development of media by applying Participatory Communication techniques for understanding the effects and impact of the media.
- 2) To design and create a message using a digital storytelling platform with the participation of the tangerine farmers to inform them of the dangers of chemical use, and alternative pest control methods without chemical usage.

### Research benefits

The co-creation of a media process with the participation of tangerine growers to persuade farmers to practice safe agriculture, and to provide information to farmers about the bans on some agricultural chemicals and the advantages of alternative methods of pest control in a way that is persuasive and appropriate to the community audience.

### Literature review

#### Participatory action research

Participatory Action Research has been well researched and published since the 1970 s. Particularly, as mentioned in [Baum, MacDougall, and Smith \(2006\)](#) the WHO launched and promoted the Health for All Strategy to health promotion strategies for practice and research. This is a democratic and logical approach to researching and developing social programs from a bottom-up perspective based on community input using the rhetoric of participative action combined with rapid assessment methods and rapid social appraisal. One dimension of social behavior that has benefited from this approach has been the development of health literacy in communities, from a community perspective. [Wallerstein \(1999\)](#) defines PAR as empowering people collectively and encouraging self-reflection which requires that researchers and participants work together, collaboratively, so they can gain a deep, well-grounded understanding of the situation allowing them to improve upon their usual practices and the situations in which they find themselves. The reflective process is directly linked to action, influenced by an understanding of history, culture, and local context and embedded in

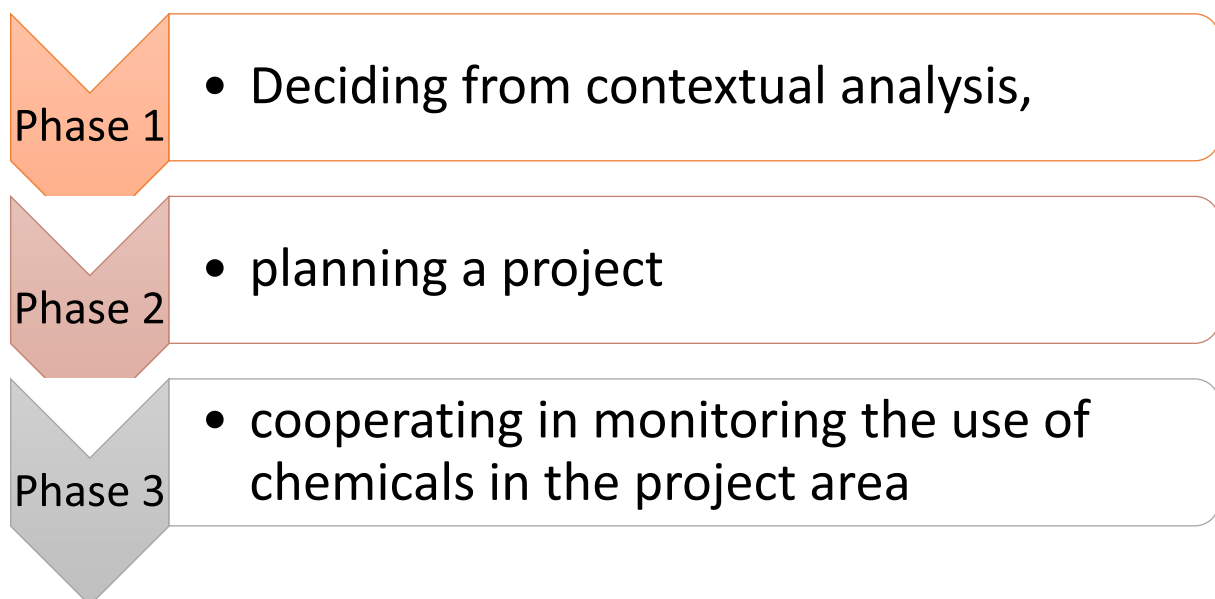


Fig. 1. Process of persuasive communication.

social relationships. Reid et al. (2022) referring to Livingston et al. (2018), mentioned that PAR is the approach that engages researchers and participants in collective, self-reflective inquiry so they can understand themselves and the world around them, and improve upon their circumstances. Some researchers, Gant et al. (2009); Shimshock (2008); Wang and Burris (1997), reported on how they used photography as an interesting and inclusive activity for community youths to present environmental problems experience by the community, inspiring community members to change their attitude and performance due to their new perspective on and understanding of, their environment. Advocates of health literacy, for example Jason and Glenwick (2016), Maglajlic and Tiffany (2006), empowered the indigenous peoples, refugees, the aged and the youth to engage in healthy activities. Many scholars in Thailand such as Manomaivibool, Srivichai, Unroj, and Dokmaingam (2018) invented the Chiang Rai Zero Waste (CRZW) program by a participatory action research (PAR) endeavor together with the Chiang Rai Provincial Administrative Organization (CR PAO), to promote recycling by source separation in their province. Pauthana. (2018) applied participatory action research to the AIC model process of Appreciate, Influence, and Control, with farmers to learn and understand and create awareness of the impact of chemical usage on crops, by working in participation with the media and using media to persuade others to adopt non-chemical solutions.

