Implementation of participatory method in dairy farmers extension program in West Java

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Abstract. During 2016-2019, Yayasan Bumi Manira-Studio Driyamedia Bandung (the institutions where authors work) involved in cooperation with the dairy coops KPSBU (Koperasi Peternak Sapi Bandung Utara) in Lembang-West Java and KPBS (Koperasi Peternak Bandung Selatan) in Pangalengan-West Java to develop their animal health and extension staff capacities in communication and extension. The staff consist of: para-medics, animal health, extension officers and veterinarians involved in trainings in technical subjects, communication and extension methods to advice farmers in better way. The analysis of this article aims to evaluate and review the communication pattern of those staffs. The capacity building methodology developed is Participatory Learning and Action (PLA) method as trainings of coop staff using “action-reflection-action” learning system. The result of evaluation and review showed that the progress of the project indicate of positive situation because they have potential to be came good officer and very enthusiastic. Most problems of communication and extension in KPBS and KPSBU are similar: using too much one-way communication, less implementation of adult education, and less usage of various learning media. Therefore they need more participatory atmosphere, more adult learning policy, and more flexible management system. The board also can push synergize among sections

Keywords: Dairy farmers, Participatory agricultural extension, Participatory method development

1. Introduction
In 2016, Wageningen University and Research contact Studio Driyamedia Bandung, to became co-trainer in training program for KPBS and KPSBU, in communication subject. The training program is a part of Project which aims to improving the livelihoods of small-scale dairy farmers by increasing milk production (increase of productivity per cow) and milk quality. The three main results of the project are: improvement of milk quality (improving milk collection and milk payment system in Pangalengan), capacity building (training of coop staff) and establishment of dairy village (KPSBU Lembang).

As part of the capacity building, the staff of both dairy coops who visit farms regularly: para-medics delivering services of AI and animal health and extension officers (advising farmers mainly on milk quality) and veterinarians (animal health service and treatments) are being trained in technical subjects, also in communication and extension methods to advice farmers in a better way. The analysis of this article aims to evaluate and review the communication pattern of those staffs.

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2. Methodology

2.1. Location and time
All process of observation, assessment and implementation of PLA with KPBS Pangalengan took places from 2016 – 2017 (figure 1). On September 2018, Co trainer began to work with KPSBU Lembang. The process almost similar, but this time began with refreshment training about communication and participatory method. The evaluation and review process carried out 1-2 July 2019 in KPBS Pangalengan and 3-4 july 2019 in KPBSU Lembang. This project involved extension staff and animal health from KPBS and KPSBU, with total 70 number of people.

![Working Area KPBSU LEMBANG and KPBS PANGALENGAN](image)

**Figure 1.** KPBSU and KPBS Working Area.

2.2. Process

2.2.1. Observation. Existing situation (economic level, age, livelihood, family task and role allocation), Communication Pattern (familiar media for farmer, literacy ability, influencer people for farmer, information need on livestock), and characteristic of knowledge-attitudes-practices (problems of livestock, farmer’s attitudes towards veterinarians, para-medic, animal health and extension officers, farmer’s skill to raise livestock).

2.2.2. Need Assessment. The process of synthesis and analysis of data from the field level will be done by involving stakeholders in the form of workshops or plenary. This activity is intended to increase the participation of stakeholders in the needs assessment as well as to triangulate the data.

2.2.3. Implementation of PLA to design capacity building. Implementation of Participatory Learning and Action in capacity building of the facilitators is an activity action-reflection-action-reflection. The process that occurs continuously over the course of time, as follow (figure 2):
Figure 2. Process of Action-Reflection.

For implementation the 3 groups in Pangalengan, and 3 groups in Lembang (one groups of extension officers, and two groups of Animal Health each coop), carried out the activities which consist of:

- Organizing on-class refresh training (regarding the communication and extension training which had already implemented 2015) of each group in Lembang and in Pangalengan. Consist of one day refreshment training, for three groups/class at Lembang, and two groups/class at Pangalengan;
- Field observation/ field visit to see their present way of working (in communicate with farmers), and also as need assessment. Two days each groups;
- Follow-up meeting, to analysis of observation result and plan for action. One day workshop;
- Organizing coaching/ on the jobs training, to assistance participant to implement new skills. Trainer will accompany several participants activities in the field of Lembang and Pangalengan, to provide examples on how to implement communication skills with the farmers. Trainer also provide review meeting with all 6 groups of Lembang and Pangalengan, to facilitate learning from experience process;
- One day master class meeting, to share experience with other stakeholder of the project.

