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An *Among*-Based Mentoring Model for Vocational Schools in Yogyakarta and Its Social Impact

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Abstract

This study aims to investigate how the use of an *among*-based mentoring model can improve competencies in vocational education at an agricultural vocational school in Yogyakarta and the social impact that this has. Qualitative research methods were applied in this study, with data being collected through questionnaires, field observations, and a literature study. The results indicate that using an among-based mentoring model for agricultural education at the Yogyakarta Agricultural Vocational School falls into the "good" or "acceptable" category. The social impact of the extension helped improve the intimate relationships between students and the instructor. Students gained the ability and courage to convey various topics, and open communication encouraged stronger social behavior. When stronger social relationships are built, the extension workers could identify the expectations of farmers and provide education about developing rice seeds and improving the quality of organic rice production. The novelty of this research lies in the use of the among-based mentoring model, which was developed based on the local philosophical wisdom of the people of Yogyakarta Province. The hope is that this will help solve the problems in delivering agricultural extension in Indonesia. The expected implication is that government and educational institutions will work together to encourage the development of organic farming systems and agricultural startup businesses and consequently improve the welfare of the broader community.

Keywords: *Vocational education, mentoring, social impact*

Introduction

The downturn in the agricultural sector and the failure of young agricultural entrepreneurs may be due to inadequate agricultural education and extension facilities. To address this, countries in the world are currently focusing on education systems and agricultural consulting services to provide support for learning and advice for making operational and strategic decisions through various modalities (Adamsone-Fiskovica et al., 2021; Klerkx, 2020;). Looking at the history of agricultural education activities in the nineteenth century, pilot agriculture started developing but has failed to effect change (Burton, 2020). In addition, many agricultural education graduates do not work or engage in agriculture, especially for building an agricultural startup business, instead choosing to

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pursue a career outside the agriculture sector. This means agriculture is beginning to be abandoned by the younger generation (Esters & Bowen, 2005; Garton & Robinson, 2006; Igo & Perry, 2019; Mirakzadeh & Ghiasy, 2011), yet it should be a pillar of strength for the country. Agricultural extension is a non-formal educational process to teach farmers better methods, and this can lead to substantial benefits. Unfortunately, the agricultural extension policy implemented by the Indonesian government is considered to not have had a substantial effect, as illustrated by the unstable performance of the agricultural sector over recent decades (Rusliyadi, et. al., 2018). Agricultural extension has been neglected, so it has not helped farmers to become more productive and independent. This is needed not just to develop farming and fulfill mere needs—it will also help meet the needs of society and develop the nation. The introduction of agricultural extension should not just supply new knowledge and skills to farmers to develop their potential—it should also provide opportunities for farmers to develop themselves through the capital of independence. In its development, the philosophy, understanding, scope of the space, approaches, and methods for agricultural extension have not been properly understood by organizers and other actors involved in agricultural development in general (Hermans et al., 2020). This can of course lead to irregularities, inefficiencies, and ineffectiveness when planning an implementation of agricultural extension, and this in turn reduces the chances of achieving the goals and objectives of it. Efforts are therefore needed to improve the various aspects of agricultural extension, so it can increase productivity and incomes in the agricultural sector (Danso-Abbeam et al., 2018).

Agricultural extension in Indonesia has taken place since the early days of Dutch colonialism and continued through the Japanese occupation and early independence to the current day. Experience shows that agricultural extension in Indonesia through the *Bimas* (Mass Guidance) program led to the nation achieving rice self-sufficiency in 1984. Although it was usually carried out through close coordination between relevant agencies, it still took a modified top-down approach (Aristya & Taryono, 2019). In this way, the implementation of agricultural extension during the *Bimas* period became very integrated (Vintarno et al., 2019). While this intervention became popular in the fields of vocational education and out-of-school training, not many scientific studies have tried to provide a scientific basis for the effectiveness of its use.

The literature mentions that mentoring programs focus on the teachers of agricultural education (Toombs & Ramsey, 2020). In Indonesia, meanwhile, the community-empowerment programs in the agricultural sector take a mentoring approach aimed primarily at relatively small rural farmers

