Accounting Training Module Development to Boost Agriculture Financial Literacy on Palm Farmers

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Abstract

This research aims to develop agriculture accounting training module in order to increase palm oil farmer financial literacy, in this case farmers in Donomulyo, Malang Regency, Indonesia. The method utilized in model development is Design Based Research using the following progression: problem identification, explanation of goals, design and development of artifacts, artifact testing, evaluation on artifact testing, and communication of artifact testing result. Examination was conducted on 25 palm oil farmers, through individual learning on agriculture accounting training to increase financial literacy. Module effectivity was determined should 50% of community members apply separate accounting records for agriculture and household respectively. Module development result has been validated and revised by economy lesson plan experts, education media experts, and agriculture accounting experts. Module composition consists of Chapter 1 (An Introduction to Agriculture Accounting), Chapter 2 (Accounting Basic Procedure), Chapter 3 (Agriculture Break Event Point), Chapter 4 (Agriculture Opportunity Cost Calculation), Chapter 5 (Palm Oil Farmer Household Financial Management). Graphic design provides colorful layout to increase learners’ interest and motivation to learn module content. 76% of the total number of participating farmers have utilized modules and implemented accounting in daily life.

Keywords: module, agriculture accounting, trial

1. Introduction

Palm oil farmer empowerment is a strategic decision in increasing farmer household income and welfare, as well as farmer contribution in economy development. Palm oil farm development through agribusiness perspective by empowering farmers could be conducted through: 1) counseling and training in technical and management aspects to improve farmers ability to achieve and create economic opportunities, 2) activate and enable agricultural institutions, such as farmers' groups, cooperatives, microfinance institutions, counseling and other agencies to address the various issues in order to increase farmers' income, 3) development and application of specific technologies, 4) provide capital assistance to farmers in the form of revolving funds and credits (Supadi and Nurmanaf, 2006).

Syahza (2007) research stated that agribusiness through palm oil plantations development in Riau province brought major changes to rural communities’ conditions. On the other hand, palm oil development also stimulates processing industries growth, which uses palm oil as raw material. Palm oil plantation development contributed double impact on the region's economy, particularly in creating opportunities and employment. Palm oil plantation development has provided a trickle of benefits (trickel down effect) enabling deployment of power expansion (power of dispersion) in the surrounding community. It also improved farmer household incomes, thereby increasing rural purchasing power, for both primary and secondary needs.

Palm oil farmer empowerment in Donomulyo Malang Regency started in 2008. Five Blitar businessmen formed LKMMP5 (Lembaga Kesejahteraan Masyarakat Lima Pengusaha or Five Entrepreneurs Social Welfare Institution). LKMMP5 as donors, in collaboration with Al-Aqsha Foundation (Foundation engaged in social institutions in Donomulyo), they empower palm oil farmers. Farmer community empowerment aims to improve farmers’ welfare by increasing farmers’ income. Most of them are previously Palawija farmers. They grow maize,
Ambon. The researcher concluded that participants’ knowledge on accounting has increased after agriculture activity. These labor forces are not paid. Nevertheless their efforts had to be accounted for. Most of palm oil farmers in Donomulyo do not perform agriculture accounting. This behavior is caused by farmers’ behavior which includes low level of knowledge, attitude, and skills on agriculture accounting. Despite existing farmers groups in Donomulyo, counseling programs have not covered financial management and accounting. Most of farmers do not conducting accounting. They only recall real cost on their respective lands to be planted with palm oil. As long as palm oil tree has not yielded, the farmers could plant corn or cassava as crop intercropping. Fourth year after plantation in Donomulyo, the plants began to produce TBS (Tandan Buah Segar or Fresh Fruit Bunches).

Donomulyo region possess 268 palm oil farmers managed by 25 group leaders. Each group leaders guide different number of farmers under them. South Donomulyo TBS fare better compared to North Donomulyo TBS. Nearly every palm oil farmer in South Donomulyo gain support from PPL (Penyuluh Pertanian Lapangan or Agriculture Counselor), LKMMP5 and group leaders. A large number of family members in this region are former TKI (Tenaga Kerja Indonesia or Indonesian Labor Force) who worked in Malaysian Palm Oil Plantation. Support and TKI experience resulted in better palm oil yield in South Donomulyo compared to North Donomulyo.