3. Result and Discussion

3.1. Existing Situation
In September 2015, two groups (one group of extension officers and veterinarians and one group of para-medics) in each dairy coop were trained in communication and extension methods. The training was conducted for one week in Lembang and for one week in Pangalengan. Follow-up of this training is needed to make the training more effective. The involvement of the author, as co-trainer, was started here to facilitate the follow-up training.

Co trainers began with KPBS Pangalengan first, and then to KPSBU Lembang. To identified training needs of the KPBS staff, Co-trainer joined extension’s officers team of KPBS, as observers of their daily activities. So that Co-Trainer fully understand, which part of the training had implemented by them, and which one are had not. According to this findings, Co trainer formulate specific activities for the KPBS staff, especially the extensions officers, and facilitate the additional activities/trainings. The similar process repeat with animal health team.

3.2. The result of observation from both coops before implementation:
The project plan to develop their animal health and extension staff capacities in communication and extension. The staff consist of: para-medics, animal health, extension officers and veterinarians involved in trainings in technical subjects, communication and extension methods to advice farmers in better way. Some reasons which became the background of the capacity building activity are:

First, most of coop staff did not understand how to integrate adult education in their daily works. Actually adults are voluntary learners. They perform best when they have decide to attend the training for a particular reason. They have a right to know why a topic or session is important to them. Adults
have experience and can help each other to learn. Encourage the sharing of that experience and your sessions will become more effective. Adult learn best in an atmosphere of active involvement and participation, this is best when it is clear that the context of training is close to their own tasks or jobs [1]. Moreover that people learn best when they feel they are in control of the learning process, rather than receiving a lesson or subjected to teaching. Adults have a particular problem with learning. It is that as we grow older, our short-term memory faculty becomes less efficient and more easily disturbed. Besides that attentions spans are limited, especially delivered in a monotonous voice. The average person immediately forget 50% of what he/she has heard [1].

Participatory learning action is important in a program. Participation does not simply imply the mechanical application of a ‘technique’ or method, but is instead part of a process of dialogue, action, analysis and change. This approach uses dialogue and joint research to enhance people’s awareness and confidence and it empower them to take action [1]. Although its special focus on the underprivileged and on political action has limited its spread, its key contributions to the current approaches lie in its recognition that poor people are creative and capable and should be empowered, while outsiders have a role as catalysts and facilitators [1]. A defined methodology and systemic learning process. The focus is on cumulative learning by all the participants, which include both professional trainees and local people.

Besides, regular meeting internal team does not included share-learning process/ action-reflection-action. In fact, Training design becomes a part of adult learning’s action-reflection-action process. That reflection is an important aspect of action learning, as reflection in future action makes it more clear to learn from experience [2]. That is why this capacity building programme use self-assessment method for evaluation. Self-assessment can be use to monitor skill acquisition progress or necessity for further training, and can be used post-training to monitor shifts in performance or ability [3]. The participants ask to self-assess his/ hers knowledge before the training, and compare it with what they feel after the training. Its qualitative technique, use comparison as measure. Self-assessment during training can be of particular beneficence because not only does it teach the trainee to evaluate his/her own performance, but potentially frees the trainers from the duty of evaluation [3].

Extension staff uses mass media such as letter or audio visual media to disseminate information to farmers [4]. The other hand, farmers do not like to read. Also do not like to hear the radio program. They prefer audio visual media, than printed media. Farmers learn also from extension meeting, because its audio visual. Yet, most media dominate by letter, less picture (poster, leaflet, etc). Audio visual media is more acceptable because there are many examples that are easy to understand and understood by farmers and this is included in the way adult education methods work that requires examples not only information. According to the audio visual function as a means or aids in learning activities which is a tool that can provide an overview of audio visual experience to the participants in order to encourage the interest of learning, clarify and simplify complex concepts and abstract to be simple [5].

