

THE FAILURE IN APPLYING TRANSFORMATIVE LEARNING: AN EXPERIENCE FROM COMMUNITY SERVICES AT SUKORAMBI, JEMBER, INDONESIA

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INTRODUCTION

Studies about biotechnology have grown fast and widely. It can be seen by the product that is produced by researchers around the world in the agriculture and health sector. Indonesia is one of the countries that has a high potential to become a market of biotechnology products as well as the growth of biotechnology especially in the agriculture sector (Putri & Fujiwara, 2015; Mbabazi et al., 2021). However, just like other new inventions, the acceptance of society become the new challenge after the product is invented.

Introducing the new product to the societies until it gets acceptance and adoption is not easy. Especially those that provide arguments supporting beliefs resulting in decisions to act (Mezirow, 2003), and those which affect human living just like biotechnology products. It needs a special approach, strategy, until at the very technical activity because if not, the potency of rejection becomes more certain.

The problems raised in introducing biotechnology is misconception of biotechnology because of misinformation that grows fear towards health (Reddy, 2009), the threat towards farmers' independence because they cannot produce on their own, regulation and technological (Potrykus, 2010) until an ethical problem (Harfouche et al., 2021), which said that biotechnology has disregarded God authority (Bunders et al., 1989). Those problems can be categorized by mindset problems, or a mistaken mind set, so the way to solve it is by transforming those mind sets.

There are three strategies to introduce biotechnology products to Indonesian farmers, namely: providing information, education, and communication (IEC) (Malik & Kumari, 2020). The three strategies are inseparable, but IEC is the most important because it can directly change mindset (Mezirow, 2003; Sanmartino et al., 2022). Promoting about biotechnology is not as easy as introducing any other products, because it is not only about transferring the message, but also about how to convince them to accept the message and make use of the product.

The issue of transforming the mind set in the education sector is called transformative learning, a special approach used to transform a mistaken human mind set developed by Jack Mezirow, an American Sociologist and Emeritus Professor of Adult and Continuing Education at Teachers College, Columbia (Hoggan & Kloubert, 2020). The Development of transformative learning in Indonesia has reached a developing learning model which is one of the learning models that was developed is the transformative learning model for karang taruna (a social organization for young people). This model consist of Input

proses dan output where the process is done through syntax which consist of steps or the procedure that needs to be considered in practical which are (1) Approaching, (2) deciding the problem, (3) developing critical reflection, (4) deciding and arranging the action, and (5) evaluation (Hasan, 2017).

As a practical issues of this model, the community services team project has implemented transformative learning model in their project. The main purpose of the project is to make farmers gain knowledge about biotechnology fertilizer as another alternative on their farming. However, the transformative learning goal which is change the mindset of the farmers toward chemical material when farming also stated as additional goals of this community services. In doing that the community services team project conducted community services activities which consist of seven steps which is (1) giving the negative impact of chemical material towards health, (2) the biotechnology product as the alternative, (3) train them to make biotechnology product that is necessary for their farming, (4) Using biotechnology product on their farm, (5) proofing the result of biotechnology product on their farming, (6) Getting the feedback, and (7) evaluation.

After doing the evaluation that is done by team project, we conclude that this community services were success in achieving the main goals but failed in applying transformative learning model that is seen by the farmers rejection. Some of the farmer that we interview about the rejection said that the plant was broken after applying the biotechnology product, and the others don't want to apply it because they need proof of the success in applying it because they do not want to take the risk on their current farm. However one farmer is success in applying it but not strong enough to make others interested in applying it.

Based on those background, this study will reveal the experience of the lecturers in applying transformative learning models in their community services program by investigating every step that they had done, and all aspects related to the program. I position myself as an single evaluator by using the models I was developed in 2015.

METHOD

Contributing to the growing literature on Transformative learning, this autoethnography details our experiences as the team member of community services in applying transformative learning. As an approach to research, autoethnography looks to analyze personal stories to understand and make sense of social and cultural experiences (Ellis and Bochner, 2000; Ellis, Adams, and Bochner, 2010). Through storytelling, auto ethnographers look both outward and inward at their vulnerabilities, feelings, an emotions (Ellis and Bochner, 2000). Focused on reflexivity and voice in social research, auto ethnographers reflect, analyze, and interpret experiences in relation to broader sociocultural context (Chang, 2016; Reed-Danahay, 1997; Wall, 2006). The intent then of auto ethnographies such as this one is to detail and acknowledge the connections between the personal and social world (Reed-Danahay, 2017; Sparkes, 2000; Wall, 2006).