Donomulyo palm oil farmer empowerment, as stated by Al-Aqsha Foundation administrator, is considered successful due to the following facts: (1) Palm oil trees could grow on Donomulyo soil (2) Palm trees planted in Donomulyo region could bear fruit and yield similar result to Sumatra plantation (3) TBS yields are directly marketed to South Blitar near Donomulyo borders namely PT Sawit Harum Madani as palm oil processing factory (4) Community suspicion regarding palm oil damage to environment, especially lack of clean water sources was not proven (5) Increase in palm oil farmer society revenue. (6) Prices set by PT Sawit Harum Madani (palm oil processing factory near Donomulyo) are set on the same price (entire yield regardless of palm oil age) and has no effect should palm oil value fluctuates, and not to cause discord among farmers (7) Entire cost of TBS freight is not charged to farmers but to PT Sawit Harum Madani instead. Genenova (2014) research titled empowerment failure of palm oil farmer in Wambers village, Karoom Regency Papua. High freight on harvested yield was imposed on palm oil farmer instead of palm oil processing factory. Palm oil farmer refused to harvest their palm oil field due to imposed freight cost, despite palm trees having yielded fruit.

Palm oil farmers could benefit from palm oil yield for 25 years, with proper care and maintenance. To achieve maximum benefit, farmers require additional cost such as fertilizer, pest extermination, labor force, and equipment procurement cost. The highest cost among those additional costs is fertilizing procedure which is conducted every three months. There are few farmers who do not fertilize their palm oil field regularly therefore it does not produce optimally. These farmers claim for not possessing enough funds to procure fertilizer. There are also farmers who are tempted to substitute palm oil trees with sengon. Despite so, substituting palm trees to sengon trees require large amount of money which includes sengon seedling procurement and palm tree field demolizing.

Farmer community low education level influenced their behavior which inversely proportional to their welfare. In order to increase welfare, palm oil farmers are expected to take a role as themselves and manager. As a manager, farmers are required to understand how to utilize various production factors such as field, labor, and capital effectively in order to obtain maximum profit.

Most of palm oil farmers in Donomulyo do not perform agriculture accounting. This behavior is caused by farmers’ behavior which includes low level of knowledge, attitude, and skills on agriculture accounting. Despite existing farmers groups in Donomulyo, counseling programs have not covered financial management and accounting. Most of farmers do not conducting accounting. They only recall real cost on their respective agriculture activities by memory. Despite so, after thorough financial examination these farmers experience monetary loss. Not every cost was accounted by the farmers such as household labor providing a hand in agriculture activity. These labor forces are not paid. Nevertheless their efforts had to be accounted for.

This indicates agriculture accounting is considered unimportant. Nevertheless by conducting proper agriculture accounting in accordance with guidance, the farmers would be capable of managing their agriculture finance well and therefore would be able to expand their business. According to Susanti (2013) accounting application is parallel to financial literacy. It means by applying accounting in their daily life, it would increase their financial literacy. Ester (2012) explains research result regarding accounting training in Hutumuti Leitimur Village in Ambon. The researcher concluded that participants’ knowledge on accounting has increased after agriculture
Based on research background above, existing research problem identified in Donomulyo palm oil farmers are as follows: (1) Most of palm oil farmer community do not conduct cash income and outcome accounting (2) Palm oil farmer are incapable of accounting profit/loss generated from their income (3) Palm oil farmers do not understand opportunity cost application (4) Palm oil farmer do not understand how to manage and expand their business from obtained profit/loss.

Fore mentioned problems caused stagnancy in farmer welfare; therefore agriculture accounting training is required.

2. Method
The research method utilized is Design Based Research (DBR) approach, which is a flexible method. The researchers collaborated with Al-Aqsha Foundation from initial step of module development program. Trial subjects are male palm oil farmer under Al-Aqsha Foundation guidance who has been receiving ZIS funds for three consecutive years from 2008. Group examination was conducted on 8 (eight) palm oil farmers. On the other hand, field examination was conducted on 25 (twenty five) palm oil farmers. Suparman (1977) provides sample limitation on field examination subjects for 10-30 people. Data analysis was conducted through the following process: module creation, module testing, and module revision. Percentage analysis technique was utilized to measure modul prototype accuracy. This technique is conducted in order to examine number of learned community members (in percentage) capable of performing separate accounting for agribusiness and household in daily life. Analysis result utilizing percentage analysis are described as follows: 0-25% (less effective), 26% -50% (quite effectively), 51% -75% (effective) and 76% -100% (very effective)

2.1 Study Design
Design-Based Research application in agriculture financial literacy development and implementation was adapted from Model 6-Phase developed by Peffers et al. (2007, as quoted in Elly & Levy, 2010).

2.2 Research Procedure
In each stage of development, findings of a preliminary study are presented, as well as development results, early product test, final product test and the final module revision.

