

## **Reinforcement Sugarcane Farmers In East Java Indonesia**

**M Samsul Arifien**

Agribusiness Doctoral Study Program, University of Pembangunan Nasional Veteran Jawa Timur, Jl Raya Rungkut Madya, Surabaya 60294, East Java, Indonesia  
msamsularifien12@gmail.com

**Teguh Soedarto**

Department of Agribusiness, Faculty of Agriculture, University of Pembangunan Nasional Veteran Jawa Timur, Jl Raya Rungkut Madya, Surabaya 60294, East Java, Indonesia  
teguhsoedarto@upnjatim.ac.id

**Hamidah Hendrarini**

Department of Agribusiness, Faculty of Agriculture, University of Pembangunan Nasional Veteran Jawa Timur, Jl Raya Rungkut Madya, Surabaya 60294, East Java, Indonesia  
hamidah\_h@upnjatim.ac.id

**Eko Nurhadi**

Department of Agribusiness, Faculty of Agriculture, University of Pembangunan Nasional Veteran Jawa Timur, Jl Raya Rungkut Madya, Surabaya 60294, East Java, Indonesia  
ekonurhadiupn@upn.ac.id

### **Abstract**

The Independent Rural National Community Empowerment Program (PNPM) is a government program implemented from 2007 to 2014. The target is rural communities who generally work as farmers. After that year, it does not mean that the government will no longer empower the community, but rather the concept of empowerment is integrated in all government sectors related to human resource development. In the agricultural sector, empowerment is closely related to efforts to advance farmers. Empowered farmers are farmers who are able to use the resources around them to carry out farming activities. Manage cultivation independently as an effort to increase production and preserve the profession as desired. Research on Strengthening Sugarcane Farmers in East Java aims to obtain a model for strengthening and counseling systems for sugarcane farmers. Qualitative descriptive research method, with the main informants/resources being farmers and key sources consisting of service officers, extension workers, community leaders. The research results obtained were (1) a model for strengthening sugar cane farmers and (2) a model for the extension and strengthening system for sugar cane farmers.

**Key word:** Model, Empowerment, Strengthening, Extension System

### **Introduction**

In 2007 the government released the National Program for the Empowerment of Independent Rural Communities (PNPM). A community empowerment program with targets and objectives being rural communities. In its implementation, prioritizing activities in the field of village infrastructure, management of revolving funds for women's groups, education and health activities for the

community, in rural areas. The aim of the program is to overcome poverty in rural areas. Village communities who generally work as farmers are empowered through the PNPM program.

Rappaport (1984), empowerment is a way for society, communities and organizations to be directed to be able to control or have power over their lives. If you cannot control your life and are categorized as poor, then the government is obliged to help. Describe the causes of problems, find solutions according to socio-cultural characteristics, environment, level of education and skills possessed. All existing weaknesses cause a state of helplessness. Therefore, there must be efforts to increase their empowerment in an empowerment program. Empowerment is a process so that everyone becomes strong enough to participate in various economic activities, which generate income to meet their living needs.

The definition of community empowerment is a strategy to realize community capability and independence. Empowerment is carried out to change the powerless to become empowered. Empowered from a social, economic, cultural, political, environmental, personal – spiritual perspective. According to Sumodiningrat (2000), empowerment is not forever. But until the target community is able to be independent, even though it is protected so that it does not fall again.

PNPM stopped in 2014. This does not mean that the government no longer empowers the community. However, the concept of empowerment has been integrated in all government sectors related to human resource development. In the agricultural sector, empowerment is closely related to efforts to advance farmers. How the government seeks to empower farmers from time to time, so that they are able to increase production and preserve their profession in the corridor of farming sustainability.

## **Research Method**

This research uses a qualitative descriptive method, where data is collected from resource persons consisting of informants/main resource farmers and key resource persons consisting of service officers, extension workers, community leaders from the 4 districts of Sidoarjo, Tulungagung, Ngawi, Bondowoso.