Part of the process is reflexivity which allows for the examination of how our personal experiences and subjectivities impact our research question, the research process, data collection, analysis, and interpretation (Aranda, 2018; Reed-Danahay, 2017; Ristock et al., 1996). As such, we must use a critical gaze and take ourselves as the object (Aranda, 2018; Green et al., 2014). This research,

in part, reflects the community services team's social knowledge and location. All of the team members are the lecturers in education, one is from science education who has the basic knowledge about science and biotechnology, one from non-formal education who has a consent on farmer, and I am from non-formal education who developed transformative learning model. Since the tree of us are lecturer who has many subjects to teach, this program become a second or third priority. However, we made a schedule regarding this community services and discuss the task we must do for each person until the program is over. Each of us has task based on our knowledge background such as producing material, guiding the community services process, and doing evaluation.

We also getting help by student who has connection with the farmer where this community services taken place. The help is more technical just like doing communication with the farmers who become the object of this community services, preparing tools that is need in the process of community services, and documented the community services activity.

This community services were taken place at Sukorambi Village, District of Sukorambi, Regency of Jember, East Java Indonesia. The place was known with the good vegetable as farming result. Most of the society are farmer and the object of this community services are the farmer who become a member of group of farmers in this village.

This community services were done for six month since July until December 2020. This community services were starting from approaching the farmers, scheduling, conducting and evaluation. However, the main agenda was done around three months starting from conducting the community services, proving the result of the product and evaluation.

The data is collecting through interview, observation, and focus group discussion. I were interviewing 7 farmer, 1 farmer is the one who success in applying biotechnology product, 4 farmer who fail in applying the product and 2 farmer who are waiting for other farmer's result. I asked them about how large their farm, how much they use the product on their farm, and how did they use the product into their farm and what is the result of the using the product. I also interview the other lecturers or this community team member about the experience they got while doing this community services, starting from how they were producing the material, what they catch during the event, and what is their conclusion about this community services. In the observation, I observe the participation of the farmer at the discussion session and when practice in making the product. I also go to the farm to observe the condition of the farm after applying the product.

DISCUSSION

Applying transformative learning model for farmers

The first steps of transformative learning model is approaching (Hasan, 2017). In here, we create intimacy with the farmers so they can open their self toward the community services team member and the program or event that will be conducted. In reaching that goal, firstly we do approach toward the chief of group farmer as the strategy. We give him information about the event, the goal and other thing that we need to conduct this community services. It is true that there is no objection from the chief or we can say that this part was easily achieved. Then we ask the help of the chief of group farmer to communicate with his

member about the event. When they are agreeing to accept the event, then we arranged the meeting to decide when the event will be conducted.

The event is conducted at the second week of September. Since the farmers agreed to participate on the event, we do believe that the farmers already open to accept the new thing or they are simply curious about the knowledge will be given by the team of community services. We explored further information regarding the acceptance by observing their participation and enthusiasm when practicing making the product. And again, when the team giving their presentation, the farmers looked enjoying it and more enthusiast when practice to make the product.

Developing critical reflection is done at the presentation steps. Firstly, we give them the knowledge about chemical material and dangerous of using it for their self and the consume. In here all the farmers know and agree that chemical material is dangerous. I stated this activity as the first step of transformative learning called disorienting dilemma as the catalyst in transformative learning (Laros, 2017). However, that knowledge is not become the trigger to look for another safer alternative. It is because they did not find the direct proof that the sick man, or other negative impact of the man who consume the vegetables that using chemical material.

Secondly, we do presentation about biotechnology product that become the main variable of this community services. The biotechnology product that we promote here is effective microorganism 4 (EM 4) and Molase. This product is essential material to make vegetable fertilizer (Fabiani et al., 2020), and this fertilizer is the final biotechnology product that we promote through this community services. In this case we also give the information about the comparison between the fertilizer made from biotechnology and chemical fertilizer that, it has more safety towards the farmers health and their farm (the plant and the ground).

Thirdly, we give the information about the financial comparison between chemical material with biotechnology product. They found that biotechnology product is cheaper than chemical material. Moreover, the basic material to produce biotechnology product such as vegetables that become waste or unused vegetables is easy to get.

Lastly, we give the information about how to make biotechnology product by using EM 4, Molase, and wasted vegetables. We also make the product together, so they have experience in making it. We make sure they familiar with the materials needed and can perform it steps by steps so they can do it by their self after this community services ended.

The next steps are deciding and arranging the action. At this step we make sure that we have trial farms. The first is at the farm owned by the chief, the other three is owned by the member. At this step we give them the instruction of how much they must use the product without guiding them personally.

The next step is evaluation. The evaluation is done three time. The first one is done through questionnaire to measure their knowledge about the material that is given while the community services conducted. The second one is done to see the participation of the farmer during discussion and practice. And the last one is done after the community service is conducted. The first evaluation consists of 10 questions. The question are (1) short definition of chemical fertilizer, (2) short definition of vegetable fertilizer, (3) the dangerous of chemical fertilizer, (4) the short definition of biotechnology, (5) the example of biotechnology product, (6) the strength of vegetable fertilizer than chemical fertilizer, (7) the material need

to make biotechnology, (8) the steps in making biotechnology, (9) the duration of fermentation, (10) and the number of fertilizer in each use. In the first evaluation which has 20 participants, 16 of them answer 80% correctly while the rest participant answer 100% correctly. From this result we believe that the participant has enough knowledge to open the acceptance of the biotechnology product that is built in this community services.