In this capacity building which implement PLA, there is still limited use of participatory media. Most of communication still use one-way communication (from staff to farmers: 75% lecture 25% discussion). Besides PLA methods are visual, tangible and usually performed by small groups of people. Using earth, sand, stones, seeds, twigs, chalk, charcoal, paper, pens and other materials, and objects as symbols, women, men and children make diagrams to represent many aspects of their communities, lives and environments. PLA methods include timelines, trend and change diagrams, wealth and wellbeing ranking, seasonal diagramming, Venn diagrams, causal linkage diagrams, and proportional piling. Matrix ranking and scoring are used for complex and detailed comparisons. There are many variants and combinations of these and other methods or tools. It is also important to remember that new tools continue to be innovated and designed to meet specific needs in particular context [6]. The use of media and materials in the PLA method aims to create a situation or process that requires the participation of all participants. Media or material is an important tool for all participants to express their thoughts, ideas and feelings during the discussion process.
3.3. The result of assessment for triangulation data as follows:

Triangulation is a method of data synthesizing against the truth by using other data collection methods or various triangulation paradigms. Data that is declared valid through triangulation will give confidence to the researcher about the validity of the data, so do not hesitate to conclude the conclusion to the research conducted [7]. Triangulation is an important variety in participatory discussion process because in this process all information and data are validated and rediagnosed with other participants and with other methods also obtained accurate results (table 1).

Table 1. Result of assessment for triangulation data

| Topics                          | Extension Staff KPBSU | Animal Health KPBSU Group 1 | Animal Health KPBSU Group 2 | Animal Health KPBSU Group 1 | Animal Health KPBSU Group 2 | Extension Staff KPBS |
|---------------------------------|-----------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------|
| Training materials/ staff capability | In average for all participant, 60% of training materials are new knowledge (even there are several participants of 2015 trainings). | Have various job including: extension officer, trainer, taking care membership, complaint handling, milk inspection. | Works by request from the farmers | Have various job including: extension officer, trainer, taking care membership, complaint handling, milk inspection. |
| Working methods                 |                       | Several staff are already works more than 10 years. But most of them joint up to 2003 | Have various job including: extension officer, trainer, taking care membership, complaint handling, milk inspection. | More focus to response |
| Participant Characteristic      | Half of the staff are senior (more than 10 year). | Extension staff dominates by youngster |
| Problem Occure                  | difficult to become extension staff and milk inspector at the same time. | Extension staff more focus on milk inspectors |
| Staff Communication capabilities | Good daily communication with the farmers. But only usual communication, not planned communication for change | |
| Staff Learning methods with Farmers | Already have farmer to farmer experience | Face to face communication | Already have group extension, but because of large area to cover, its distribute it fairly |
All of staf KPBS and KPBSU has good daily communication with the farmers. But only usual communication, not planned communication for change. Therefore communication knowledge and skills is new experience and knowledge even there are several participant of 2015 trainings. Besides communication is important because in every stage of community empowerment depends on the management of communication methods and techniques used in conveying information and knowledge of the community [8]. Communication is important, especially when dealing with farmers. Farmers should be informed, motivated by extension staff to be able to receive ideas, enforcement and new technology and dare to decide its future through community empowerment [9]. In line with this, communication is counselling, counselling function not only provides information to improve the participation, interoperability, but also beneficial to encourage the participation of farmers in the process of retrieval a rewarding decision to livestock productivity [10].

Animal Health works by request from farmers when there should be or no case of Animal Health still working/checking the animals. Other than that extension staff have various including: extension officer, trainer, taking care membership, complaint handling, and milk inspection. difficult to become extension staff and milk inspector at the same time.