and smallholders (Akay et al., 2021). Almost every program launched by the Ministry of Agriculture has employed a mentoring approach, but they have never been truly successful at improving the welfare of farmers (Anwarudin & Dayat, 2019; Haryono et al., 2021; Rusliyadi et al., 2018). This is especially true of the organic agriculture sector, because the world market for organic agricultural products has reached 20% of all production. Indeed, some 75.5 million hectares of land is suitable for organic farming in Indonesia, but only about 25.7 million hectares is cultivated organically. In addition, consumers of organic products often have to buy products imported from abroad due to low productivity in their own country (Mayrowani, 2016; David & Ardiansyah, 2017; Purwantini & Sunarsih, 2020). In Asia, the market for organic agricultural products is dominated by the far-eastern countries, such as China, Japan, and Korea (Paull, 2011). Recent studies suggest that there is currently a large number of findings from ineffective and misleading experiments. Agricultural education models that may be successful in some contexts have been rejected based on low effectiveness scores, while others that are indicated as being effective may be unproductive in unfavorable circumstances (Thomas, 2021). This study considers a model that focuses on agricultural education through *among*-based mentoring and its effectiveness at improving agricultural competencies, specifically for rice seed development and the quality of organic rice production, at SMK Agriculture Yogyakarta, as well as the related social impact. Originated from Javanese, *among* means individual supervision, assistance and teaching guides that puts more emphases on cultural supervision.

The mentoring model in this study was developed based on every aspect in the implementation of counseling, namely learning methods, objects, problems, places, evaluations, and so on. The subject for the implementation of mentoring, and the object of this research, is organic rice farming, so two things are explained in this study, namely organic farming systems and organic rice cultivation. Some rationale for choosing the topic of organic rice farming is described here: First, organic agriculture, as part of environmentally friendly agriculture, needs to be urgently promoted to correct the increasing negative impacts on the environment that occur as a result of intensive farming and agricultural chemicals. Second, there is an increasing number of consumers wanting clean and healthy food products, and the spread of the “green” consumer movement has provided the impetus for growth in the organic farming movement. The *among*-based mentoring model was developed in order to address the problems of existing extension strategies. Many agricultural extension methods have been proposed, but extension methods that are oriented

toward empowering students at vocational high schools and their social impacts have not been considered in many studies. Existing extension methods are generally limited to farmers as the producers and have not considered students in educational institutions who may actually play a role in improving the agricultural sector in future.

Research Question

Based on the problem described above, the main research questions of this study are defined as follows:

1) What agricultural competencies of the students of SMK Pertanian Yogyakarta can be improved through the application of among-based model?
2) What social impacts are revealed through among-based model improve the social impacts of the students of SMK Pertanian Yogyakarta in the agriculture?

Literature Review

Agricultural Education Model: Among-Based Mentoring

A model is a pattern used to describe a process clearly, and it comprises a structure, components, content for those components, steps to apply, and specifications (Button & Walsh, 2018). Mentoring, meanwhile, takes place by connecting farmers with extension workers. Meanwhile, the term "among-based" refers to an educational process based on Ki Hadjar Dewantara's educational thought, known as *Panggulowenthah*, and in this case, it seeks to educate farmers to be thoughtful and independent, so they can find knowledge on their own and apply it to fulfill their physical and spiritual needs (Haryati, 2019).

According to Noventari (2020), the *among*-based system has two principles, namely respecting the natural nature of children and basing independence on kinship in the social environment. The *among* system of independent education physically and mentally educates students by positioning them as both objects and subjects. Students are given broad freedom, because they are responsible in the teaching and learning process for becoming people who can think and act decently (Patimo & Lucero, 2021).

Agricultural education through mentoring basically teaches life skills, and it tries to engage the community in developing potential, so they can achieve a better quality of life (Dailey et al., 2001). Mentoring programs are highlighted as institutional interventions that can complement government efforts within a framework without requiring complicated legal processes and

contracts. Assistance is provided to facilitate the decision-making processes of various activities related to agriculture, thus helping to build the capacity to increase incomes, become large-scale businesses, and plan and implement activities (Olubode-Awosola & Van Schalkwyk, 2006).

The determinants of success are classified into nine factors: goals, problems, place, personnel, placement, programs, processes that occur, practicality, and post-event engagement. Each factor has a principle of success that guides its application (Adamsone-Fiskovica et al., 2021). The success of mentoring is determined by the existing status of the student and the qualifications of the instructor. The status of students may differ in terms of their experience in farming practices, work ethics, speed of adoption, ability to interact with their social environment, and courage to make decisions. The qualifications of the instructor, meanwhile, include his or her ability to communicate and facilitate the coaching, attitudes, and sociocultural characteristics. Factors that need to be considered in among-based mentoring include the interaction between the facilitator and the instructor, and it must focus on the problems of the students (Ariani & Apsari, 2020).

Agricultural Extension as an Educational Process

In general, the aim of agricultural extension is to enable farmers to use the knowledge, skills, and information they have acquired to improve their quality of life. The term extension refers to a process of disseminating information related to modern, scientific farming methods in order to achieve increased agricultural productivity, which in turn raises farmers' incomes and improves family/community welfare (Anderson & Gershon, 2007).