The second evaluation is the participant participation during the event. in this second evaluation, 4 participant actively ask question during discussion session. And at the practice session, all of the participants contribute actively in the process of making fertilizer.

The last evaluation is done to see whether the participants accept or reject the product. At this point, most of the participant reject the product because after implementing the product, most of the plant was broken. This happen at 4 from 5 field project that become the trial while the other one is successful. We did observe in all locations and yes, only one field has great result on their farm while the other was broken. We did interview them about how much they use the fertilizer, and they say it was like what we taught them. This become our dilemma because theoretically it must be succeed just like at the other field but the reality is different. From the team member also do not have a clue from this matter because it should be solved by doing further research.

Scientific background as a starting point

In doing community services, scientific background of the team should come first, or at least there should be professional from outside team member that can be used as speaker or reference. The community services event should be successful or minimum failure, so the community did not get a loss from the event that is conducted. This is because the community service is conducted to help the society in solving their problem, not to add the problem. However, the human resource involved at this community service especially at the main product has the basic knowledge but not professional. The product was also applying to the sample at small area, and it was successful.

At this context, the professional means they have mastered the knowledge or skill regarding the theme of community services. Each person must not master the entire material, but the team member should fulfilled the material needed in the community services. The material that is needed at this community services divided by three basic science which is basic science of biotechnology product, transformative learning, and adult education.

At the basic science, the community team leader propose lecturer in science education. It is true that he has basic knowledge about biotechnology, but he has not master or event produce one. He admit that he master it theoretically but not in practical dimension because biotechnology can be applied in many sector. He also admits that he never use the product before, so yes he just know the biotechnology product more in theory not in practice. The role of this knowledge is playing as triggering and bestowing meaning upon personal change (Hodge, 2019).

From this point of view I agree that this community services was success in achieving it goals, but not in the part of transformative learning that I developed. It happen because of the different goals of each team member from the very start. The team member's goals and also this community service's goals are simply to make farmers realize there is another option in farming more healthy and safer

both on the land and their health. To make sure those goal achieved some evaluation technique were used and can be concluded that it was success. However, from my point of view this community services is fail because of the rejection toward the product instead of using it.

The need of proper management in adopting transformative learning into community services

Management in this context is consisting of two domain that is interact each other. The first domain is resources and the second one is how to plan, direct, actuate and control those resources. The resource here include human resource, strategy, method, and the material needed in this community services.

Adopting transformative learning into the steps of this community services discussed by two scientific background which is transformative learning and adult education which is connect to each other. Transformative learning background is my specialty. At this context, my position i as a team member who organized the steps of event based on transformative learning model that I was developed before. However, I don't have the authority to make decision regarding the event. It is because this community service's goals are not purely transforming the mind set about chemical fertilizer but to make them realize there is another option which is biotechnology product. It means that, the purpose of transforming the farmers mind set was not the main goal but as the impact of this community service that we develop during the event.

Adult education/farmer education background is the team leader of this community service. As the main organizer, she focused on the openness of the farmers toward new knowledge and the mastery of knowledge arranged in this community services. As the evaluation process shows that each participant gain 80 point or more, and one of the farmer use the product, it can be said that the community services is success.

Proper management here means that how to successfully achieve the goals of this community services without wasting resources. Since this community services adopting transformative learning model, it also put the part of transformative learning steps as the tools in evaluating it. This community services was funded from the institution to gain more quality and has more benefit for the society and not inflict a loss to the team of community services. And to do so, the first domain should be managed effective and efficiently.

The principle that can be used to evaluate the effectiveness and efficiency is putting the right man and the right material on the right place and time. To implement that principle the planning process must done perfectly. It must be done through proper need assessment at the very first step. At this community services, we do the need assessment process to decide who will be involved, which material need to be fulfilled, which strategy and which method we will use. However, there is a time limit and amount of money that is available to support this event. as the result, the goals of transformative learning which is change the mindset of farmers regarding chemical fertilizer was not completely achieved.

The proper management that is proposed here is how to distribute the task equally, doing proper monitoring toward the program, supervising, and evaluation. In this community services, we do have three member of community services, three student who was ready to support the event, one person who support the event, and twenty farmers as participant, including the one who support the event.

We do make the task list and distribute it to the human resources that is engaged in this community services. From the main team, the chief of this community services normally is in charge on all this event. She also had to lead the event and communicate with the people can be involved to support this event just like students and the chief of group of farmers. Making material about biotechnology, and anything else that needs to be informed to the farmer is done by us from science education, plus formulating the instrument for assessment. While I am in charge in formulating the strategy and method that is used and the event.

