Entrepreneurship Learning Model Development for Fisher-women in Sendang Biru Malang, East Java, Indonesia

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Abstract: Indonesian Statistic Bureaus reported that the percentage of fishermen poverty is quite high in 2013. It was 7.87 million people or 25.14% from the total national poverty that reached 31.02 million. High poverty in a social group in a country indicates the lack of development economic in that country. An interesting phenomenon existing in the fisherman society. The phenomenon is the involvement of fisher-women to generate revenues for their family in order to solve poverty problems. However, the role of fisher-women is not widely recognized. Fisher-women also play the important role in Sendang Biru coast, Malang, East Java. They produces the captured-fishes to be some products such as “abon”, fish-ball etc. However, they have some problems related to the business management, product development, product marketing and also accounting. Therefore, fisher-women require valuable opportunities to improve skills in order to manage the natural resources at their environment. This study demonstrated that an entrepreneurship learning model development for fisher-women in Sendang Biru Malang is effectively improve their skill in business management, product development, product marketing and also accounting. Throughout applying that model also create and strengthen the university-community engagement. The model adopts and modifies the design of Design-Based Research (DBR) proposed by Peffers, that was cited by Elly & Levy. The model development produces some products, consists of: (1) Learning designs: curriculum, syllabi, lesson plans, learning media, teaching strategies, (2) Trainer guidance book, (3) Handout for the learners.

Keywords: Fisher-women, Entrepreneurship, Learning Model.

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Introduction

Indonesia possesses abundant sea natural resources, as an archipelago country, it consists of approximately 17,500 islands with 70% of its territory are the Sea. The Ministry of fisheries and Marine states that in 2013, Indonesian sea area reach 5.8 million km$^2$, and the length of beach is 81,000 km. The fishermen poverty is the national problem that is not easy to solve. Panayotou (1982) in Bengen (2001) stated that fishermen live in poverty because of their will to live in (the preference for a particular way of life). They satisfy with their living by catching fish, rather than to gain revenues. However, poverty should not be ignored. High poverty in a social group in a country indicates the lack of development economic in that country. Poverty leads to other problems such a low levels of health, education. Poverty also would increases the crime rates and other social problems.

There is an interesting phenomenon existing in the fisherman society, so called the role of fisher-women. Fisher-women refer to the women who live in the fishing environment. They generally involve in activities to generate earn for their family. For example, they collect shellfishes, clean the ships, sell the captured-fish, help to prepare fish equipment and produce captured-fish to become value-added products. However, the role of fisher-women is not widely recognized.

Malang, East Java coast extends along 115 kilometers. It has potential substantial marine fisheries in the southern coastal region of Malang, especially the untapped beach Sendang Biru. Potential fish captures in water as far as 200 miles from shore is very high, ie. 80 thousand tons, of which, tuna, seaweed, fish, and coral reefs. Abundant captured-fish in Sendang Biru is in fishing season, during the dry season. That is April to October. During November to March the tonnage of captured-fish is decreased. This affects the level of fishermen income.

Considering those geographical condition, fisher-women play the important role. The role help their family to survive during the famine period (November to March), as most fisher-women activities are done at land rather than shore. Accordingly, fisher-women require valuable opportunities to improve skills in order to manage the natural resources at their environment. The open access to education, health and women’s equality will

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2 Marine Fisheries Research Development (MFRD), (2003), Maximizing Utilisation of Fish Catch Marine Species, SEAFDEC.

3 Ibid.
improve outcomes significantly to the economic development of a society.\textsuperscript{4} (Duflo, 2012).

Meanwhile, according to DKP Malang data, the greatest potential development of fisher-women are to those who process and sell cooked-fish products. It is the term of utilize fishery resources effectively.\textsuperscript{5} However, most fisher-women have no sufficient motivation to improve the business. The lack of marketing knowledge also the business and Interviews to some fisher-women show that they need additional knowledge and skills, especially in the development economic fields, that focus on the entrepreneurship learning.