The literature shows that various considerations encourage policy makers to invest in agricultural extension. One is a form of public responsibility combined with the possible efficiency gains that derive from a locally decentralized delivery system. There are nine extension principles and consequences in this paradigm, namely (1) information services for everything related to farming, (2) locality, (3) an agribusiness orientation, (4) interaction between farmers, (5) a focus on the interests of farmers, (6) a humanistic-egalitarian approach, (7) a professional implementation, (8) accountability, and (9) a satisfactory outcome (Anderson & Feder, 2004).

Extension is a form of adult education, so (a) the educational methods are more lateral in nature to complement farmers' various experiences, as opposed to conventional education that is more vertical or teacher/ceremonial; (b) its success is not determined by the amount of material delivered but rather by the level of dialogue created between educators and learners; and (c) the main targets are adults, both in the biological and psychological sense (Rogers, 1993).

The literature also mentions that agricultural extension is field-oriented in that it focuses on transferring information and technology, often by both formal and non-formal education providers. It is also stated that reforming agricultural extension can be done through structural, financial, and managerial decentralization strategies, as well as through market-oriented government policies (Rivera, 1998).

Looking at Figure 1, it can be seen that agricultural extension is actually a process of behavioral change through education, one that is motivated by (a) knowledge and understanding of methods that can be beneficial for the farmer, his or her family, and wider society; (b) a desire to make the change without coercion from any party; and (c) the ability to provide the resources (inputs) needed for that change to occur. An agricultural extension is therefore often interpreted as a form of education for people engaged in farming, so they can be aware of, and willing and able to independently carry out, changes that can increase their production and subsequently their incomes, as well as improving the welfare of their families and communities (Rivera, 1998; Anderson & Feder, 2004). Regarding extension as an educational process, Van den Ban (1998) explains that the purpose of agricultural extension is to educate farmers with the agricultural knowledge and skills needed to sustain life and achieve prosperity.

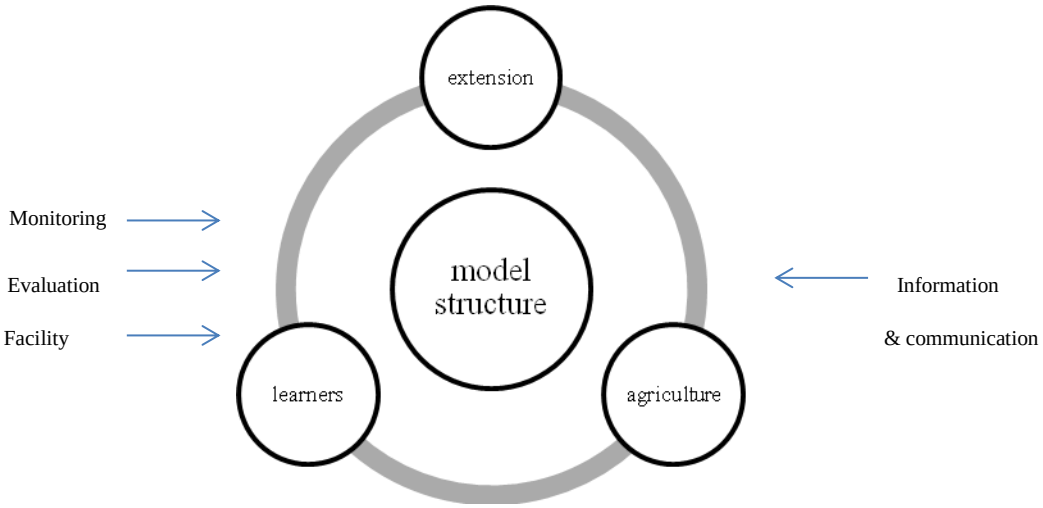

Figure 1. *Agricultural Extension Model Structure*

Methods

Research Design

This research follows a qualitative research design (Creswell, 2014). The study focused on competencies of developing competencies on agriculture supervision and their acceptance to accept the model of supervision among secondary school students. The development model is that of a theoretical model, where the framework of thought is based on relevant theories and supported by empirical data. Agricultural extension is the subject for this research, specifically for organic rice farming. Data of this study were analyzed using qualitative approach adapted from Miles, Huberman & Saldana (2014), that follow three-stage of analysis, namely data reduction, data presentation, and conclusion drawing/verification (Sugiyono, 2009).