The student in charge in preparing the material needed at the event just like sound system, copying the material, preparing food, documentation, and also administration part namely list of attendance, giving toolkit to the participant and else. The chief of groups of farmers is to communicate the event toward his member and make sure the number who would attend at the event.

Monitoring is done by the chief while the event is conducted and field monitoring. The chief monitor the how the task was going on, how many participants that is attend, and who were participating. The field monitoring is done to see the results of biotechnology product that is applying by the farmers. This monitoring is done daily and weekly. The daily monitoring is done through the student whose house near with the location. The student should take a photo of the plant in every field and then send it to the chief leader. At the end of the week, the team of community services come to the field to see directly how the fertilizer work and impacting the growing of the plant.

The supervision is done to help farmer in applying the fertilizer made by biotechnology product. The only supervision proses here is to help farmer that is successfully applying the biotechnology product. It is happened because that farmers want to make the product by his own. The supervision toward the failed farmers cannot be done because the farmers do not want to inflict a loss for the second time after applying biotechnology product. While the other farmers do not want to get a loss just like the other farmers who already failed.

The evaluation in this context just not about the event but the whole program. The indicator made at this evaluation is (1) was the goals of community services achieved?, (2) were there problems rise during and after the program?, and (3) were the material was used effectively and efficiently?. The first indicator was achieved that is seen by all the participant who got score 80 above and one farmer who successfully applying the biotechnology product.

The second indicator shows that the product effect was unpredictable, the plant in most of field were broken after applying the product and only one field was success. For this problem, the member from science education cannot give the satisfied answer because this is not normal. It should be work on every kind of plant, but it does not work even at the same plant at the other field.

The third indicator shows that the material was used effectively and efficiently just like what was planned. However, in this community services, the farmer got the material to practice individually, but some of the farmer admit that they did not make the product in their house.

The group's influence in decision making

Making the decision is not always done by our own thinking. Most people try to ask other people opinion or observe other people as consideration in making decision. It was not rare either someone making decision because most of the member done.

In this case, most of member decision become the trigger for other members decision. Because some of the farmer did not applying the product directly, they lay their decision at the results of other member who already applying the product. As the result, although one farmer successfully applying the product (the plant grows healthy just like said at the theory), the other farmers choose to not apply it because most of the farmer who apply the product has failed (the plants were broken).

Based on those condition there are two things that is need to be considered in managing group decision which are make sure each individual result was successful and asking support from leader and potential person who has influence at the group. The gap existing at this community services is the success of individual was not guaranteed. At this community services, all the participant is become trial project. We can say that because this is the first time for community services team in using this topic (making fertilizer from biotechnology product). The team just look at the other place who was successfully apply this product without doing trial and error.

Trial and error in community services is needed to make sure that the community that become the object of community services get the benefit from the program, not the opposite. It is because community services is different with research program which can be success or failed. Event the scholar very recommend that the community services is done based on the result of the research that already successful to minimize the failed.

Another thing that is needed to consider in managing group decision is the support from people who has influence for the group member. In this community services, there is one person who already success in applying the product, but not enough to influence the other farmer to apply the product. It is happened because the number of success is less than who failed. Moreover, the leader of this group of farmers also did not successfully apply it. They also lack on information about why it is failed.

From this point, the team should be applying at the small area to make sure that the product is successfully solved the problems. So it can be the trigger to completely change the mindset. This part is very important to make sure that the farmer did not come back to the previous mind set or they became more dilemmatic because of the new problem rose after believing that the previous mind set is totally need to be change but do not have alternative solution.

CONCLUSION

In this study I placed myself as the only examiner in deciding the failure of this community services in applying transformative learning. Once again, I need to state that this community services is successful in the context of achieving community services goals but not in applying transformative learning. It is happened because I and the community services team use different indicator to our own goals. From the achievement that was decided by the goals made at this event, it can be said that the program was successful. However, by using the indicator that was exist on the transformative learning model, this program was

partially successful. It was successful in transforming one participant but not the community.

Putting aside the task to change the mindset of the community and focused on the process that happen during the event. All part of community services was following the process of transformative learning model. However, the main solution that is used in community services must be considered to support the theory practically.

From this experience, I can give the suggestion for the researcher in biotechnology to collaborate with researcher from other discipline at the same time to minimize the rejection and fasten the acceptance of the society. Researcher in transformative learning also need to collaborate with researcher from sociology and else to strengthen the theory and fasten the goal achievement. To do that, all the researchers must work collaboratively from the very start without waiting the other discipline finished the research. In doing so, they have to do a workshop to decide the society who will take the benefit from the research, which discipline has potency to contribute and then take a part from each discipline.

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