As a part of the community, in national scope, the role of women in economic development is in line with the rights, status or position, either in the development of the political, economic, social and cultural development in the field of defense and security. Indonesian government regulation regarding the women involvement in development is stated in Presidential Decree No.9 of 2000 on gender mainstreaming. The decree work more efficiently and effectively in producing public policies and gender responsive to the whole society. It will be able to enforce the rights and obligations of men and women on an equal opportunities, the same recognition and the same award in the community.

In the context of fisher-women, gender equality related to the participation of women in the fishermen community, especially to economic development. Such effort that can be offered to the fisher-women to optimizing their role is to provide them opportunity is to manage the natural resources. Managing the resources requires skills, especially economic skills. Therefore, improving the skills through economic education that is focus on entrepreneurship can be developed into an effective learning for fisher-women. This research develops the entrepreneurship learning models for fisher-women.


Literature Study

Fisherman and Poverty Phenomenon in Fisherman Society

Fishermen are people who are actively doing some jobs in capturing fishes, sea animals and sea plants. People who create fishing net, transport or carry the fishing instruments are not categorized as Fishermen. However, boat engineer, cook and chef on boat are included as fishermen although they are not directly capture fishes. Fisher-women are those women who live in fishermen society. They could be wife, children, family of fishermen. Women who work in fishermen society in fishing area also called fisher-women.

Geographically, fishermen life, grow up and develop in coastal area. Coastal area means the boundary between land and sea. As a system, fishermen society consists of social categories, that create a social unity. They possess their own social systems, values and symbol of culture as their life references. As a result, poverty in fishermen society often be a very complicated problems that are difficult to be solved. Panayotou (1982) in Bengen (2001) stated that fishermen are willing living in poverty because of their willingness. Poverty is their preference for a particular way of life. Fishermen have satisfactory as long as they capture fishes. Increasing revenue is not viewed as an important way of life.

Nikijuluw (2010) argues that poverty of coastal society is categorized as a structural poverty, super structural and cultural poverty. It means that fishermen society poverty is caused by the failure to meet the needs of food, health, education and infrastructure. Moreover, unpredictable natural season also contribute to make the worse condition. Lack of education and health access, information and technology and also lack of capital may causes the low level of fishermen life.

Poverty, especially in fishermen society could not be ignored, because high poverty level in a group of society indicates the failures of economic development in such country. Poverty also leads other social problems such as:

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as low qualities of human resources, diseases, crimes and any other social problems.9

**Education for Fisher-women**

**Non Formal Education**

As the subject of this study are fisher-women, a formal education with a rigorous curriculum is less appropriate when applied to the community. Non-formal education is considered will be more appropriate to suit the needs of community.

Non-formal education has become an international discourse since the late 1960s, in line with the concept of repetitive learning (*recurrent learning*) and *long life education* as it is argues by Marzuki (2009). It is stated that concept of education with regard to the expansion of education and lifelong learning. Thus, the non-formal education is a recognition of the importance of education, learning and training beside the formal educational institutions.10

Combs and Ahmed (1974) in Marzuki (2009) gives a clear distinction between formal, non-formal and informal education as follows: Formal education is an education system that is structured and hierarchical. It is implemented from elementary school to college, academic studies, a variety of specialized programs and a variety of institutions, full-time, in the form of technical and professional training.

Informal education is a type of education that demonstrate a lifelong process, in which individuals acquire attitudes, values, skills and knowledge from daily experience, and from the educational influences and resources in their environment. Non-formal education is a form of educational activities that is organized outside the formal education system. It is implemented separately or as part of a larger activity, which serve specific learning communities.

Further, Marzuki (2009) quoted Fordham’s (1993) which is stated in the 1970s. The characteristics of non-formal education are as follows: (1) relevant to the needs marginalized groups, (2) care for the particular category

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of people, (3) focus on the formulation of clear goals, (4) flexibility in organization form and methods

Non formal education is defined by Unesco as:
“Any organized and sustained educational activities that do not correspond exactly to the definition of formal education. Non formal education may therefore take place both within outside educational institutions, and cater to persons of all ages. Depending on country contexts, it may cover educational programmes to impact adult literacy, basic education for out-of-school children, life-skill, work-skill, and general culture. Non formal education programmes do not necessarily follow the “ladder system” and may have different durations and may or may not confer certification of the learning achieved.”

