

Implementation of Role Playing's Learning Model on the Agribusiness' Entrepreneurship Course Using Brainwave Technology

Budi Dharmawan^{1,*}, Anisur Rosyad, Alpha Nadeira Mandamdari, Lutfi Zulkifli,
Sunendar, Lusia Maryani Silitonga



Part of **SPRINGER NATURE**

[PROCEEDINGS](#) | [JOURNALS](#) | [BOOKS](#)

Search

Series: [Advances in Economics, Business and Management Research](#)

Proceedings of 1st International Conference on Sustainable Agricultural Socio-economics, Agribusiness, and Rural Development (ICSASARD 2021)

PROCEEDINGS OF 1ST INTERNATIONAL CONFERENCE ON SUSTAINABLE AGRICULTURAL SOCIO-ECONOMICS, AGRIBUSINESS, AND RURAL DEVELOPMENT (ICSASARD 2021)

<

>

Implementation of Role Playing's Learning Model on the Agribusiness' Entrepreneurship Course Using Brainwave Technology

Authors

Budi Dharmawan^{1, *}, Anisur Rosyad¹, Alpha Nadeira Mandamdari¹, Lutfi Zulkifli¹, Sunendar¹, Lusiana Maryani Silitonga²

¹ Department of Agricultural Economics and Social Sciences, Universitas Jenderal Soedirman, Jl. Dr. Suparno, P.O. Box 125, 53123, Purwokerto, Central Java, Indonesia

² Graduate School of Technological and Vocational Education, National Yunlin University of Science and Technology, Section 3, Douliu City, Yunlin County, 64002, Taiwan

* Corresponding author. Email: budi.dharmawan@unsoed.ac.id

Corresponding Author

Budi Dharmawan

Available Online 15 December 2021.

DOI

[10.2991/aebmr.k.211214.029](https://doi.org/10.2991/aebmr.k.211214.029) [How to use a DOI?](#)

Keywords

entrepreneurs; agribusiness; brainwave; student achievement

Abstract

Before learning occurs, the lecturer must do strategic planning and hopes that learning will achieve optimum goals by designing a role-playing approach based on SWOT analysis to build optimal learning achievement. This experimental study uses SWOT analysis with the role-playing paradigm of learning on the agribusiness' entrepreneurship course. The role-playing model phases include the group being inspired by the lecturer, choosing roles, planning observers, preparing role levels, playing, discussing and evaluating, re-playing, exploring and evaluating II, exchanging experiences, and drawing generalizations. The research objective was to determine 1) the effect of student activity and process skills on learning achievement, and 2) differences in student achievement to get a role in agribusiness' entrepreneurship learning model based on SWOT analysis with conventional learning. The findings of this study are the application of SWOT analysis to obtain (1) student activity and process skills on learning achievement, and (2) student activity and process skills in learning through role-playing learning models. Based on SWOT analysis, the agribusiness' entrepreneurship courses can jointly affect student achievement. Research objectives using a role-playing model based on SWOT analysis in agribusiness entrepreneurship courses are achieved optimally.

Copyright

© 2021 The Authors. Published by Atlantis Press International B.V.

Open Access

This is an open access article under the CC BY-NC license.

[+ Download article \(PDF\)](#)

**Volume Title**

Proceedings of 1st International Conference on Sustainable Agricultural Socio-economics, Agribusiness, and Rural Development (ICSASARD 2021)

Series

Advances in Economics, Business and Management Research

Publication Date

15 December 2021

ISBN

10.2991/aebmr.k.211214.029

ISSN

2352-5428

DOI

10.2991/aebmr.k.211214.029 [How to use a DOI?](#)

Copyright

© 2021 The Authors. Published by Atlantis Press International B.V.

Open Access

This is an open access article under the CC BY-NC license.

Cite this article

ris

enw

bib

TY - CONF
AU - Budi Dharmawan
AU - Anisur Rosyad
AU - Alpha Nadeira Mandamdari
AU - Lutfi Zulkifli
AU - Sunendar
AU - Lusya Maryani Silitonga
PY - 2021
DA - 2021/12/15
TI - Implementation of Role Playing's Learning Model on the
Agribusiness' Entrepreneurship Course Using Brainwave Technology
BT - Proceedings of 1st International Conference on Sustainable
Agricultural Socio-economics, Agribusiness, and Rural Development
(ICSASARD 2021)

PB - Atlantis Press
SP - 210
EP - 216
SN - 2352-5428
UR - <https://doi.org/10.2991/aebmr.k.211214.029>
DO - 10.2991/aebmr.k.211214.029
ID - Dharmawan2021
ER -

COPY TO CLIPBOARD

Atlantis Press

Atlantis Press – now part of Springer Nature – is a professional publisher of scientific, technical & medical (STM) proceedings, journals and books. We offer world-class services, fast turnaround times and personalised communication. The proceedings and journals on our platform are Open Access and generate millions of downloads every month.