3.4. The result of Implementation of PLA as follows:
Progress had arose during this process, such as:
- Participant (extension staff) became accustomed to use meta-plan cards, to visualize idea so it can share and analyze together
- Participant started to encourage farmers in their activities (checklist, sampling, group discussion) to have more dialog, to share their experiences.
  Participatory learning and action refers to and draws on experiences from a growing group of participatory approaches to research and development. Participatory Learning and Action (PLA) is a method of community empowerment consisting of learning process (through: lectures, brainstorming, discussion, etc.) on a topic [6].
- Participant motivated to share tips and tricks, and encourage others to practicing it. For examples: do not write checklist cards in the front of the farmers. Just conduct more dialog when visit for checklist. And they claimed that this is more comfortable for both sides: extension officers, and also the farmers.
  This approach has the following principles: the development of learning habits at all levels. The process of empowerment implies continuous learning to achieve the desired change; continuous learning is a lifelong process, which (should) includes a variety of learning activities and training; sharing knowledge, experiences, and the access of information and values among training’s participants. Each participants has different knowledge, experiences and values from other participants. These differences need to be shared to others, to enrich and accelerate the process of improving knowledge and strengthening motivation of the invested parties; applying dialogic communication and critical awareness orientation. The learning process is carried out using participatory communication, which emphasizes the dialogue process of stakeholders [11].
- Participant became discipline for planning
  Capacity building and developing is about systems and processes, skills and knowledge but also attitudes and behavior, all these are long-term processes [12]. A capacity building rather than simply increasing the knowledge and skills, but even more important is the development of an attitude, if so the program can be sustained when the participants and stakeholders feel ownership for the activities/programs. Therefore every activity implements a model of adult education and participatory methods in the capacity building activities. Essentially, is designing a dialogic process using a variety of interactive media that can trigger the analytic process into action. Implication of the participatory approach is the expansion of stakeholder involvement in various activities.
According to the participants’ observation, they feel that this method are more dynamics, all farmers accommodate to speak freely. The usage of media and method make the extension officers task more relax. The usage of meta-plan cards are very helpful to motivate farmers to share opinions. At the final activities, extension officers feel motivated to facilitate farmers discussion and learning.

Participatory communication is an approach based dialogue, which allows the sharing of information, perceptions and opinions among the various stakeholders and thereby facilitates their empowerment, especially for those who are vulnerable and marginalized. Participatory communication is not just the exchange of information and experiences: it also the exploration and generation of new knowledge aimed at addressing situations that need to be improved. Optimally participatory communication would be part of the whole project process, from beginning to end [13]. The participatory approach requires the involvement of all stakeholders, including the Project’s Management, Coop’s Management, Consultants, and training participants, and also the farmers in all stages from identification, analysis, planning, to implementation of the program. Co-trainer are intended as part of the capacity building process for staffs of both dairy coops who visit farms regularly: para-medics delivering services of AI and animal health and extension officers (advising farmers mainly on milk quality) and veterinarians (animal health service and treatments). The Co-trainer acted as a facilitator in each phase/activity, formulating the findings, the development of the capacity of stakeholders, coordination in the implementation of ToT, systematically compile and write the result. Meanwhile all stakeholder regularly involved in the process, including to formulating ideas.

4. Conclusion and recommendation

4.1. Conclusion
Implementations of this project, show a good progress. But also it rise some new challenge and obstacles. Need More Time For Implementation. Even the progress indicate positive conditions, but the team are still need assistance, on the job training, mentoring, and monitoring and evaluations. Consistency is the key.

- There is No Instant Result. There are still a lot more aspect of knowledge, Skills, and attitude that must be integrated/ acculturation regarding Adult Education and participatory communication. Most of the extension officers are youngster, have a potency to became good officers in the future and very enthusiastic
- Need Active Support from the Board. Active support doesn’t means only approved the activities, but including support by more participatory atmosphere, more adult learning policy, and more flexible management system. The board also can push synergize among sections.

4.2. Recommendations
According to the findings, Co-trainer formulate some recommendation as follows:

- Formulate a list/ Standard Operations Procedures regarding stages to communicate with the farmers in participatory ways according to adult learning
- Competition of community base media making, concerning milking management, cow management etc, to motivate farmers and staff to synergize
- Increase more participation from farmers, by using more participatory medias in farmer visit (for examples: poster, flipchart, picture in gadget). Use gadget as extension media. Social Media utilization, including WhatsApp group with the farmers. But must be managed and facilitated as learning groups
- In Research and Development department of the coop, there is a need to include Social Researcher to deal with soft-skill development, including communication. Collaborate with external organization, as farmers technical assistant. For example, collaborate with University, as extension expert.
- Need to develop some ‘simple and easy to do’ method to help staff developing their ability to combine learning method and media for their daily jobs. Developing collaboration with extension
officers (visit farmer together, joint activities with extension officers) or others section for synergize

- Habitate brainstorming first (for 75% of the process), and Lecture last (25% of the process). It Should start to implement ‘action-reflection-action’ learning system, by conduct a regularly team meeting (weekly or two weekly), to discuss about problems, share experience, capacity building, including invite expert to share new knowledge.

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