The PAR methods raise awareness of people and change the performance of the community and minority groups when approaching a big problem that impacts all the people in the community. The mainstream media can be used to promote awareness and promulgate information and news on matters that can then be furthered by local community-based media to develop community enthusiasm and understanding of how to communicate and persuade others in the village and in the community to share and support themselves for solving the problems and to adopt the concept of using local newspapers and community radio (Muhammad Jameel and Jan (2021)).

This paper demonstrates the successful adoption of the concept of participatory action research by engaging with the people in the community to undertake a co-creative approach to the co-production of appropriate media to raise community awareness and to influence farmers by illustrating the successful agricultural practices of their neighbors and fellow farmers and community members: a ground level approach to enhancing communication and encouraging beneficial behavior.

We applied the process of photo-voice (Wang & Burris, 1997) to emphasize the communities' strengths and concerns, support their critical rhetoric and thinking on their problems using photographs as well as videos and voice recordings, and demonstrating adherence to the policies promulgated by the WHO. The methodology of participatory action research is important in filling the gap between the reflections of

community members and declared requirements and policies, by raising their awareness and promoting their well-being with a better understanding of the WHO policies, through their direct participation in media development and production. The community members actively discussed, analyzed and prepared the materials and resources illustrating the good agriculture practices and the farms where they had been adopted.

#### Participatory digital storytelling of a community of tangerine growers

Both the digital storytelling production process and associated analogue processes in the pre-production, production and post-production activities must be in digital form and closely focus on the development of a chosen theme or focal point in the story. Typically, people in a community find ways to solve problems that can be identified by quantitative research and subsequently presented to other people and communities in a manner that they can easily relate to. The researchers and the production team interviewed representatives of the farmers about their lifestyles and how they managed to successfully farm without using the banned chemicals. Their stories were written into scripts that presented a persuasive and attractive story.

The concept of participatory media production is based on participatory communication and information-seeking theory. According to Katz and Blumer (1974) by in the digital age, public information seeking enables people to use computers to search for relevant information in response to mass self-communication Cuéllar-Padilla and Calle-Collado (2011) found that farmers can generate knowledge and develop priorities through participatory rural innovation processes empowering them in the four different ways of: "power-to", "power-with", "power-within" and "power-over" through the use of the video production technique. Modern farmers, as well as the public in general, can access this information using the same Internet websites.

People would therefore expect such information to be available online. Likewise, the application of this concept through communication will create a good relationship between researchers and farmers. Kindon (2016) and Walsh (2016) both noted that taking part in joint video projects shifts power relations between researcher-facilitators and participants. Mitchell, De Lange, and Moletsane (2016) found that the possession and use of expensive equipment such as photographic and recording equipment by researchers draw the attention and curiosity of people which encourages them to participate in the study.

The researchers are responsible for seeking information from farmers by listening to their problems. A sincere understanding of the problems of the farmers and a willingness to provide information that is clear and understandable to even those who are illiterate, without discrimination, is an essential part of the conversations. The researchers then transfer knowledge of media production to people in the community. The media production engagement stimulates community interest and changes



Fig. 2. The participatory process production.



participants' attitudes with the successful outcome, in this case, of increased food safety and sustainable non-chemical farming practices.

### Message design

The opinion leaders are relying on persuasive communication methods in the creation of appealing messages, for instance, scare tactics, comedy, emotional appeals, familiar messages, sharing a similar experience, sympathy that can be expressed and language that leads to mutual empathy (Jongsuksomsakul, 2021). Sometimes personal media may not be effective in persuasion, but it may have a greater influence on individual decisions. For example, Loman, Müller, Oude Groote Beverborg, van Baaren, and Buijzen (2018: 81) found that using language communication to convince students to reduce alcohol consumption and to assess the effects of drinking alcohol on their health did not change their behaviour. However, it was the potential of self-persuasion in persuasive media messages for interventions that were aimed at alcohol consumption reduction specifically and for health communication in general.

It can be said that persuasive communication is applied to public participation to encourage people to engage in community problems and empowers them to play a vital role to secure their areas.

The process of persuasive communication encompasses 3 phases: 1) deciding from contextual analysis, 2) planning a project and 3) cooperating in monitoring the use of chemicals in the project area. This is one of the units which is part of an action research project.