For more information, please contact us at: contact@atlantis-press.com

- ▶ PROCEEDINGS
- ▶ JOURNALS
- ▶ BOOKS
- ▶ POLICIES
- ▶ MANAGE COOKIES/DO NOT SELL MY INFO
- ▶ ABOUT
- ▶ NEWS
- ▶ CONTACT
- ▶ SEARCH

[Home](#) [Privacy Policy](#) [Terms of use](#)



Copyright © 2006-2023 Atlantis Press – now part of Springer Nature

Part of **SPRINGER NATURE**

[PROCEEDINGS](#) | [JOURNALS](#) | [BOOKS](#)

Search

Advances in Economics, Business and Management Research

PUBLISHING INFO

Publishing Information

ISSN

The online ISSN of *Advances in Economics, Business and Management Research* is **2352-5428**.

Series Editors

- > *Editor* : **Andrea Appolloni**, University of Rome Tor Vergata, Rome, Italy
- > *Editor* : **Francesco Caracciolo**, University of Naples Federico II, Naples, Italy
- > *Editor* : **Zhuoqi Ding**, Shenzhen Technology University, Shenzhen, China
- > *Editor* : **Periklis Gogas**, Democritus University of Thrace, Komotini, Greece
- > *Editor* : **Gordon Huang**, Beijing Normal University, Beijing, China
- > *Editor* : **Gilbert Nartea**, University of Canterbury, Christchurch, New Zealand
- > *Editor* : **Thanh Ngo**, Massey University, Palmerston North, New Zealand
- > *Editor* : **Wadim Strielkowski**, Centre for Energy Studies, Prague Business School, Prague, Czech Republic

Indexation

All articles published in proceedings in this series are submitted for indexation in **CPCI** (part of Clarivate's **Web of Science**), **CNKI**, **Wanfang Data** and **Google Scholar**. Where applicable, they are also submitted to **Ei Compendex** and **Scopus**. For any information about the indexation of a

particular proceedings in this series, you are requested to contact the conference organizers (see individual proceedings pages for details) as we are not able to respond to messages received directly from participants.

Open Access & Publication Fees

Advances in Economics, Business and Management Research is an **open access** proceedings series, meaning that all articles are immediately and permanently free to read, download, copy & distribute under the terms of the applicable end-user license (refer to the **Copyright & End-User License** section on this page for further details). The online publication of each proceedings is sponsored by the conference organizers and hence **no additional publication fees** are required.

Copyright & End-User License

The copyright of all articles published in this series remains with **the Authors**, i.e. Authors retain full ownership of their article. Permitted third-party reuse of the open access articles is defined by the applicable **Creative Commons (CC)** end-user license which is accepted by the Authors upon submission of their paper. All articles in *Advances in Economics, Business and Management Research* are published under the **CC BY-NC 4.0** license, meaning that end users can freely **share** an article (i.e. copy and redistribute the material in any medium or format) and **adapt** it (i.e. remix, transform and build upon the material) on the condition that proper **attribution** is given (i.e. appropriate credit, a link to the applicable license and an indication if any changes were made; all in such a way that does not suggest that the licensor endorses the user or the use) and the material is only used for **non-commercial** purposes. For more information, please refer to the **OA licensing and copyright** section in the Springer Nature **Open Access Policies for books**.

Peer Review

All proposals for proceedings to be published in this series are first evaluated by a **Series Editor(s)** and/or a **scientific evaluation committee** consisting of senior researchers in the relevant field. If accepted, the peer review process for the individual articles within each proceedings is under the responsibility of the **conference organizers** and the **Guest Editors** of each volume, who are committed to conducting the peer review in line with **international scientific**

standards. The **Series Editor(s)** subsequently also perform(s) a final check the scientific quality of the accepted papers before the articles are released for publication. For more information, please refer to the individual proceedings page and/or the conference website.

Code of Ethics & Malpractice Statement

Atlantis Press adheres to the ethical frameworks and guidelines of the **Committee on Publication Ethics** (COPE), including the **COPE Core Practices** and the **Principles of Transparency and Best Practice in Scholarly Publishing**. All ethical and misconduct cases for this series are handled according to these guidelines. For proceedings in particular, Atlantis Press also applies the **IEEE Conference Standards** for conference ethics and quality control. For detailed information on current conference ethics and quality control in proceedings publications, please read the **IEEE white paper** which has been endorsed by Atlantis Press. Note that the editorial team of *Advances in Economics, Business and Management Research* verifies the originality of submitted manuscripts using similarity detection software.