Participants

Some 35 people participated in this study, including 30 students (20 males and 10 females aged 16–18 years) and five instructors (four males and one female). The criterion for the student participants was that they were enrolled on SMK Yogyakarta class XI and XII, while the instructors needed to be extension workers with more than two years of experience teaching organic rice production.

Instrument

This study developed a research instrument in the form of two checklist questionnaires, namely 1) a questionnaire for extension workers and 2) a closed questionnaire for participants, which in this case functioned as an interview guide. Observations were quantified using a rating scale, such that the raw data were obtained in the form of numbers and then interpreted in a narrative manner. The available responses were happy or not happy, agree or disagree, and ever or never. The rating scale was flexible, so it was not limited to measuring attitudes alone but also the respondents' perceptions of phenomena like social life, institutions, knowledge, abilities, and activity processes. It is important that an instrument with a rating scale must be able to interpret each number assigned to the various answers on each instrument item. The possible answers for the instrument were 4, 3, 2, and 1, where 4 means very good, 3 means good, 2 means not good, and number 1 means not good at all.

Table 1.
Research Instrument Grid

Sub-theme	Variable	Indicator	Item number
Quality of students	Farming Experience	Farming experience and problem-solving skills	1,2,3,4
	Work ethic	Sincerity, determination, and enthusiasm for work	5,6,7
	Adoption speed	Adopting speed	8a,b,c
	Interaction	Familiarity, togetherness, and openness	9,10,11,12
	Courage in making decisions	Courage to take action	13,14,15,16
Extension quality	Communication	Ability to develop solutions, choose methods, explain the material, and use assistive devices	17,18,19,20
	Facility	Ability to develop solutions and act as a bridge	21,22,23,24
	Attitude	Readiness to solve problems, take pride in the profession, appreciate the task, and tackle problems quickly	25,26,27,28
	Social characteristics	Sociability, adaptability, and immersion in social values	29,30,31
	Competence	Retention of material; ability to train; the ability to convince the material; and the ability to dynamic students	32,33,34,35
	Commitment	Provide time to serve and help	37,38,39
Student empowerment	Independence	Independence from other parties and direction	40, 41
	Knowledge	Understanding of technology and the ability to explain to others and demonstrate the value of technology	42,43,44,45
	Attitude	Ability to accept and apply technology	46,47,48

Validity and reliability tests were carried out for the questionnaire but not for the checklists. The questionnaire comprised 48 questions. The test results yielded KMO and Barlet numbers of 0.755 and 857.068 with a probability of 0.000, indicating that all the questions were suitable for further analysis. Instrument reliability was measured using the Cronbach's alpha, with the minimum alpha required being 0.70. Based on measuring the reliability of the data for the items, the instrument had an alpha coefficient above 0.70, so all the items were considered valid and reliable.

Data-Collection Technique

Data collection was achieved through questionnaires, field observations, and a literature study. Participants were fully guided by data collectors in how to fill out the questionnaire. For the extension workers, questionnaires were used to collect data about their abilities, which were then used for model validation analysis. The questionnaires for students were used to collect data about their abilities and level of empowerment, which were also used for model validation analysis and

model effectiveness analysis. The literature study focused on three themes, namely an agricultural education model with *among*-based mentoring, agricultural extension, and social dynamics.

The *among*-based mentoring structure that was developed comprises three components, namely (1) the extension workers, (2) the vocational school students, and (3) agriculture. Time series analysis was conducted to measure changes in participant behavior when conducting organic rice farming practices. After being given instruction in the form of among-based mentoring, participants were observed for 8-10 times. To analyze the instructors' response to the developed model, data were collected randomly from the five extension workers who participated in the experiment.

The activities carried out by the extension workers while mentoring included (a) communicating information about the object of the extension. The material was still general, and the recipients of the information were also general farmers. The extension workers also carried out (b) monitoring activities, (c) facilitation, and (d) evaluation. Monitoring observed the behavior of the students, while facilitation helped support problem-solving. Evaluation was carried out by extension workers to observe the ability of students to solve problems. All information and communication was related to organic rice farming. The third component was the students as the target of counseling. In the among-based mentoring, not all farmers received facilitation, and it was focused on those farmers who faced problems. Students interacted directly with the object of counseling. The evaluation used for the mentoring was a process evaluation that was carried out in conjunction with the extension process, something that is called an authentic evaluation. Researchers used recording devices and notes to make it easier to collect the necessary information.