## **Result and Discussion**

### **Empowerment and Strengthening of Sugarcane Farmers**

The results of interviews with farmers in this research show that the government's efforts to empower farmers so far have been successful with indicators: (1) Farmers have understood all the needs for production facilities, especially fertilizer for sugar cane plants. (2) Farmers increase their skills in plant maintenance. (3) Mastery of mechanization technology. (4) Use of superior variety seeds. (5) Other knowledge related to working capital, partnerships, profit sharing, buy-out sugar cane purchasing system (SPT), etc. As stated by resource person Nur Amin (Ds Ringin Pitu, Tulungagung Regency) as follows:

“The amount of subsidized fertilizer is very less compared to the need. So the farmers supplement it themselves by buying non-subsidized fertilizer”

“Production costs come from our own capital, taken from last year's profits”

"Marketing of sugar cane is not tied to the nearest sugar factory, it can be done through pok-pokan entrepreneurs, or sold to soy sauce factories”

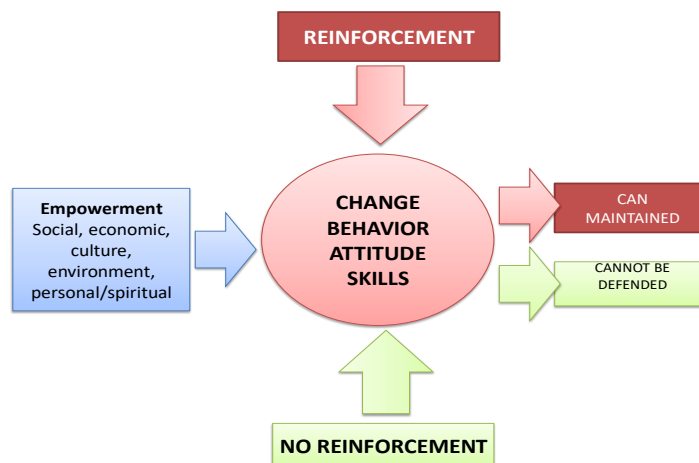
As explained by the resource person above, it is indicated that farmers are now independent in terms of capital, access to non-subsidized fertilizers and free market options. Likewise, resource person Chandra, Head of Duwet Village in Situbondo district, said the following:

“Sugarcane farmers are currently independent in their efforts to obtain capital without waiting for a mass credit program from the government. For farmers who need working capital, apply directly to the bank individually to obtain KUR, after receiving a recommendation about the business being run from the village head”

"With the buy-out system, farmers are free to sell their sugarcane wherever is more profitable. Not fixated on a particular Sugar Factory. More independent to determine market choices”

“With the law on freedom to plant commodities on their own land, farmers are more independent in determining what commodities to plant. The shift to planting sugar cane, rice and secondary crops has become commonplace in accordance with the wishes of farmers”

The results of the empowerment of sugar cane farmers that have been felt so far are that farmers have become independent; (1) In the economic sector, farmers earn a decent income to meet their living needs, and are able to set aside a portion of their income for working capital for the following year. (2) Increased welfare as social capital in society. (3) Can maintain the culture of sugar cane farmers from the Dutch era until now. (4) Able to maintain environmental sustainability through cultivation technology. (5) Increasing the human resource capacity of farmers through changes in behavior, attitudes, skills, and the development of human spirituality. The learning carried out by farmers results in changes in attitudes, behavior and skills. Changes in behavior in general appear from not knowing to knowing, unskilled to skilled, capital from credit to own capital, dependent on subsidized fertilizer to being able to buy non-subsidized fertilizer, able to choose more profitable types of commodities, and so on. However, farmer empowerment must continue to be carried out in order to maintain strength/ability in farming. Changes in attitudes, behavior and appearance as a result of empowerment are maintained through strengthening efforts, as shown in the following picture:



**Figure1. Empowerment and Strengthening of Sugarcane Farmers**

Figure 1 illustrates that empowerment results in changes in behavior, attitudes, and skills. These changes need to be maintained and even continue to be developed until the character of a modern farmer with various technological knowledge and better production capabilities is realized. For this, 'strengthening' or 'reinforcement' efforts are needed (according to the Indonesian dictionary). The definition of reinforcement in the field of education, according to Barnawi and Arifin (2012), is a positive response in learning given by teachers to student behavior with the aim of maintaining and improving that behavior. According to Usman (2005), reinforcement is any form of response which is part of modifying teacher behavior towards student behavior, which aims to provide information or feedback to students regarding their actions or responses which are given as encouragement or correction. Analogous to this, between extension workers and farmers are like teachers and students.

Bayu's research results (2021) state that strengthening farmer groups through development efforts in the form of coaching and government assistance can increase farmer income. An increase in income is able to leverage empowerment capabilities in improving life's dignity, independence, dignity, status and welfare. This opinion increasingly means that 'strengthening' of farming communities needs to be carried out continuously. The learning that farmers have received so far is continued with strengthening/reinforcement so that they can further develop their independence. Meanwhile, if strengthening is not carried out, it will not develop and cannot be maintained.