3. Results
3.1 Problem Identification Phase
Problem identification phase and community education level (palm oil farmer) is Elementary School (SD) 36%, Secondary (44%), High school (16%) and Bachelor Degree graduate (4%). Palm oil farmer age ranges about 30 -60 years. Under 40 years (4%), 40-50 years (84%) and above 50 years (12%). Residents possess another job aside as oil palm farmers, namely; (44%) as a laborer, (24%) maize and cassava farmer, (16%) stock farmer and (16%) other occupation. Income earned by community is Rp 1,000,000 to Rp 2,000,000 (64%). Palm oil farmer community empowerment has managed to increase their income but it is inversely proportional farmer welfare level. One factor causing this issue is large number of participants did not apply accounting in everyday life.

Data collected community needs and study material, which in turn exhibits the following result: (1) 84% of the learners requires a module on agriculture accounting application in daily life (2) 80% of the learners requires material on Break Event Point profit/loss calculation (3) 72% of the learners requires opportunity cost study and accounting (4) 100% of learners requires materials on household financial management. The results of the problem identification are described in following Figure 2.
3.2 Explaining Module Development Goal Phase

In formulating book keeping training modules to improve financial literacy, researchers, teams of experts (validator), facilitators and learners (palm oil farmer) collaborates by means of Focus Group Discussion (FGD). FGD identified agriculture accounting training modules to improve financial literacy. The purpose of agriculture accounting training module design is described in the following processes:

a. Describing module formulation aim is based on first phase requirement. Training material is focused on practical applications, method, and selected technique has to avoid techniques which promote transfer of knowledge from facilitators to participants (Lunandi, in Sunhaji, 2013).

b. Modules are provided using participative learning method, module usage guidance is inserted inside, as well as agribusiness related practice questions and answer keys.

c. Module stresses on group discussion. Adult education is conducted through discussion, whether in small or large groups (Lunandi in Sunhaji, 2013).

3.3 Module Design and Development Phase

Preparing agriculture accounting module draft in order to increase financial literacy was based on Robert Gagne (in Nasution, 1997) education theory which is described as follows: Gaining Attention, Inform learner of Objectives, Stimulate recall of prior learning, Present stimulus material, Provide learner guidance, Elicit Performance, Provide Feedback and Assess Feedback, Enhance retention transfer.

Design and development process is conducted by researchers along with group collaboration (Al-Aqsha Foundation Board) in the following activities: preparation of module preliminary content, preparation of module content material, and module drafting. Module is titled as follows: Accounting Training Module to Increase Palm
Oil Farmer Financial Literacy. The structure of the module introduction section consists of (1) background to provide brief explanation regarding interconnection of each chapter in the module; module characteristics, advantages, and strength (2) Module usage requirement which contains prerequisites before user learn to use the modules (3) general purpose of modules which provide information on module objectives to be achieved by learners (4) instructions on module usage to participants and facilitators in using the module (5) Evaluation and assessment, which provides information on how to complete tasks and exercises in the modules. Main part of the module consists of: (1) Chapter 1 discusses introduction to agriculture accounting (2) Chapter 2 discusses accounting fundamentals and applications procedures (3) Chapter 3 discusses agriculture Break Event Point, (4) Chapter 4 discusses agriculture Opportunity Cost and (5) Chapter 5 discusses palm oil farmers household financial management. Each chapter contains basic competencies, indicators to be achieved, Content, Summary, Evaluation / problems in practice section, assessment criteria and Answer Key. Exercises vary each chapter starting from description, calculation, and multiple choices. Total score for each examination section is 100. Subject mastery is classified as follows: 67-100 is good category, 40-66 is adequate and s 0-39 is poor. The final part of the module is the Glossary and Resource Referral.

Module was validated prior to examination process. Agriculture accounting training validation examination process was conducted by economy learning plan, education media, and agriculture accounting experts. Validator team for economy learning and education media experts are professors of Universitas Negeri Malang. On the other hand, validator for agriculture accounting experts is practioners in agriculture accounting field. Module validation result exhibits that module is feasible to be examined.

3.4 Trial Evaluation Phase

Trial evaluation on agriculture accounting training in order to improve financial literacy was conducted in two steps, which are described as follows:

1) On Learning Process

Cash book accounting and financial report organizing learning process resulted in average grade of 50.36 (adequate category). Trained community members obtaining poor is 16%. These people possess elementary education level and are above 50 years old. Break Even Point (BEP) learning process resulted in average grade of 59.8 (adequate category). Poor category is 8% for those with elementary education level and are above 50 years old.