Data-Analysis Technique

Two data analysis processes were used in this study asserting a descriptive statistics to find the mean score and qualitative analysis adapting Miles, Huberman & Saldana (2014) and Moleong (2013) and Creswell (2014). Data to answer the first research questions that sought to answer the central tendency was analyzed using mean score. Data to answer the second research question were analyzed using a qualitative approach referring to Miles, Huberman & Saldana (2014) and Moleong (2013). The data-analysis technique used was based on the theory of Moleong (2013), which comprises three stages. First, the data were reduced by simplifying and selecting relevant data to obtain information about the agricultural education model with among-based mentoring to

improve agricultural extension competencies, namely developing rice seeds and improving the quality of organic rice production, at the Yogyakarta Agricultural Vocational School, as well as the related social impact. This process made it easier to draw conclusions. Second, the data were presented by systematically compiling them in the form of narrative texts, data tables, and images. By presenting the data like this, it was organized into a relationship pattern that was easier to understand. The third stage involved drawing conclusions and verifying them according to the purpose of the analysis. The data that had been reduced and presented was also verified so that it could be regarded as precise and objective.

Results

Agriculture Competencies

The findings about the model of agricultural education with *among*-based mentoring for improving agricultural extension competencies, namely developing rice seeds and improving the quality of organic rice production, at the Yogyakarta Agricultural Vocational School are divided over five categories.

First is the ability to make fertilizer and fertilize crops. The existing ability of students to make such fertilizer was initially observed at scores of 2, 3, and 4 in the moderate category. This saw a drastic increase in the fourth observation, after about four weeks. In the fourth week, the activities carried out by the students resulted in fertilizer that had been processed and the making of more fertilizer for the next stage, so the activity of making organic fertilizer was repeated. When the observation was made, the students had begun to become more skilled in making fertilizer. By the seventh and eighth observations, however, there was a slight decrease in the ability of the students, possibly due to other activities like pest control taking precedence. However, this decrease was only 0.10, so it barely diminished the increase of 1.54 that had been achieved. At the ninth observation, the ability of the students had increased to 3.7, putting it in the relatively high category. In addition, technology had made the production of organic fertilizers easier by adding probiotic microbes. In general, the ability to conduct organic fertilization was not different from conventional agricultural fertilization, so the average score increase was 2.90.

Second was the ability to make organic pesticides and control pests that can affect organic rice plants. A drastic increase was seen at the eighth observation, when the rice was around 60–80 days old. At this point, organic rice can be vulnerable to pests and diseases, so the students needed to

make pesticides. There appeared to be an increase in the ability of the students to make pesticides, from the initial score of 2.0 in the medium category to a final score of 3.8. There are differences for controlling plant-damaging organisms in organic and conventional farming systems in terms of the methods used. While conventional farming controls pests curatively using chemical substances, it is carried out preventively in organic farming by using liquid fertilizers and organic pesticides.

Third was the ability for seeding. The initial score was 0.9 in the low category, but the final score at the eighth observation was 3.8 in the high category. The most drastic increase occurred at the sixth observation, when it rose from 2.0 to 3.8. In other words, the students acquired a very good capability for seeding.

The fourth category concerned independence, attitude, and creativity. Student independence was the only aspect that only saw a very small increase, and it remained relatively constant. For example, recommendations for the use of urea fertilizer, chemical pesticides, and high-quality were still being given. The attitude of students toward organic rice farming increased from an initial score of 1.43 to a final score at the eighth observation of 3.65. The most drastic increase was seen in the sixth week when students began to gain confidence in this "new" system of organic farming. The students' creativity also increased by 1.32 to a score of 3.05. Creativity manifested when the students made their organic fertilizers. There was an effort to make fertilizer from EM4 material by using kitchen shrimp paste and rotten soybean *tempeh*. Indeed, several students did not exactly follow the directions of the instructor when making fertilizer. The habit of students in going to kiosks that provide production materials, such as urea fertilizer and NPK, was now starting to bring leaf waste to agricultural land.

The point that supported the change in the attitudes and creativity of students was the fertility of organic rice without pests. At the same time, the extension workers began to invite students to analyze their farming businesses, even though it was just at the stage of analyzing the cost of procurement. It was found that the cost was lower for the organic system than the conventional system. There was therefore a degree of pride in the students making materials themselves, which in turn motivated them to become producers of organic fertilizers, rice, and pesticides.

The fifth category concerned the overall ability to pursue organic rice farming as a business, and this tended to increase. If mentoring were to continue without influence from policies that do not support organic systems, it is likely that the students' abilities would continue to increase. In turn,

they may also one day become farmers empowered with their own abilities without needing to be guided. Based on the five components that were observed, the category is relatively high, and the magnitude of this increase means that the extension workers applying the among-based mentoring model helped improve the agricultural extension competencies of students, namely to develop rice seeds and improve the quality of organic rice production. A clarification of the processes and dynamics that took place is presented in
Table 2 below.