The most important thing to underline the concept of non-formal education according to Unesco is non-formal education depends on the context of each community, can be a learning for adults, for children who drop out of school. Non formal education include life skills education, education skills, and of culture in general. Non formal education is conducted in a well organized and sustainable. It is for all ages and held outside formal institutions.

Non formal and informal education is stipulated in Indoneisa Law No. 20 of 2003 on National Education System. The law explained that education is a conscious and deliberate effort to create an atmosphere of learning and the learning process, so that learners are actively developing their potential to get spiritual power of religion, self-control, personality, intelligence, good values and skills needed,. National Education carefully constructed through three channels, namely formal education (education at school), non-formal education and informal education.

Andragogy Education

It must be different teaching mentshods implemented amongst adults and children learners. Psychologically, adults are individuals who need to be seen as people who are self-directed. They don’t need to be directed, influenced and manipulated by others. Thus, if adult hampered by the situation that does not allow to be themselves, they will feel pressured and

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uncomfortable. It is necessary to understand the factors driving and inhibiting for adults to learn as well as their hopes.

Knowles developed a concept of andragogy on four key assumptions differ from pedagogy. The fourth key assumptions are as follows: First, people grow and mature from total dependency toward self-direction. It means that the children are still dependent, while in adults are more independent. Because of this independence concept, adults need to be recognised.

The second assumption, as mature individuals will seek a lot of experiences, they possess a rich of learning sources. At the same time, they have chance to learn something new. Therefore, according to andragogy technology, there is a decrease of transmital techniques as used in traditional education system. Andaragogy more implements the techniques of laboratory work, simulations, field experience.

Third assumption is that education, both direct and indirect, plyas an important role to prepare children and adults to reach theri existance in the society. As a result, education would be the best way to do the integration process in the society (Kartini Kartono, 1992).

The fourth assumption is that in general situation children tend to have subject centered orientation learning type. That’s why the can be encouraged by the external influences. While adults tend to learn based on problem (problem-centered-orientation) as adults usually learn in order to solve their problems.

**Entrepreneur Education**


In entrepreneur education, knowledge is both delivered in practice and theory. It prepares entreprenuers should involve in socio-economic development, as stated by Brown: “a collection of formalized teachings that informs, trains,

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and educates anyone interested in participating in socioeconomic development through a project to promote entrepreneurship awareness, business creation or small business development.”\(^{13}\)

Gottleib in Brown stressed that entrepreneur refer to the terminology of increasing the creativity and innovation in various fields such as social, business, and also public interest. Entrepreneur education is very important and will be valuable as stated by Bridga (1996): “Entrepreneur education is becoming and will become an integral element of any future academic programmes in schools, universities and colleges, where it will expand into an established and ultimately accepted field of academic inquiry.”

Further McMullan & Long in Bridga argues that: “In order to provide effective entrepreneurial education, students should deal with ambiguity and complexity. They must learn how to find problems as well as how to design solutions, and should have substantial han-on experience working with the small firm sector.” Small business is the focus of entrepreneur education as “few ventures begin with functionally deferentiated structure in place at the outset, it is uneconomical to hire functional specialist.”

Entrepreneur education must be designed in relation to the developing of learners knowledge and skills. Therefore, Noll’s (1993) in Brown (2000) recommends that the entrepreneurs education plans should consist: (1) defining entrepreneurship, (2) completing of self-assessment, (3) creating an idea, (4) developing the business plan including marketing, financial projection and organizational plan, (5) running the business, and (6) environmental, political and international issues.

Further, Kimberly Roach, in Brown (2002) also states that entrepreneur education topics should be include:
1. Knowledge of the characteristics of an entrepreneur;
2. Ability to recognized business opportunities;
3. Basic skill and knowledges to create an effective feasibility plan a business venture;
4. Ability to identify the various business entry strategies available to entrepreneurs;
5. Understanding of the skills needed and means available to collect the market information needed to evaluate the feasibility of a new business concept.\(^{14}\)

\(^{13}\) Ibid.