Opportunity cost and calculating opportunity cost learning process resulted in average grade of 67.56% (good category).

Palm oil farmer household financial management learning process with multiple choice utilized in determining trained community member literacy resulted in average grade of 68 (good category). Average grade for overall trained community members is 61.43% which is in adequate category. Learning process result indicates that agriculture accounting training module is effective to be utilized in agriculture accounting training.

2) Trial Result of Separate Accounting Application to Trained Community Member on Agriculture and Household in Daily Activity

Evaluation monitoring in accounting application conducted by trained community members in their daily activity was performed three times. Researcher used patrol model (Sayuti, 2010). Patrol model on learning process result measurement is a form of learning process evaluation. A facilitator as evaluator conduct observation on trained community member progress.

On first monitoring evaluation, 52% trained community member did not apply accounting in their daily activity, while 40% have applied accounting in daily activity despite having to go through revision process, 8% of trained community members have applied accounting in daily ativity with little revisions.

On second monitoring evaluation, 36% of trained community member have not applied accounting in agribusiness and daily activity. 56% have applied accounting in daily activity with revisions. 8% community members have applied accounting in daily activity with little revision.

On third monitoring evaluation, 24% trained community members have not applied accounting in daily activity. 76% have applied accounting. From the aforementioned 76%, 8% of them have applied accounting in their daily activity properly, 32% have applied accounting in daily life with little revision, and 36% of them have applied accounting in daily life with guidance required due to revisions performed.

3) Observer (Collaboration Team) Response to Agriculture Accounting Traning
Monitoring result on agribusiness accounting training by collaboration team (Al-Aqsha Foundation) exhibits very good process and produced 87.5% result. Learning process, facilitator performance, participants, and facilitator technique.

Ellis and Levy (2010) states evaluation procedure is an indirect observation which is conducted to complement direct observation result and measuring quantitatively module appropriateness for the community members. It is also in accordance with Design Based Research characteristics in measuring qualitative and quantitative integrated research. Based on tryout, 76% of trained community members have applied separate bookkeeping between agriculture and household activity. This fact indicates that module is proven to be very effective as agribusiness accounting training media in endeavor to improve financial literacy. Trial analysis exhibits quantitative module and very effective therefore it is appropriate as education media for community members and their characteristic. Research result is parallel to Aisyah et al. (2011) that module usage could improve learner cognitive strategy.

Questionnaire test result aimed at community members to module content exhibits that 87% claimed that agribusiness accounting module is easy to understand.

3.5 Communication of Product Revision Phase

Agriculture accounting training module has gained success in trial process with palm oil farmer in Donomulyo Malang Regency as test subjects. It is considered effective to be utilized. Empirical findings have been discussed above; few research findings implications to andragogy application in economy education in non-formal education. Obstacles experienced during this process are described as follows:

a. Trained community members who do not apply accounting in their daily activity is caused by low education level factor, aged at 50 years old or above. Therefore it is difficult for them to receive new information. They do not wish to add work load by applying accounting. Offered solution is providing black boards, board markers and erasers to record cash income and outcome in their respective households. In doing so it would enable other family members to provide aid in accounting processes and enable them to adapt over time as well as experience benefit from accounting.

b. Trained community members who have applied accounting in agriculture and household activities yet still experience mistakes. Researcher and collaboration team cooperate in providing guidance to improve their bookkeeping and in accordance with SAK ETAP guidance SAK ETAP (Standar Akuntansi Keuangan Ekuitas Tanpa Akuntabilitas Publik or Financial Equity Accounting Standard without Public Accountability).

c. Lack of capital issue for each fertilizer purchase faced by the farmers. Offered solution is by deducting palm oil harvest yield to purchase fertilizer. In the future, Al Aqsha Foundation could establish savings and loan cooperation as a bridge to capital issue faced by farmers.

4. Discussion

This research has been successfully conducted through few phases. Each phases influences learning process result. On problem identification phase, informations related with participating community members are: education level, age, and number of household members, revenue level from palm oil, and other occupation other than palm oil farmer. In module formulation, factors under consideration are as follows: (1) Who are the community members? (2) How do these community members behave? (3) How prepared are these community members to study? And (4) How motivated are the community members or other characteristics that could contribute to their learning process?. Most of the participating community members (84%) are elementary school (Sekolah Dasar) and middle school or SLTP (Sekolah Lanjutan Tingkat Pertama) graduates. Participating community members aged above 40 is an obstacle in this training. Applied learning strategy is adult learning process by employing participative education, non-formal, with learning process conducted in local agriculture community. Andragogy core doctrine states that education is not merely transfer of knowledge from teacher to student, it is a learning process activity aimed at problem solving (Freire, 1985)

Objective description phase is conducted by explaining modules according to problem identification result. Therefore module objective explanation which states accounting application in daily activity for both agribusiness and household could improve financial literacy.