Table 2.
The Among-Based Agricultural Mentoring Process and Dynamics

Stage	Process	Dynamics	Results	Information
Introduction	Individual approach	Interaction of students' thoughts with extension workers	Establish an intimate relationship between students and extension workers	
Identify farmers' expectations by doing motivation	Individual approach: discussion, opinion sharing	Students have the courage to express their hopes, especially for organic rice farming	There is motivation in students	
Information on the objective of organic rice mentoring	Individual approach through interactive dialogue	Increased interaction: The students are emboldened to express problems and opinions. Students tell other students about the instructor's visit and everything that happened in between.	The emergence of a desire to learn about organic rice farming	
Identify farmer problems	Group approach through participatory discussion	Interaction between students begins to emerge	There is a desire in students because the problem has been revealed. There are feelings and thoughts that the extension is not for the benefit of the instructor but for the benefit of the students.	Farmers are helped to solve their own problems
Develop a practical activity plan	Group approach	Student interaction increases. There seems to be a more open relationship between students and their instructors.	Students' sense of responsibility begins to emerge.	
Internalization of material that has been practiced. Identification of other problems and technology diffusion.	Group, individual, discussion and interactive dialogue	The instructor's relationship with students is increasingly open, such that students dare to express their opinions	Satisfaction and a desire to try other practices independently.	Monitoring and evaluation has been carried out.

Social Impacts

Data for the students' acceptance of extension services is divided over three aspects, namely 1) interpersonal relationships, 2) assistance for solving problems, and 3) building togetherness. First, the attitudes of students toward mentoring services and building interpersonal relationships were as follows: Some 85.6% of students were satisfied, 14.4% were neutral, and none were dissatisfied. Second, regarding their feelings about the services provided by the extension workers when solving problems, 65.7% were satisfied, 35.3% were neutral, and again none were dissatisfied. Third, for their feelings about the service's role in building togetherness, 62% were satisfied, 30% were neutral, and 8% were dissatisfied. Based on the above findings, it seems that in general, students do not face any great difficulties in adopting organic farming techniques. Most abilities needed to carry out organic rice farming increased, with the independence aspect being the only exception. In this case, changing the mentality of students in terms of their independence and creativity is actually more difficult than increasing their cultivation skills. In theory, the success of students in the agribusiness sector may depend more on their mental development rather than their cultivation skills.

Discussion

Agriculture Competencies

The findings suggest that the model of agricultural education with among-based mentoring at the Vocational School of Agriculture in Yogyakarta can be rated as "good" or "acceptable" based on the perceptions of participants. Some 65% of participants said it was easier to develop rice seeds and increase organic rice production after being given assistance and mentoring. However, 34% of participants said it was still difficult. Evaluating the extension, 80% of the extension workers said it was easier to implement the *among*-based mentoring model compared to the conventional model. Previous studies have come to the opposite conclusion by stating that there are currently a large number of findings from experiments that experience continuous failure in educational investigations. Indeed, models that may be successful in some circumstances may be rejected based on low effectiveness scores in other circumstances, while others that are recommended may prove to be unproductive due to unfavorable circumstances (Thomas, 2021). This study found that

the agricultural education model achieves a fairly high increase in scores and brings more benefit than conventional methods.

Of the four criteria being observed, only the independence aspect remained relatively unchanged. When examined more deeply, it can be seen how this factor is influenced by the environment and school policies that do not encourage the independence of students, such as advocating the use of urea fertilizer and chemical pesticides, as well as providing high-quality seeds. If this is not suitably addressed by the school and the government, students will still be inclined toward conventional farming systems. A culture of thinking and acting instantly needs to be instilled in students.

Social Impacts

The social impact resulting from visits to educational institutions is a key step in appealing to students. This visit can improve the relationship between students and their extension workers. Students then begin to gain the ability and courage to convey various concerns, and this open communication encourages stronger social behavior. With the strengthening of these social relationships, the extension workers can identify the expectations of students and make it easier for them to communicate knowledge about rice seed development and organic rice production. The literature explains that the *among*-based mentoring system in agricultural education has two principles, namely respecting the nature of students and having a sense of togetherness in the social environment (Noventari, 2020). The latter principle is the main reason for the emergence of social relationships in these activities. Students are not individuals who surrender to poverty and suffering, like in the Javanese term "*nrimo ing pandum.*" They are people with the courage to continuously face challenges and develop their potential to become creative, self-reliant people. They can then improve their productivity and contribute to improving the welfare of their families and communities in future.