### **Independence and Strengthening of Sugarcane Farmers**

As stated by resource persons Nur Amin (Tulungagung Regency) and Chandra (Situbondo Regency), farmers are currently in a position to become independent in sugarcane farming. Independence is a person's ability to utilize their potential to fulfill their life needs. An independent person has the ability to choose various available alternatives so that they can be used to live a harmonious and sustainable life. The independence of sugar cane farmers does not depend on the government, it needs to continue to be developed so that no setbacks occur again. Efforts that can be made are to create a comfortable farming atmosphere. What farmers need is available in

sufficient quantities, on time, at reasonable prices. Availability of technology that continues to develop, reliable assistant/extension staff, increasingly better bargaining position with related institutions. The farmer independence that has been achieved and the things that need to be done to strengthen it are presented in the following table:

**Table 1. Independence and Strengthening of Sugarcane Farmers**

No	Farmer Independence	Efforts to Strengthen
1.	Banking capital and own capital	Sustainability of provision of banking credit schemes by the Government
2.	Using non-subsidized fertilizer	Providing fertilizer on time and in sufficient quantities to meet farmers' needs
3.	Breeding farmers' seeds	Development of new certified varieties of seeds
4.	Mechanization in cultivation	Innovation in cultivation mechanization
5.	Access technology from various media	Providing new technology assemblies
6.	Free market through a buy-out/SPT system	Regulating a free market mechanism that favors farmers
7.	Freedom to determine the choice of commodities cultivated	Advice on choice of commodities cultivated

The table above illustrates the situation of sugar cane farmers when the research was conducted. The source said that farmers were starting to become independent in cultivating sugar cane. Farming is carried out using one's own potential, namely capital obtained from one's own business, use of non-subsidized fertilizer, seed breeding, mechanization, access to technology, marketing, freedom to choose commodities. Strengthening efforts that can be carried out by the government and stakeholders are as follows:

1. The government provides People's Business Credit (KUR) for farmers who need working capital as a group or individually. The government is doing this as an effort to strengthen farmers as producers and providers of food for the benefit of society at large. The policy is contained in a decree in the form of Minister of Agriculture Regulation number 12 of 2020 concerning Facilitation of People's Business Credit (KUR) in the Agricultural Sector. Strengthening the agricultural sector, especially food, especially rice, corn, soybeans, sugar cane, is a priority in maintaining national economic stability. The government always tries to increase food security by encouraging the productivity of agricultural products through modernizing cultivation culture using more advanced facilities and infrastructure.
2. Sugarcane plants require many essential nutrients such as nitrogen, phosphorus and potassium. Providing balanced nutrients is very important so that plants can achieve optimal yield potential. Sugar cane nutrients can be obtained from ZA, Urea fertilizer sources, as a source of N, as a source of P they can be obtained from TSP, DSP, SP fertilizers, and as a source of K they can be obtained from KCl fertilizer. Apart from that, they can also be obtained from compound fertilizer sources. NPK with various compositions. In general, farmers are more concerned about using ZA fertilizer as a source of N. ZA fertilizer has been used since the Dutch era until now, making a very good contribution to the growth of sugar cane plants. ZA fertilizer is absorbed by plants more

slowly than Urea which is very hygroscopic. So it is able to provide nutrients during the sugarcane growing period in one year. ZA fertilizer is also able to provide an acidic environment that benefits the process of forming sugar levels when plants enter maturity, with the brix measurement indicator. The use of ZA fertilizer has been proven to improve production and has become a culture among farmers. However, due to frequent delays or insufficient subsidized ZA fertilizer, farmers replace it with subsidized NPK Phonska fertilizer.

With the attitude and behavior of farmers who are independent, farmers are ready to use non-subsidized fertilizer as long as the government is committed to providing fertilizer in sufficient quantities and at the right time. Besides that, it increases the price of sugar on the market. This is in accordance with the source's statement as follows:

“Sugarcane farmers are ready to use non-subsidized fertilizer, as long as the government guarantees its availability in the right quantities and at the right time.” (Reza – Situbondo Regency Agricultural Service Officer)”

“By using non-subsidized fertilizer, production costs increase. "It is hoped that the government can increase the price of sugar so that farmers do not suffer losses." (Sasugianto – Community figure in Duwet Panarukan Village, Situbondo)”

The source's statement is a reinforcement that the government can provide to farmers, regarding guaranteeing the availability of non-subsidized fertilizer on time and in sufficient quantities according to farmers' needs.