Design and development phase is a real activity phase conducted by arranging module draft. This module was arranged in five chapters. Module design was adapted according to existing farmer in Indonesia who possess low level of education, therefore module design have to be simple and interesting suited to their needs.
Trial result exhibits 76% trained community members have applied accounting in their daily activity; therefore they have improved their financial literacy. (McRae, 1997 in Manurung, 2013) Financial literacy is one of bridge that forms prosperous family. Accounting application has been realized by applying accounting in daily activity and control monthly outcome. As much as 24% of trained community members do not apply accounting due to their inability to understand accounting during training process. Low education level and old age of 50 years old or above are factors which caused their difficulty in receiving new information (Anang et al., 2004). One of behavior which inhibits andragogy learning process is difficulty in accepting change.

Communication phase is a phase for module to be communicated with users, which are community members and facilitator. In this phase, module is known to have fulfilled the involved parties need (community members and facilitator). Therefore module development process have fulfilled requirements as stated by Plomp et al. (2007) that module have to be developed according to user need.

5. Conclusion and Suggestion

5.1 Conclusion

Based on research result, there were several findings from research and development perspective, as well as developed product perspective stated as Product Development Strength and Weakness (Kekuatan dan Kelemahan Produk Pengembangan). Agriculture accounting training module to increase financial literacy strength and weakness is described as follows:

The following are few instances that could be considered developed product strength
1) Interesting for trained community members as it is suited to their needs. Therefore this module motivates them to study and apply accounting in their daily activity.
2) Agriculture accounting training module product to improve financial literacy is relevant with farmers needs especially palm oil farmers.
3) Agriculture accounting training module product uses simple accounting in order to enable farmers understanding and applying accounting in their daily activity easily.
4) This development product has been validated by three experts in their respective fields: economy education plan, economy education media, and agriculture accounting. This module have been through trial process in participating community members. Modules contain figures, illustrations, and color variations which sparks learner interest.
5) Practice questions and key answers relevant to real conditions therefore making it interesting for participating community members to study it.
6) Module components are focused on agriculture accounting complemented with basic competency formula, achievement indicator, study guidance, and syllabus.

The following are few instances that could be considered as module weakness:
1) Community members participated in training are not disciplined in learning process. They undergo guidance in solving practice question.
2) Lack of facilities such as books, study room, and others rendered learning process ineffective.
3) Agriculture accounting module to improve financial literacy was not complemented with education media such as video and audio, therefore community members have to be more active in seeking out other education sources.
4) Limited test subject, module were tested on palm oil farmers for the first time in Malang Regency as trial project in empowering palm oil farmers.
5) Time limitation in learning process application monitoring and evaluation in trained community members’ daily activity. Therefore application result has not been recorded optimally.

5.2 Application Suggestion, Disemination, and Further Product Development

a. Application Suggestion

Suggestion provided to agriculture accounting module product users for community members, facilitators and every education force, either formal or non-formal forces, in applying this module is as follows:
1) Science and Technology (IPTEK) benefit for community in learning this module is by independently conduct accounting for both agribusiness and household activity.
2) Universities is suggested to continually re-examine agriculture accounting material to improve financial literacy, in order to obtain more practical and beneficial modules for communities in their agribusiness.

3) Agriculture Ministry Guidance and Counseling Division could utilize this module to guide the farmers in accounting and managing their finance. It is not limited to palm oil farmers but also beneficial for every farmer as this module provides simple accounting.

b. Dissemination Suggestion

In product dissemination, similar product developers are suggested to utilize this developed product in their economy education material on non-formal education, especially Agriculture Ministry Guidance and Counseling Division.

c. Further Product Development Suggestion

1) Further product development is suggested to be relevant to module effectivity. One of identified module weakness that it is focused on palm oil farmer accounting training development. Therefore it has not touched other types of farmers. Further research and product development is required in order to measure success from other agribusiness activities.

2) Module packaging in digital form. This packaging would make it accessible to anyone to access and applying it independently. Nevertheless, this require further research and development in order to develop and examine digital model as majority of farmers possess low education level.

3) Product weakness as described in training module weakness above could be followed through further research and development, need analysis using certain methods, expanding research subjects, and longer research time limitation to measure module outcome, and others. These aspects could be improved through further research and development.

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