Thus, it is hoped that such students will not only become creative young farmers—they will also become successful entrepreneurs of organic farming agribusinesses. Previous studies have shown that agricultural education can provide knowledge about how to protect agribusinesses from dangers, such as production risks (e.g., production inputs, technology, climate, and pests), marketing risks (e.g., post-harvest processing, sales, and market prices), financial risks (e.g.,

availability of credit and interest), and risks related to human resources and health (Ayu, Iskandarini, & Fatoni, 2021).

The *among*-based mentoring model was developed in six stages for improving agricultural competencies, specifically the development of rice seeds and organic rice production at the Yogyakarta Agricultural Vocational School.

First, the purpose of mentoring is to strengthen and empower students, so they can make a business from developing rice seeds and high-quality organic rice production and creatively deal with the challenges they face. The indicator of success for this is the increase in knowledge and skills and better attitudes toward technology. The study of the literature found that efforts to improve farming and farming methods help achieve increased productivity and incomes and improve family/community welfare (Anderson & Gershon, 2007). In addition, students gain independence for managing farming in the future.

Second, the basic principle of mentoring is egalitarianism in that the relationship between students and extension workers is a partnership. In this case, each factor has a principle from providing guidance for its application (Adamsone-Fiskovica et al., 2021). The main principle in the *among*-based mentoring model is making the best use of the client's resources by respecting his or her nature. The implementation of the among-based mentoring pays close attention to the diversity in students' characters. Third, facilitation is a key factor in the success of the extension. As has been explained in previous studies, a factor that needs to be considered in among-based mentoring is the interaction between the facilitator and the instructor, and mentoring must focus on the students' problems (Ariani & Apsari, 2020). In this case, the extension worker must understand his duties, act as a true companion, and have the right qualifications.

The approach of *among*-based mentoring includes a combination of (a) an individual approach and (b) a group approach. The individual approach is used in order to (1) establish closer personal relationships; (2) understand the character of each student, so explanations can be adapted accordingly; (3) identify the socioeconomic backgrounds of the students; and (4) build up the confidence of students. The individual approach takes the form of direct contact between the instructor and the students with the aim of (5) motivating the students to
engage in new techniques and (6) giving more in-depth explanations.

In addition to the individual approach, education through *among*-based mentoring also applies a group approach. This was chosen because (1) it can foster a sense of unity and oneness among the

students; (2) it helps develop objectivity toward existing ideas; (3) it can identify community leaders who can then be invited to work together; (4) students can exchange beneficial ideas, opinions, and experiences; and (5) there is more efficient use of tools, financing, and time. In practice, education with among-based mentoring begins with the individual approach to establish closer relationships, identify individual characters and socioeconomic conditions, and build trust.

Third, at the second and later meetings, a group approach is employed. Groups are formed by students receiving mentoring not just from the instructors. This is intended to build the psychological dynamics between them and develop a sense of cohesiveness. Groups formed by extension workers will experience different results as they are naturally occurring groups initiated by the community itself. However, groups born from community initiatives tend to be more secure.

Fourth, education with the *among*-based mentoring system is implemented based on the local philosophical wisdom that is typical of Yogyakarta, which has a family spirit and a nature of independence. This helps achieve progress quickly. Indeed, independence is a precondition for developing the inner and outer strength of students, so they can build strong personalities and think and act independently. According to this system, every civil servant in the educational process carries out "*Tutwuri Handayani, Ing Madya Mangun Karsa, Ing Ngarso Sung Tuladha*" (Haryati, 2019).

The *among*-based system of education positions students as both objects and subjects. They are given broad freedom and responsibility in the teaching and learning process. For example, the mentor gives independence to the student, thus liberating that student's personality. With an attitude of civil service, students learn to activate and mobilize themselves, either working alone or in collaboration with peers. *Tutwuri handayani* as an educational paradigm serves to raise the spirit of independence (Noventari, 2020), and it fosters personal ideals that are firm and tough. Education through among-based mentoring in this study raised the philosophy of Semar, a figure from Javanese mythology.

According to Soetarno (1989), Semar symbolizes a human characterization who thinks and has broad views (the Javanese call it *Temuwo*). In his leadership, Semar does not like things that contradict the truth and have an angry nature. Semar is patient, loving, and never sad. He is always humble about his upbringing, but when he associates with the Gods, he is equal. Semar always leads to peace and prosperity. Semar also always controls his younger siblings, and if one makes a mistake or deviates from his duties, Semar immediately corrects him (Siswanto, 2019).