3. Sugarcane seeds are needed by farmers who carry out ratoon dismantling, namely the activity of dismantling the roots of the plant if the plant's ratoon is more than 3-4 times crushed and replaced with new seeds. In order to meet the need for seeds, farmers get them from breeders, sometimes they make their own breeders. Good and correct seeds must be of good quality as proven by a certificate from the Plantation Seed Center. Sugarcane seed plantations are cultivated in stages, sequentially through the levels of descent. Nursery gardens start from the main nursery (KBP), grandmother's nursery (KBN), main nursery (KBI) and flat nursery (KBD). The construction of tiered seed gardens is a strengthening for sugar cane farmers.
4. Along with the process of modernizing cultivation equipment, livestock labor is increasingly being abandoned and human labor is being reduced. Livestock power to cultivate the land has become extinct and is now being replaced by mechanical power with various forms of tractors, cultivators, power weeders, all of which aim to reduce manual human labor. To reduce labor, and to meet sugar cane planting targets, mechanization is the best way. The potential for its use is to take over manual labor which is increasingly scarce due to the pressure of industry to enter rural areas, thereby absorbing a lot of labor from the agricultural sector.

5. Facilitating farmers' access to technology is strengthening farmers, in order to increase knowledge about current technological developments. Currently, various media are available, from print, electronic, internet, and easy to obtain. Open access to technology brings farmers towards the modernization of extension. The Agricultural Extension Center (BPP) as an extension base, provides various technological assemblies that are ready to be adopted by farmers, and helps farmers to access technology throughout the world. In its implementation, the role of extension workers is very important as a companion to farmers' studies of science. According to Padmaningrum (2017), the AKIS (Agricultural Knowledge Information System) model can be used as a reference in implementing sustainable extension. AKIS consists of 4 main components which consist of the Extension system (extension system), Education system (training education system), Research system (research system), and Support system (support network) in an integrated extension system.
  
6. The system of purchasing sugar cane through profit sharing (SBH/Profit Sharing System) between farmers and sugar factories is increasingly being complained about by farmers, because it is often detrimental to farmers. Farmers must share in the losses at the sugar factory level in terms of determining yields, processing efficiency, delays in milling due to long queues. Apart from that, the money from the business is not received immediately but only after the sugar is sold at auction. In 2019, the government created a new policy called the Sugarcane Purchase System (SPT). The determination is based on the Circular Letter of the Directorate General of Plantations No. 593/TL.050/E/7/2019 dated 19 July 2019 concerning the Implementation of the Sugarcane Purchase System (SPT). This shows that with the issuance of this circular the SPT system mechanism can be implemented, especially at private sugar factories in Java. For state-owned sugar factories, the Profit Sharing System can still apply, especially those implementing a partnership pattern. The reality in the field is that SPT is welcomed by farmers as explained by sources as follows:

“The implementation of the SPT purchasing system benefits farmers. My sugar cane sells for IDR 80,000 per kw, and even at the end of milling the price can reach IDR 100,000 per kw. Payment is in cash via transfer to a personal account.” (Nur Amin – Ringin Pitu – Tulungagung).”

“The existence of these pockets makes it easier for farmers to sell sugar cane because they are close to the farmers' land. After the cane is weighed, it is transferred to the buyer's trailer, and the money is transferred immediately. When I came home, I stopped at an ATM and found that the money had already arrived. Farmers are very happy with the SPT system.” (Chandra, Head of Duwet Village – Panarukan – Situbondo)

The sugar cane purchasing system (SPT) is an effort to strengthen farmers. Farmers feel they benefit more, because they experience greater convenience and greater profits than the SBH system. However, it is hoped that the Government will further increase its outreach efforts, because farmers have lost their relationship with sugar factories. Between farmers and sugar factories has changed, it is no longer a partnership but a transactional relationship. Training education is the full responsibility of the Government through an extension system with stakeholders.