\(^{14}\) Ibid.
Entrepreneurship as a Way to Increase Revenue and Reduce Poverty

Reducing the poverty number is one of the efforts that are taken by all countries, both developed and developing countries. The most popular way to reduce the poverty is encouraging growth that involves government and private sectors. There are also other efforts to reduce poverty, that encouraging people to be entrepreneurs. This endeavor commonly called as a social entrepreneur. By doing entrepreneur, people can increased earnings. The rising of community incomes could be one of the way to reduce poverty. Bornstein then stated that entrepreneurship plays very important role, using new approaches to solve many social problems such as poverty. The entrepreneurship should be accompanied by the deep willingness to generate revenues, environment sustaibale and advocacy by experts.

Research Methodology

Research and Development Model of Entrepreneur Learning

This study is conducted using the implementation of Research and Development methods and Design-Based Research (DBR) approach. Research and Development methods is considered as the most suitable approach to develop a set of learning tools for the research subjects. The products that could be developed are learning material, training materials, model learning materials and education materials (Gay, 1987).

Design-Based Research (DBR) approach is implemented as it is considered to be more flexible as argued by Baumgartner et.al (2003): Design-Based Research (DBR) is an approach that focus on plans and comprehensive exploration. The expectation is producing artefacts or products that are needed by learners. Therefore it should be through designing and examining those products. DBR focus on solve the education problems, complex and real.

16 Ibid.
This study adopts and modifies the design of Design-Based Research (DBR) proposed by Peffers, that was cited by Elly & Levy in Sudarwati. There are 6 phases of development as shown below:

Entrepreneurship Learning Development Model For fisher-woman in Sendang Biru

STAGE 1: Problems Identification

STAGE 2: Purposes Identifying

STAGE 3: Models Designing and Developing

STAGE 4: Product Examining

STAGE 5: Models Evaluation

STAGE 6: Communication

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**Product Trials**

**Trials Design**

Products that have been revised based on feedback and expert opinion are tested on Sendang Biru fisher-women community. The test aims to ensure products effectiveness. Considering the subjects characteristics action research method is used in this test. Referring to some literature, action research is appropriate method, as stated Rowan Popplewell and Rachel Hayman (2012) that was published in International NGO’s Training Center (INTRAC). He argues that action research has got 3 unique characteristics: (1) values based, (2) action oriented, and (3) participatory.\(^\text{18}\) Action research is also viewed as comprehensive tools to get any feedback as stated by Koshy et. al. as follow:

1. Action research is a method used for improving practice. It involves action, evaluation, and critical reflection and – based on the evidence gathered – changes in practice are then implemented.
2. Action research is participative and collaborative; it is undertaken by individuals with a common purpose.
3. It is situation-based and context specific.
4. It develops reflection based on interpretations made by the participants.
5. Knowledge is created through action and at the point of application.
6. Action research can involve problem solving, if the solution to the problem leads to the improvement of practice.
7. In action research findings will emerge as action develops, but these are not conclusive or absolute.\(^\text{19}\)

Trials design in this study refer to Bachman's action research spiral model. It is drawn on the following graph.

![Bachman's Action Research Spiral Model](Resource: Mertler (2012))

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\(^{19}\) Koshy et.al, 2010, What is Action Research?, Koshy et al.-4092-Ch-01.indd
According to the above graph, action research spiral model consists of some steps, through the cycles as needed. Each cycle begins with determining planning (plan) continued by action and observations (act and Observe) and at the end there is reflection or evaluation (Reflect). If the results of the first cycle has not shown as the expected results and more data is still needed, the next cycle should be designed as a new spiral cycle.

**Subjects and Location**

Products trials are 15 fisher-women. The trials are located in Sendang Biru coast, Malang.

**Data**

Primary and secondary data are supported this study. Data are collected through observation, depth-interview and documentation. Further, they are analysed in two steps that are validity analyses that involve experts to validate data and descriptive analyses.

**Discussion**

This research produced a form of entrepreneurial learning model for fisher-women in the south coast of Malang. The learning consists of learning scenarios such as syllabi, teaching materials such as guide-books for facilitators and participants’ handbook, and learning media in the form of power point slides and short videos.