The principles of honing, loving, and nurturing that were developed by Ki Hadjar Dewantara will undoubtedly be useful in dealing with the global challenges and the fluctuating simplification of the educational praxis (practice and reflection). The three pillars become a liberating and pedagogical policy reference for developing students who learn to know, learn to do, and learn to live together. The three pillars in Javanese are known as "Understanding, Feeling, and Doing." The basic needs of the students (i.e., farmers) for growth and development are divided into three, namely nurturing, loving, and fostering. Nurturing meets the need for mental stimulation to develop psychosocially in areas like intelligence, creativity, faith, personality, ethics, productivity, and so on. Loving meets the need for affection. A close, intimate, and harmonious relationship is an absolute necessity for ensuring harmonious growth and development, both physically and mentally. Fostering is about talking responsibly (Haryati, 2019). Thus, it is clear that the developed among-based mentoring model for an agricultural extension approach helps address some of the problems in Indonesia.

Fifth, the *among*-based mentoring model increases the adaptability of students as a rural community. This means that students are able to form rural communities of people who may potentially become independent farmers and commit to the world of agriculture. They will also maintain social conditions and a sense of togetherness with other farmers.

Sixth, the evaluation of this extension process is very different to that for conventional extension interventions. Evaluation is performed separately from the learning process and requires dedicated time. *Among*-based mentoring avoids many of the things mentioned above. This is so that the students being mentored always feel comfortable, and a conducive situation is always maintained. Evaluation is generally regarded to be psychologically worrying for the party being evaluated, but this is avoided with the *among*-based mentoring model.

The implementation of agricultural extensions several years ago, now, and in the future is briefly described in Table 3.

Table 3.

Development of the Extension in Indonesia

Component	State of extension	Counseling with	The accompaniment
	A few years	Approach	will be developed
	Then	Current Assistance	Focus on farmers/students
Program	Extension worker-centered	Now	Extension materials are real problems/cases faced by teachers

Material	Material completely planned from	Not fully focused on farmers/students	Based on students' conditions (characteristics, abilities, and facilities owned by students)
	Counseling agency	Suggested counseling materials from students	Increasing independence, creativity, knowledge, attitudes and skills
Method/technique	Based on what the instructor has mastered	Based on the material being taught	Flexible, adjusting to the situation
Indicator	Increased knowledge and skills	Knowledge, skills, attitudes of learners	The instructor as a companion results directly from the students' efforts
Success	Learners	In the field/agricultural land	Very attentive to the background, character, and state of the farmer
counseling	Closed class	Students go to extension workers at extension offices	Each object can be used as a learning medium
	The instructor comes to the students, and there is still coercion	Lack of attention to the background, character, and circumstances of students	Interactive
The place	Does not pay attention to the background, character, and condition of students	Personal, print, electronic	Fulfillment of satisfaction
Service system	No media (face to face)	Two-way communication	Process

Based on Table 3, it can be understood that the *among*-based mentoring model developed for agricultural extension is able to overcome the existing problems in the field of agricultural extension. This method should therefore increase the empowerment of students.

This study has several limitations, however: (1) Empirical data to validate the model design is still limited, because the mentoring given to students in vocational high schools is conducted by several NGOs (non-governmental organizations), while the government department responsible for developing farmers as human resources has not provided assistance so far. The data used as the basis for developing the mentoring model is therefore very limited. Furthermore, trials of the model in the field remain very limited in terms of the number of students and geography. In addition, the limited number of students is also a result of the limited number of instructors that helped to carry out the experiment. Although the trial was limited to a vocational high school, it is assumed that the developed model could be effectively applied to a wider audience in addition to the agricultural sector.

Conclusion

This study has investigated an agricultural education model using *among*-based mentoring in order to improve agricultural competencies, specifically the development of rice seeds and high-quality

organic rice production, at an agricultural vocational school in Yogyakarta, as well as the related social impact. The study's results indicate that the model can be classed as "good" or "acceptable." It was found that the agricultural education model with *among*-based mentoring has a social impact in terms of building an intimate relationship between the students and the instructors. When stronger social relationships are formed, it is easier for extension instructors to communicate knowledge about rice seed development and high-quality organic rice production. The agricultural extension methods used previously have not succeeded in significantly empowering farmers. Only a few aspects have been improved for farmers, generally limited to technical improvements in cultivation skills, and the comprehensive capabilities of farmers have never been optimally developed. With the among-based mentoring model, though, the student's overall ability to practice organic rice farming is expected to increase, thus empowering them to start agribusinesses. Thus, the future the organic farming sector can be bolstered through agricultural education, and this in turn may contribute to economic development at the national level.

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