In this regard, the nature of the community may be defined as being both a community in the same area where different groups of people live and where there is a common feeling on one side and experiencing similar problems that other communities around the world also experience. They communicate with each other through various channels and dimensions of the community, both in the same area and with common goals on any issue leading to the action of mutual communication until the formation of a continuous relationship that makes members of that community develop common feelings about issues that they have and the same story which they can talk about together and find common solutions.

### Research methodology

This paper is based on a mixed method using quantitative, qualitative, and participatory action research methods.

Firstly, data were collected using quantitative methodology by using questionnaires. The sample size was calculated by using the multistage sampling size from the second top-most tangerine plants in Thailand. The Measin Subdistrict, Srisutchanalai District, Sukhothai province was selected based on that calculation of the total population from the Measin Subdistrict Administrative Organization (retrieved on May 9, 2019, from <https://www.tambonmaesin.go.th/>). The data that were then collected in 25 villages and from 351 questionnaires that were returned, were analyzed by factor analysis and regression analysis. The

statistical calculation methods were descriptive statistics that reported the socioeconomic status and inferential statistics by factor analysis model: exploratory analytic technique and variable extraction by multiple regression. (Jongsuksomsakul & Toin, 2020, p.488). To what extent the information is brought back to people in the community was the second stage which is the focus of this paper.

Secondly, the methodology uses ethnographic research techniques, the researcher presented the initial process to the participants, and then carefully and closely listened to the daily life stories that the participants were encouraged to recount. The participants were grouped into 3 meeting groups that met at different times. There were 89 participants in the first meeting, 102 in the second meeting and 241 in the final meeting. By these means, the study was based on the communicative dimension of the daily lives of the farmers which were considered using a process of engagement within the community.

The discussion in this paper addresses the third stage of the process in which the purpose of creative participatory digital storytelling media production was to reduce conflicts within the community and encourage less risky behaviour and adoption of alternatives to chemical use through communication.

In participatory communication, there are three stages in the process of producing an influential communicative outcome. The first stage is the pre-conflict stage in which the participants can operate without consideration of other ideas. The second stage is known as the conflict stage, where in the participants are presenting the conflicts arising from the changes in their behaviour or circumstances that may be legally enforced. The third stage, referred to as the post-conflict stage, is where the subjects can accept the situation, even if they still have reservations.

### Data analysis

The participants had the freedom and opportunity to tell their stories in focus group meetings where there was a 5-step participation process involving the community and the researchers who would then analyse the data into a script as described below.

Step one: Understanding the problem and finding solutions to deal with the chemical use problem through engaging in communication. Encouraging group conversations. Understanding and respecting human dignity. The researchers recorded the messages that arose. This led to the design of the message content through all types of media that illustrated the keywords.

Step two: the researchers and participants discussed and selected presenters from the community who had experience in bio-fermented and non-chemical procedures on the citrus farm. This is participatory communication in which a topic, title and select communication channels were identified that covered the reach of the recipient and which were able to answer questions arising from the use of chemicals in each step.

Step three: the selected presenters performing the public communication function were trained to be gesture communicators. They practised how to communicate using clear, easy-to-understand gestures and



Fig. 3. Example of an agricultural safety manual aimed at Tangerine GAP in 2021.

language that is suitable for every-one so people will understand the real situation. Also, the creation of key messages can lead to a positive attitude and gradually persuade farmers to stop using chemicals.

Step four: The participants and researchers together designed a theme and identified the main ideas for storytelling. The content should present an even-handed message but should be presented in such a way that the story emphasises the preferred point of view. It should not create panic, rather it should create awareness, which might mitigate against the ignoring of advice. The message should be designed to create understanding and gradually guide and encourage the non-use of chemicals.

Step five: Following the co-design of the substance of the production process, the participants enter the post-conflict phase in which the people are empowered, and their views and stories are connected to the community's circumstances, resulting in a gradual change in the desired behaviour of the participants at all levels of society.

### Sampling

At the quantitative stage, the sampling estimated a finite population mean formula to calculate the number of participants. The total population in Measin Subdistrict, Srisutchanalai District is 13,564 (Office for National Statistics, 9 May 2019), and the appropriate sample size for that population was calculated as 316 participants with an additional 5 % to account for data collection errors and lost questionnaires. In total, however, the researchers collected 350 questionnaires.

In the qualitative stage, the 25 village heads invited members of the village who were tangerine farmers and chemical users in their orchards, to three meetings each at a different village. Then those meeting participants selected 5 non-chemical experienced persons to be video players/actors/actresses who would be the 5 key informants in the selection process of the ethnographic technique, with the following selection, and exclusion, criteria:

1. Had at least 3 years of experience in operating or managing tangerine orchards of at least 1 rai (1,600 square meters) of production area.
2. Had experience in tangerine cultivation using alternatives to the banned chemicals, and/or continuing to use the chemicals.