DOIs

Each article that is published in a proceedings in this series is assigned a **Digital Object Identifier** (DOI). DOIs are standardized digital identities which can be used to cite and link to electronic content. A DOI is guaranteed to never change, so can be used as a persistent identifier to permanently link to an electronic article no matter where it is stored. More information on how to cite and use DOIs can be found [here](#).

Permanent Archiving

Atlantis Press is committed to the **permanent availability** and **preservation** of scholarly research and to ensure **accessibility** to this research by converting and upgrading digital file formats to comply with new technology standards. Besides maintaining its own digital archive, Atlantis Press therefore collaborates with the **National Library of the Netherlands** which permanently archives all Atlantis Press content in their “**e-Depot**”. All volumes of *Advances in Economics, Business and Management Research* are uploaded to this e-Depot after publication to guarantee permanent archiving of the articles. Note that the e-Depot is available through on-site access at the National Library of

the Netherlands and if Atlantis Press would be unable to provide access to content on its own platform (temporarily, in an emergency or permanent access to the e-Depot can be provided to the global public on request.

Print Version

All Atlantis Press proceedings can be ordered in **print**, either as a **bulk order** through the conference organizers or **individually**. If you wish to obtain an individual print copy of any proceedings in this series, you can order this directly through our partner **Curran Associates**. Please [visit their website](#) for more details.

Atlantis Press

Atlantis Press – now part of Springer Nature – is a professional publisher of scientific, technical & medical (STM) proceedings, journals and books. We offer world-class services, fast turnaround times and personalised communication. The proceedings and journals on our platform are Open Access and generate millions of downloads every month.

For more information, please contact us at: contact@atlantis-press.com

- ▶ PROCEEDINGS
- ▶ JOURNALS
- ▶ BOOKS
- ▶ POLICIES
- ▶ MANAGE COOKIES/DO NOT SELL MY INFO
- ▶ ABOUT
- ▶ NEWS
- ▶ CONTACT
- ▶ SEARCH

[Home](#) [Privacy Policy](#) [Terms of use](#)



Copyright © 2006-2023 Atlantis Press – now part of Springer Nature

Part of **SPRINGER NATURE**

[PROCEEDINGS](#) | [JOURNALS](#) | [BOOKS](#)

Search

Series: [Advances in Economics, Business and Management Research](#)

Proceedings of 1st International Conference on Sustainable Agricultural Socio-economics, Agribusiness, and Rural Development (ICSASARD 2021)

ARTICLES

Search

[+ Advanced search](#)

SEARCH

43 articles

Proceedings Article

The Analysis of Insurance Agriculture Performance and the Risk of Risk Farming in Java

Widhi Netraning Pertiwi, Jangkung Mulyo, Any Suryantini, Masyhuri

The aims of this research are; (1) to determine the level of risk production and cost risk in rice farming. And (2) to find out the factors effects of the risk rice farming in Java. The research locations are in three provinces, Central Java, East Java and West Java Provinces. Each province are represented...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Price Asymmetric Evaluation on the Cocoa Market as an Effort to Increase Economic and Bargaining Position of Cocoa Farmers in Pidie, Aceh

Zakiah Zakiah, Monalisa Monalisa, Ahmad Humam Hamid, Fauzan Fauzan, Ade Ratna Juniar

The price transmission process on agricultural commodities especially at the smallholder level generally occurs imperfectly as price asymmetric. This study aims to evaluate and identify the occurrence of price asymmetric in the cocoa commodity market in the Pidie Regency. This study also aims to look...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

The Importance of Socio-Economic Factors and Climate Constraints on Farmers' Preference for Using Ciherang

Diah Arina Fahmi, Irham, Lestari Rahayu Waluyati

Ciherang is a High Yielding Variety (HYV) of Rice produced by the Indonesian Agency for Agricultural Research and Development Agency since 2000. Ciherang, as an agricultural technology innovation, is still used by most farmers in various regions in Indonesia, especially South Sulawesi as one of the national...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

The Role of Agricultural Extension Workers in Urban Agriculture Development During the Covid-19 Pandemic in Yogyakarta City, Indonesia

Retno Wulandari, Roso Witjaksono, Ratih Ineke Wati

To support urban agricultural development, the role of an extension worker is needed, where this role is needed to build farmer attitudes and participation towards, especially during the Covid 19 pandemic. The aims of this study were to describe urban agricultural activities carried out by farmers and...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Pattern of Cassava Demand as the Promising Commodity in the Future