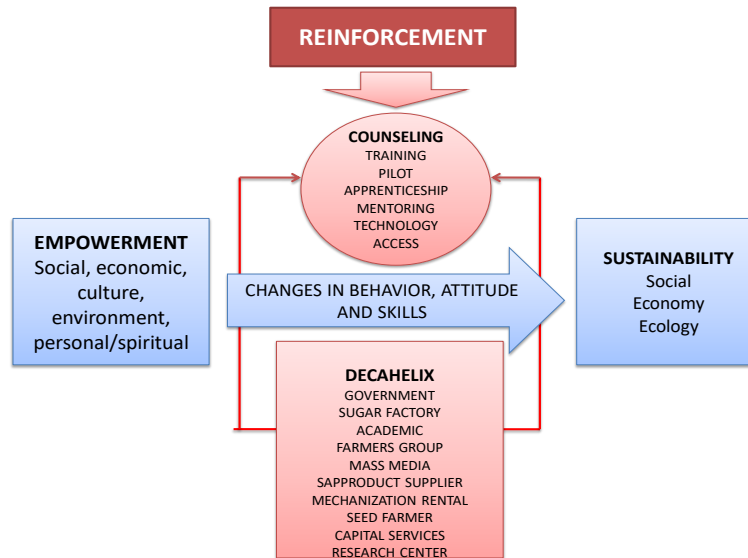
7. Farmers are independent in determining the choice of commodities they cultivate. If there is another plant that has the prospect of providing better profits, they will move to that plant. As stated by the Head of Duwet Situbondo Village, the sugarcane plantation area continues to decline from 180 ha, now it is only +/- 80 ha. Farmers moved to rice and secondary crops. Conversion of area from sugar cane to other crops is easy, because farmers are free to choose the type of commodity they plant. Unlike during the Bimas program, where farmers were obliged to follow government regulations. Farmers' freedom is enshrined in Law No. 12 of 1992, which states that farmers are free to grow whatever they want on their land.

### **Model for Strengthening Sugarcane Farmers**

A model is a representation of an object, thing, or idea, thought, in a simplified form of a natural condition or phenomenon. A model contains information about a phenomenon that is created with the aim of studying a real system. According to Mahmud Achmad (2008) there are 4 forms of models, namely; system models, mental models, verbal models, and mathematical models. The model for strengthening farmers in this research is a system model. A system model is a tool used to answer questions about a system without conducting experiments. The question raised is, what kind of strengthening efforts are being made so that farmers can farm well and sustainably. The model was created in the form of a scheme/flow chart regarding efforts to strengthen sugar cane farmers based on extension and collaborative coaching by 10 stakeholders called Dekahelix. This model was created to simplify understanding of the strengthening process with the aim of making sugarcane farming sustainable.

The line of thinking of the government's "empowerment" efforts has been carried out with the aim of changing the behavior, attitudes and skills of farmers so that they are empowered socially, economically, culturally, environmentally and personally/spiritually. The aim of this goal is for farmers to be able to cultivate better and "sustainable" farming. It is very important to empower farmers to change attitudes, behavior and skills, because farmers are cultivating subjects, namely individuals who can determine what to do based on their way of thinking. Behavior, attitudes and skills are changed from the old way of thinking to the new paradigm. These changes can occur if someone makes changes, namely the government which is responsible for protecting and empowering as per Law No. 19 of 2013. The farmer strengthening model is schemed starting from empowerment which is carried out to change farmers' attitudes, behavior and skills. The changes that occur can be seen from the independence of farmers, enhanced by strengthening the extension system in collaboration with the Dekahelix synergy as shown in the following picture:

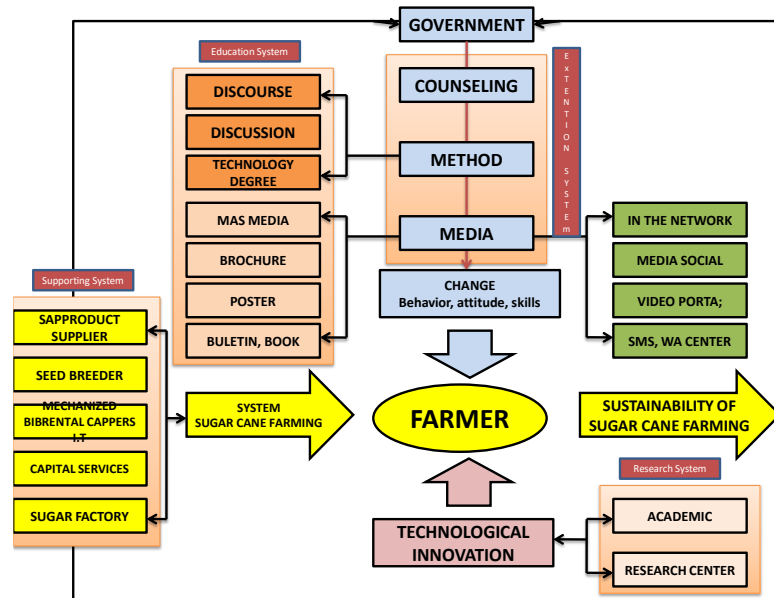




**Figure 2. Model for Strengthening Sugarcane Farmers**

**Model of Extension System and Strengthening Sugarcane Farmers**

The Extension and Strengthening System Model for Sugarcane Farmers is a representation of information about the implementation of extension and strengthening of farmers by the government and stakeholders accumulated in the Dekahelix synergy. The model was created in schematic form to answer questions about how the extension system is implemented in an integrated manner in the education system, research system, and farming support system, as an effort to strengthen sugar cane farmers. This is implemented by activating these three systems and moving them in the Agriculture Knowledge Information System (AKIS) dimension. The scheme/chart of the Sugarcane Farmer Extension Model is as follows:



AKIS Modification, Extension Method, Dekahelix

**Figure 3. Extension and Strengthening System Model for Sugarcane Farmers**

The flow of thought in the chart above is a collaboration of 3 systems consisting of; (1) The farmer extension system/extension system, uses methods/methods/techniques in order to make communication and interaction more effective through lectures, discussions, technology degrees. Media/tools used are brochures, leaflets, posters, bulletins, books, mass media. In the current internet era, counseling is carried out online (on a network) via social media, video portals, SMS/WA centers, knowledge/technology data systems with the BPP home base. Or carried out offline (outside the network) at farmer meetings. All of this was carried out in order to change conventional habits towards modernizing extension. (2) The research system originates from academic sources/universities and research institutes which have responsibility for development and community service through research. Synchronization of the design is adjusted to the actual needs of sugarcane farmers, updated at all times. The result is that Rset is a new innovation that can be directly applied to farmers. (3) The supporting system/sporting system provides services for production facilities needs in sugarcane businesses including suppliers of fertilizer inputs, pesticides, growth regulators, agricultural machinery equipment. Seed breeders are always ready to provide sugar cane seeds for ratoon unloading activities according to the varieties desired by farmers. Rental of equipment for mechanization of land processing, irrigation, pest/disease control, weeds, post-harvest machines. Capital services needed by farmers with low interest, both individually and in groups. The Sugar Factory becomes a supporting system for farmers to help with whatever the farmers need.

## Conclusion

The conclusions from the research results in this article are as follows:

1. A model for strengthening farmers was obtained which is a synergy between extension methods and farmer development by stakeholders in the Dekahelix collaboration.
2. A model of the extension system and farmer strengthening was obtained which is a synergy of the extension system, research system and support system.

## Reference

- Barnawi, dan Arifin,M 2012. Manajemen Sarana dan Prasarana Sekolah. Ar Ruzz Media. Yogyakarta.
- Bayu,Permana, 2021. Analisis Program enguatan Kelompok Tani Dalam Meningkatkan Kesejahteraan Masyarakat. Skripsi. Universias Islam Negeri Raden Intan. Lampung.
- Dirjen Perkebunan, 2019. Surat Edaran tentang Sistem Pembelian Tebu 593/TI 050/E7/2019.
- Mahmud,Achmad, 2008. Tehnik Simulasi dan Permodelan, Yogyakarta. Baziad, A.*
- Notoatmodjo, 2014. Promosi Kesehatan dan Perilaku Kesehatan. Rineka Cipta. Jakarta.
- Okviana,Rian, 2015. Hubungan antara Konformitas dengan Kecenderungan Perilaku Bullying. Fak Psikologi Univ Muhamadiyah Surakarta.
- Padmaningrum,Dwiningtyas, 2017. AKIS Tingkatkan Produktivitas Kambing.di Kaligesing. Disertasi Universitas Sebelas Maret Surakarta.
- Rappaport, 1984. Studies in Empowerment. Prevention in Human Service. Vol 3.
- Slameto, 1995. Belajar dan Faktor-fator yang Mempengaruhinya. Rajawali. Jakarta.
- Sumodiningrat,Gunawan, 2000. Visi dan Misi Pembangunan dengan Basis Pemberdayaan Masyarakat, Seminar Pemberdayaan Ekonomi Masyaraka menyongsong Indonesia Baru, IDEA Yogyakarta
- Undang-undang nomor 19, 2013. Perlindungan dan Pemberdayaan Petani.
- Usman, 2005. Menjadi Guru Proffesional. Remaja Rosdakarya. Bandung