**Description of the model**

1. **Learning Scenarios**
   In this study, learning scenarios which is in the form of syllabus has a function as a planning and learning settings. To fulfill these functions, the syllabus includes the components of expected competencies, learning objectives, learning materials, learning strategy, learning resources and evaluation tools.

2. **Teaching Materials**
   To make the learning process effective, the teaching materials developed into two, namely a facilitator guide books and participant handbooks.
   a. **Facilitator guide book**
      This book consists of 6 chapters. Each chapter include learning objectives, allocation of time, learning materials and evaluation.
chapter discusses the entrepreneur characteristics. Chapter two presents the entrepreneur motivation. Chapter 3 contains the development products materials. Chapter 4 discuss the marketing strategy. Chapter 5 discuss the basic financial recording. Chapter 6 is the field trips. In each chapter also be included detailed instruction for the facilitator to guide the learning process.

Physically, the size of the facilitator guide book is standard A4 (21cm x 29.7cm). The cover is hard cover. Color images illustrate the cover and fishing activities and the results of the products produced by fisher-women entrepreneurs with harmonious color degradation. Thus the cover reflect the content of the book. The title and author's name imprinted on the front cover in a contrasting color.

Having 77 pages, the font used is Arial Narrow size 11 black and white background. On each page there is a footer and header in dark green light green graded containing information about titles chapter, pages and types of books. The illustrations are in accordance with the material also be given at each chapter.

b. Participants Hand-books

Participants Hand-books consists of six chapters. Its substance are same with the facilitator guidance book. However, in order to help the participants learn in a simple way the material and the language style are simpler. To increase the participants interests, pictures and illustration are added.

Physically, the size of participants' book are designed smaller, so they are easily carried. The size is 15 cm x 20 cm. The cover design is also hard cover, combination between the front and back covers, with harmonious colors. The illustration on the front cover gives an overview of the fishing activity and products produced by fisher-women entrepreneurs. The title and author's name is listed with contrasting colors.

c. Learning media

To support the learning process, power point slide is developed. Beside basic slide it is added by short videos.

Results of tests on the components contained in this model shows that the model of entrepreneurial learning is fit for use as a learning model for fisher-women. This is evidenced by the results of field tests.

1. 85% - 100% of residents learn how to give a positive response to the model.
2. 85% - 100% of the people to learn to be positive in learning.
3. Interviews with participats indicate that the model of entrepreneurial learning improve knowledge and skills of entrepreneurship to the participants.

Using the development model of Design-Based Research (DBR), the model developed has the following characteristics:
1. The model is developed and designed based on the characteristics of the learners. The material is composed considering the needs of fisher-women.
2. The training material is limited in terms of entrepreneurship, motivation in entrepreneurship, product development, product marketing, basic financial recording and field studies.
3. Models are composed based on real condition, accommodate the experts’ suggestions, opinions and validation and also fisher-women ideas.
4. The process of drafting and reviewing model is repeatedly as a validation. The process of model test and validation is conducted by experts of learning technologies, fisher-women supervisor and the experts of entrepreneurship.
5. Model tested on a group of fisher-women. To obtain information and feedback that mutually agree on the learning process, testing is done using action research method.
6. The feasibility measurements of the model is using descriptive qualitative method, comments and suggestions of the experts, suggestions and feedback from the participants.

**Model Strengths and Weaknesses**

**Strengths**

1. Model is developed and design based on the needs of fisher-women society. As a results, the model is relevan and ready to implement to their society.
2. Model has been validated by three experts (learning technology expert, fisher-women supervisory expert and entrepreneur expert). Based on the experts’ suggestion and feedback, the model has been revised.
3. Model has been tested in the field, in Sendang Biru fisher-women group. Based on the test results, model also is revised. Through those process, this model is considered to be a perfect model.
Weakness

Products trials in this study is judged as a weakness, as it was conducted in a limit activities such as practice in the learning process. As a result, observation could not be conducted in the real entrepreneur activities.

References


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