### Triangulation process

The questionnaire was checked by 3 experts from Agriculture, Physiologic pharmacokinetics and crop production all of whom were well-versed in the Good Agricultural Practices for Plants (GAP) standards. The questionnaire was then tested for reliability and validity with 30 people from the community and found that Cronbach alpha ( $\alpha$ ) is 0.96.

In every meeting the researchers invited four-GAP experienced farmers: Mr P.S., Mr. S.P., Mr. S.P., and Mr. S.J. to exchange their experiences on the floor and in discussions, encouraging participants to stop using chemicals on their lands.

Government experts were also invited to take part in the triangulation data: (1) Local Public Health Centre: Health promotion in the local

area in response to the medical examination results of people in the community. This is important as people can experience skin problems as well as other physical ailments caused by handling and inhaling chemical sprays. Blood tests can also show traces of agricultural chemicals in the blood of agricultural workers and others living and working in the vicinity of where spraying is taking place. (2) The Agricultural Land Reform Office serves to promote and educate farmers about soil improvement, particularly the decontamination of soil that has been polluted. Chemicals contaminate the soil and can affect plants and insects living in the soil. Many of these plants and insects are not pests and are essential for the aeration and fertility of the soil. For the polluted soil to be used for agricultural purposes, it would have to be restored. (3) The Sukhothai Agricultural Research and Development Centre, Department of Agricultural Extension officers provided knowledge on Good Agriculture Practice (GAP) farming and suggested that participants move forward to pass Good Agriculture Practice Certificates.

The local administration coordinated with the headmen of all 25 villages to invite members of their communities to come together for meetings to solve problems, create a thinking system and group together as a community enterprise under the guidance of the Deputy Chairman of the Measin Sub-District Municipality, Si Satchanalai District Sukhothai. The Community Department coordinates with public health volunteers and community leaders to monitor the use of chemicals and assess their impact on the health of people resident in the communities.

In conclusion, all attendees at the meeting were ready to carry out activities to initiate the gradual reduction in the use of chemicals in their orchards. However, the participants indicate a desire to learn more about media design and communication to audiences without having to go through media agents.

**Sample Protection/ Human Research Ethics** The study had ethics approval from Naresuan University, Phitsanulok, Thailand, Declaration of Helsinki, The Belmont Report, CIOMS Guideline and International Conference on Harmonization in Good Clinical Practice (ICH-GCP) Certification COA no. 327/19 IRB0197/62. All participants provided written informed consent before participating in the workshop.

### Finding

Present the summary of the report to all the participants in the Measin Community to contribute to raising their awareness of the possible negative effects on their health and public health in general, of short-term and long-term use of chemicals. In particular, exchange views in the event of an abnormality in the body and have a better understanding of any symptoms that may occur that may be caused by other factors.

Step 1: Publish the results of the implementation of the participatory communication activities in designing and creating messages that are accessible and convenient, to disseminate information to consumers and promote an understanding of the reasons for the ban on the chemicals, and other reasons for the farmers to stop using these chemicals, but to turn to more sustainable practices. This leads to the management of health problems for sustainable well-being in the community and is a policy-based approach driven by the Good Agriculture Practice Move



Fig. 4. The telling stories technique in a meeting to give information for the design media.



Fig. 5. Meeting with the farmers to determine the role of directing the production, setting the program chapters and adjusting the page to suit the personality of the performers.

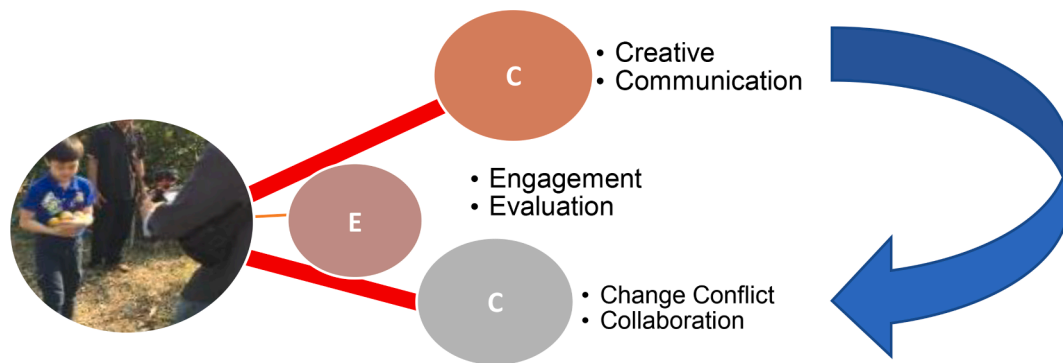


Fig. 6. Showing the directions of participatory communication.

Forward Strategy. To achieve a food security identity and be accepted by all consumers under the name of Measin. The development of logos, stickers or certification marks will increase the value of the product and be promoted as safe tangerines. The researcher further supported the young GAP farmers by creating a manual to inform them of safe farming practices and the standards laid down by the Department of Agriculture, Ministry of Agriculture and Cooperatives as well as the bio-substance formula that farmers could learn and experiment with for themselves.

By bringing researchers and academics to the community, the community found that communication principles must be easy to remember. In particular, the present naming practice and tangerine brands in the district are singular to each tangerine orchard, with the surname of the owner of the orchard. This fails to present a unified image and creates difficulties in classifying tangerines from the Measin area as distinct from tangerines from Fang District, Chiang Mai Province and Loei Province.

In addition, the design of logos and printed labels are difficult to read. The meeting attendees agreed to make typefaces easy to read and agreed to use social media more effectively, ensuring that every-one will find it easy to remember and approach. The decision was made to use English as it is the most common language in the overseas markets that were important to the growers. With a specific brand name, the brand of tangerines would be seen as safe and from the Measin district only. Farmers submitting their products must be certified by the Department of Agriculture (GAP). Therefore, in the communication process of the farmers, it has to show the source of the use of organic chemicals to replace chemicals in citrus growing.

As a result of this brainstorming, the researcher designed communication content to convince farmers that growing safe tangerines would be beneficial for them by telling the stories through the media of the new roles of the five representatives who have been selected from the community. Then, these videos were distributed online, consumers would be able to identify the brand of tangerines that are safe, according to the

safety standards certified by the Department of Agriculture. By designing a positive thinking approach based on the participation of the community, the principle of participation is to keep people in the community safe. Daykin, Gray, McCree, and Willis (2017) mentioned that the participants in their project recognise that co-production between academics, filmmakers, delivery organizations, participants, and evaluators, is needed at each stage of the evaluation cycle. Effective co-production takes time and resources to ensure that no one is left out or disregarded by the evaluation process.

People may contribute to the community by trying new roles. Community people start managing their beliefs which will lead to an awareness of chemical health problems. Farmers may be able to get rid of pests by experimenting with playing the role of a safe farmer by presenting stories in a semi-true documentary-type video medium.

Step 2: Script writing and brainstorming with the community for content creation. Storytelling is an important communication process that leads to the exchange of knowledge regarding non-chemical farms from their experiences. Stories can be told by individuals or groups of people informally by using stimulating and inspiring techniques, people can share memorable stories arising from their agricultural and learning experiences with others. Principles and narrative approaches categorize 3 issues as shown in Table 1.

In the process of writing the script, researchers will sit and listen to the stories giving the knowledge presented by individuals or farmers who produce safe tangerines from the initial processes.



#### The editing process






An important consideration is that the audio and video must be accompanied by narration, dialogue, music, soundtrack, researchers, and the storyboard drafting the video production team following the steps and considerations as follows:



Screenplay no.	Message Design
<b>Screenplay #1</b>	<b>Good Agriculture Practices of Tangerine trees.</b>
<p>Outdoor/ Morning/ Feel good</p> <p>Scene 1</p> <p>Shot1: Mr. P.S. is working on his farm when the tangerines touch his shoes. He smiles and picks up a tangerine then starts talking to it.</p> <p>Scene 2: Flashback technique.</p> <p>P.S. "Are you doing well?"</p> <p>Shows flashbacks of Mr. P's intentions on his farm from the start the recovered soil with non-chemical and approved, natural sprays of organics on the tangerine plants and looking after his tangerine trees until they are fruitful.</p> <p>Mr.P.S.: "I am proud to be a good farmer and cultivate tangerines for people's health promotion"</p>	 <p>Please scan QR code to see the video.</p>  <p>Scene 3</p> <p>LS and CU Shots: Mr. P.S. puts the tangerines into a basket.</p> <p>(V.O.) Mr. P.S.'s intention on his farm from the beginning is to recover the soil which had been contaminated. He uses non-chemical farming methods and approved, natural organic sprays on his trees and looks after his trees until they are fruitful.</p> <p>End of scene: Mr. P.S. is walking on his farm and continuing to work and look after his orchards. (Music)</p>
<b>Screen Play#2</b>	<b>Good Agriculture Practice Scientist in the Community</b>
<p>Indoors at Mr.S.P.'s house.</p> <p>Scene 1: Mr.S.P.'s neighbour is helping a weak and sick man, the one wearing an orange shirt.</p> <p>Neighbours and the local medical people are gathering to look after him. Discussion of what is wrong with the community people.</p> <p>Local doctor: "Toxic chemicals affect us, we are in trouble because of our health. Don't forget that toxic chemicals enter the body."</p> <p>Scene 2</p> <p>Everyone is discussing and trying to solve the problem.</p> <p>Scene 3: Mr.S.P. demonstrates a non-chemical product for use on his farm.</p>	 <p>The people in the community ask what they going to do next. We are not allowed to use chemicals anymore.</p> <p>Mr.S.P.: "Be calm everyone, please listen to me. I know you truly understand what is the right way. Non-chemical farming is our plan but we have to stand on the point and forward the best products to our customers."</p>



Screenplay no.	Message Design
Please scan the QR code to see the video.	End of scene: Everybody in the community is smiling. They are holding tangerines in their arms as they move toward the screen. (Music)
<b>Screenplay#3</b>	<b>O and her husband with Bio-fermented</b>
<p>At Ms O.'s farm/ Morning/ Scene 1</p> <p>V.O: "Ms O., Are you not scared when you spray chemicals on your tangerine trees?"</p> <p>Ms O.: Standing centre shot on her farm and speaking louder</p> <p><i>"I am not afraid to use chemicals because I never did it myself, my husband sprayed the trees all the time."</i></p> <p>Scene 2: Ms O. and her husband standing on their farm.</p> <p>Shot 1: VO: He is Ms O.'s husband and he is working on his farm spraying chemicals on the trees. Suddenly, Ms O.'s husband feels dizzy and his skin is itchy. He is scratching his body and head after finishing work.</p> <p>Shot 2: Ms.O is talking to her neighbour and asking for her advice.</p> <p> Please scan QR code to see the video.</p>	 <p>Neighbour: Your husband is affected by the chemicals. You can change his behaviour by trying bio-fermented sprays to spare his health. The costs help you to gain more benefits. "Here it is try it" (Laughter)</p> <p>Shot 3: Ms O. took the bio-fermented bottle from her neighbour. She gives it to her husband and he uses it without worrying.</p> <p>VO: Bio-fermented spray is easier to use and you can make it yourself. The more you use the more benefits you gain from it and then they pass and guarantee a good agricultural product: GAP from Agriculture Department.</p> <p>Orn: My husband is still working on our farm.</p> <p>End of scene: Orn and her husband hold oranges and a bottle of bio-fermented spray with a smile and a happy feeling. (Music).</p>
<b>Screenplay #4</b>	<b>Local Doctor work his Good Agriculture Practices.</b>
<p>At a local doctor's tangerine farm.</p> <p>Mr.S.T. is a local doctor who treated people in the community. He found some of them have chemical contaminants in their blood. He is sitting under his tree and giving his views as to why he is planting tangerines in this area and did not move out for a higher position following his career path.</p> <p>V.O: Why do you stay here?</p>	<p>He is happy and feels good when he touches his product on his farm.</p> <p>He is exhausted from his work and he is among patients who are affected by the use of chemicals.</p> <p>Mr.S.T.: What's wrong, don't you know there are a lot of chemical contaminants in all our tangerine products? I decided to be a leader in the community and started to plant tangerines without using chemicals.</p>

Screenplay no.	Message Design
<p>Mr.S.T.: "I would like to save the people. Everyone knows that chemicals can collect in our bodies and blood."</p>  Please scan QR code to see the video.	
<b>Screenplay#5 Mr.T.P</b>	<b>A Smart farmer who has returned from abroad and intends to work on a non-chemical tangerine farm.</b>
<p>The new generation of farmers wishes to work without unnecessary chemicals.</p> <p>Scene1: Mr.T.P puts on his hat and walks onto his tangerine farm.</p> <p>Ms. S. and her friends prune the trees and Mr.T.P walks towards them.</p> <p>Ms. S.: Nong Bee, do you use biochemical methods to plant your orange trees?</p> <p>Mr.T.P: Of course, I use this technique. It saves me money and my health. I work 100 per cent non-chemical.</p> <p>Mr. B.: Why do you waste your time? Using chemicals is easy and convenient.</p>	 <p>Ms.S: My husband did as well but he is now sick.</p> <p>Mr.T.P: Bobby, please change and turn to use bio-chemicals as I am doing.</p> <p>Ms S. and Mr. B: We will try it on our farms.</p> <p>End of Scene: Everyone together.</p> <p>Camera technique: A drone flies up and takes a bird's eye view of the scene Dissolve technique: the scene returns to the tangerine farms where everyone is working on the trees (Music)</p>  Please scan QR code to see the video.
<p>Every video will end with a group of Measin farmers with safe citrus growing for all consumers.</p> 	

1. Sketching is a way of getting the picture to tell the story of the individual farmer.
2. Consider making a detailed arrangement, adding speech or subtitles as needed during filming and editing using a large text. Since the general audience in the online social network will watch through their mobile phones, large text messages are required and should be

- short readable and easily understood as many viewers may be doing other things and a long or complicated story would be inconvenient.
3. Speech or narration: Try to be as short and concise as possible. Farmers are allowed to communicate in their own dialect and accent.
4. Examine the chapters and editing work to ensure that the lines and images appear to complement each other.





Fig. 7. Good Agriculture Practices for Tangerine trees.

respondents.

First preference Mr.P.S.'s story average 4.23.

Second preference Mr. S.P. and Mr.T.P. stories are the same average 4.20.

Third preference Mr.S.T.'s story average 4.10.

Fourth preference Ms.O and her husband's story average is 4.03.

The satisfaction level of using video media reflects the stories of the people in the community with the highest satisfaction level.

- 1) Farmers present community stories on how to plant and grow safe fruit because they come from the real stories of the community, therefore the video content reflects the real stories of the farmers.

The evaluation results of video media from 189 people are shown in Table 2.

From Table 2, the results of the evaluation of farmers' opinions assessed the content of the video media presented. Sort the score from highest to lowest. But all are on average, most favoured by all



Fig. 8. Good Agriculture Practice - Science and health in the Community.





Fig. 9. Using Bio Fermented sprays instead of chemicals.

People in the community are proud and, as a result, people outside the community know about the good name of the community.

- 2) The five videos greatly affect understanding of how to produce safe tangerines for the well-being of people in the community.

Farmers commented on the level of video satisfaction as the videos make them want to switch to safe citrus groves.

- 1) The video shows Measin community is a land of organic tangerine farms.
- 2) Every-one promises to turn their farms into the production of good and safe agricultural products.
- 3) Everybody would be a part of an organic or good agricultural practice farm.
- 4) Social video media plays an important role in promoting such farming practices.
- 5) The content of the videos reflects the true story of farmers in making the community liveable. People in the community are proud and this results in people outside the community knowing the good name of the community.

## Discussion

The research goals were to fill the gap in the conflict between farmers, the government and the Public Health Department which will arise when the laws banning the chemicals are enforced. The media reported the impact of the use of the 3 chemicals confusingly and insufficiently, and the message was likely not to convince people, especially farmers and agricultural people in the fields.

The participatory communication process or co-production of the evaluation process is not well established within the media sector, resulting in small communities often facing fierce competition for scarce channels. According to [Gant et al. \(2009\)](#); [Shimshock \(2008\)](#); [Wang and Burris \(1997\)](#) designed the photovoice methodology to enable community reflection on, and to raise awareness of, community problems and how to assess and solve these problems or prevent the pain point being reached. As well as applying the photovoice methodology, docu-drama techniques were followed to engage people in community awareness and responsiveness to the impact of chemical usage. In tandem, health promotion and good agriculture practices were promoted as being coexistent dimensions rather than separate and possibly contradictory matters. The farmers who joined in the video production process learnt through creative expression and commitments to social change and



Fig. 10. The director of Mea – Sin Sub-District Health Promotion Hospital working on solving the chemical use problem.





Fig. 11. A smart farmer who has returned from aboard and works a non-chemical tangerine farm.



Fig. 12. Non – Chemical members working in cooperation and end credit logos. Please remove the uncited reference. I insert the new reference here.

justice to be co-creative within the broader context of participatory content creation. Moreover, this notion seems to offer a genuine way forward in aligning media perspectives with those of health and well-being, with the potential to support innovative, high-quality life and cost-effective farming production.

Communication is an important tool from the policy level and the implementation of such research activities transmits and affects the adjustment of attitudes and the behaviour of the people, especially farmers in remote areas, which influences human ecology. Communication has therefore driven both promoting and destroying the individual level while expanding on a group level. Communities, society, countries, and the world have sought a change in health management and inevitably, environmental management. This study relies on participatory communication in the community to create a gradual change in the understanding and attitudes of the people of the community. As shown in the following model:

In integrating new perspectives into the well-being of Good Agriculture Practices in the community, people in the community should be able to synthesize information together from all integrations until they have clear information on how to manage the health problems of the community and a plan to drive the network of citrus growers for good health from the leaders of the health care system. In the district, communication is a mechanism to drive the community to learn, research projects and create a collaborative interaction within the community, encourage the farmers' awareness of chemical use and build a model for the power to lead safe farming in the community together. However, the main obstacle for farmers is the online marketing of

market-safe tangerines direct to consumers, and the logistics of selling them, which are still ineffective due to transport costs. Shipping costs are high as they are monopolized by private transport systems that are burdensome to consumers, causing the cost of the tangerines to be higher than buying them on the open market, even though each orchard has its own distribution page. This makes building a community brand a time-consuming process. Initially, there was a direct distribution page for tangerine farmers. The process of participating in the video media of Mr. P.S. (Pramote Sangkawut) being honored as the Outstanding Headman of the Year 2020 by the governor of Sukhothai Province.

In conclusion, the collaboration between the researchers and community residents and organisations, in the creation of the media, was empowering and was capacity building in terms of what Cuéllar-Padilla and Calle-Collado (2011) referred to as the 4 powers of participatory innovation processes: the "power-to", the "power-with", the "power-within" and the "power-over". This was successfully achieved through the use of the video production techniques. As well, the photovoice methodology explained in Loman, et al. (2018: 81); Jardine and James (2012); and Jongsuksomsakul (2021); Richardson-Ngwenya, Fernandez, Restrepo, & Kaufmann (2019a), Richardson-Ngwenya, Restrepo, Fernández, & Kaufmann (2019b) and Gant et al. (2009), was applied successfully and the potential for self-persuasion in persuasive media messages in video media was realised. In this case, the hazards posed to the environment by using agricultural chemicals, as well as to the people and animals living in the area, were clearly explained, as was the information that non-use of the chemicals would not negatively affect their farming business but, in fact, would improve that. As a result,

**Table 1**  
Shows the principles and narrative techniques.

Principle	Method	Storytelling and writing techniques	
1. The main idea and theme. Engaging researchers and the community by defining key issues.	1. Creating a scene or laying the foundation for a story is an introduction to the recipients that the story told about farmers using so many chemicals that they became ill. The procedure and purpose are to help people to maintain their health and the health of those who buy and eat their products. It is the origin of safe tangerine orchards that began in the Measin sub-district, the source of wide agricultural communication to the outside market.	4. The solving of a situation is summarized by a short story. Showing the unravelling of the event or the conflict as a lesson of life so that it can become a case study in other areas.	Mr. S.P. and his brother were chemical salesmen. He shares the sad history of his brother's suicide. He decided to stop using chemicals as he thought that they may have been harming people indirectly by selling these chemicals. He learnt about biochemical methods. Now he knows a lot about the use of biochemical methods on orange farms.
2. Plot: The meeting summarized the stories of the representative farmers and designed the message into a script.	2. The highlights of the story are shared between farmers, researchers, and media producers. The selling point of the story is when farmers and their loved ones start experiencing health problems resulting from the use of chemicals.		Ms.O's husband, who still uses chemicals, developed a skin condition from using these chemicals.
3. Storyline: Tell the story of how the non-chemical success in their farms.	The obstacles to participatory research and communication can be overcome through the breaking of the ice. This happens when the presenters can talk to others and begin to be able to give presentations on their work to the community and can carry on without the help of the researcher.		Mr. S.T. is a local medical doctor who set himself as an example of safe farming practices to improve the health of people in the area.

farmers understood these dangers and are changing their behaviour and agricultural practices.

### Suggestions

The success of this research included the Measin area, Si Satchanalai District being registered as a tangerine geographic indication (GI) area and farmers in the area being certified for Good Agricultural Practice (GAP) for Tangerine farming, which should be promoted and implemented as spatial measures, monitor the management of the citrus orchard, and to monitor and push for a safe citrus market.

**Policy** Push forward the development strategy of the local government organization in Sukhothai Province in the sub-district plan as the sub-district strategy. To distribute the plan to different sub-districts,

**Table 2**  
Shows the video evaluation results.

Evaluation items	$\bar{x}$	S.D.	Meaning
Content			
1) You prefer the presentation of the community's story on how to cultivate safe tangerines because it comes from the true story of the community.	4.11	0.63	Strongly agree
2) You prefer the video story of Mr.P.S.	4.23	0.54	Strongly agree
3) You prefer the video story of Mr. S.P.'s video.	4.20	0.57	Strongly agree
4) You prefer Sister Ms.O and her husband's story.	4.03	0.69	Strongly agree
5) You prefer Mr. S.T's story	4.10	0.64	Strongly agree
6) You prefer the video story of the new generation of farmers, caring for safe tangerine trees.	4.20	0.56	Strongly agree
7) The videos make you understand how to produce good fruit through good practices for your well-being and that of your community.	3.98	0.72	Strongly agree
8) You are thinking of changing your farm into organic or good agriculture product standards.	3.95	0.74	Strongly agree
9) The videos show that the Measin community is a land of tangerine GAP farms.	3.88	0.79	Strongly agree
10) After you watched the video, you promise to change your farming practices and work toward Good Agriculture Practices.	3.87	0.80	Strongly agree
11) You would be a part of an organic or good agriculture practice farm.	3.92	0.76	Strongly agree
12) Social media video plays an important role in promoting your farming methods.	3.74	0.19	Strongly agree
13) The content in the video reflects the true story of farmers, making the community liveable. People in the community are proud and this results in people outside the community knowing the good name of the community.	3.98	0.72	Strongly agree

establish a common vision that "Moves forward to be a GAP in the year 2022." Create links with various departments in the Measin Sub-district Administrative Organization area Si Satchanalai District Sukhothai.

### CRedit authorship contribution statement

**Panida Jongsuksomsakul:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Kevin Roehl:** .

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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