Fachrur Rozi, Ruly Krisdiana, Imam Sutrisno

The efforts have been made to prevent potential future food shortages caused by climate change. Climate change is important factor endangering sustainable food production. The local resources such as cassava are not currently considered as the main staple food. In addition, its production is not significantly...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Assessing Multidimensional Resilience of Smallholder Plantations in Bengkulu Province, Indonesia

Apri Andani, Irham, Jamhari, Any Suryantini

The resilience of smallholder plantations implies the ability of farmers to thrive in disturbances or disruptions on their farms. The farmers try to integrate social and economic capacities and resources to adapt, tolerate, and manage the risk, and enhance their farm resilience. There are three priority...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Response and Feasibility of Kub Chicken on Household Business Level in Rural Area Sigi District

Heni SP Rahayu, M Takdir, Asnidar, Mardiana Dewi, Naufal M Rameda, Pujo Haryono

The Indonesian Agency for Agricultural Research and Development (IAARD) already launched many technology innovations including Kampung Unggul Balitbangtan (KUB) which is disseminated in some programs in the Ministry of Agriculture. The success of an innovation is whether the product or technology innovation...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Export Competitiveness of Indonesia Canned Pineapple in European Union Market

Annisa Wijarani Untoro, Lestari Rahayu Waluyati, Dwidjono Hadi Darwanto

Canned pineapple is one of the main exported commodities for Indonesia processed agricultural products. Moreover, Indonesia is one of the leading exporters of canned pineapples alongside Thailand and the Philippines. The European Union (EU) is an important destination market for Indonesia where canned...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

The Implementation of Farmer Partnership and the Factor Affecting Potato Farmers' Income in Ijen District, Bondow...

Tiyas Anggraeni Juliawati, Soetriono, Joni Murti. M. Aji

Potatoes are one of the horticultural commodities that can be the national alternative food needs, but price is a problem faced by potato farmers. Then the researcher tries to find the solution to this problem by using farmer partnership. The purposes of these studies were, (1) analyze whether there...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Assessing the Appropriate Technology Options on Utilizing Oil Palm Biomass for Rural Development in Riau Province

Zulfi Prima Sani Nasution, Rizki Amalia, Ratnawati Nurkhoiry, Sachnaz Desta Oktarina, Muhammad Ansori Nasution

Oil palm cultivation by smallholders is an agriculture sub-sector that urgently requires transformative changes to support rural development in Indonesia. A transformation of this sub-sector requires the adoption of new and innovative approaches that support sustainable outcomes. This paper presents...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Profitability and Land Equivalent Ratio of Maize and Soybean Intercropping on Dryland Agroecosystem

Ria Rustiana, Taslim Sjah, Lalu Wiresapta Karyadi, Anas Zaini, Ahmad Suriadi

The provision of sufficient and sustainable food continues to increase as the population increases. A strategic effort to increase land productivity is the

intercropping planting system. However, to what extent the profitability ; land efficiency of the intercropping system, especially maize and soybea

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Training Need Analysis Model at Central Java Agricultural Training Center

Nugroho Hasan, Widiyanto Widiyanto, Agung Wibowo

The training need analysis model is a strategy in the process of gathering information about needs that can be addressed by organizing training programs. This research aims to find out the training needs analysis model in the Central Java Agricultural Training Center. This research employed a descriptive...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Development of Environmentally and Economically Patchouli Cultivation Using *System Dynamic Analysis* in Aceh Jaya Regency, Indonesia

Sofia Keumalasari, Anisa Nabila, Cut Intan Maulina, Ahmad Humam, Indra, Agus Nugroho

Patchouli oil is one of the Indonesian essential commodities accounting for approximately 95 % of the world market. Patchouli farming requires generous support of inputs. This situation puts traditional Patchouli farmers in a dilemma between boosting the quantity or protecting the environment. This study...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Development of a Language Tourism Village Based on Local Natural Resources and the Local Community (A Case Study in Karanganyar Regency, Central Java, Indonesia)

Agung Wibowo, Dimas Rahadian Aji Muhammad, Eny Lestari, Ravik Karsidi

Human beings and the environment are a dynamic part of the ecosystem, and this is true for both traditional and modern communities. The boom in tourism development will have a detrimental effect if it is not based on ecological principles. The purpose of this research is to discover a development model...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Social Cultural Dynamics in the Development of a Banana Center Leading to Sustainable Agricultural Development (A Case Study in Karanganyar Regency, Central Java)

Eny Lestari, Agung Wibowo, Paramita Rahayu

The approach to sustainable development is essentially an activity that combines economic, social, and environmental aspects. The development of a banana plantation in Jenawi has until now not been optimal, and farmers have needed skills in cultivation, processing, and marketing their produce in order...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Existence Capacity of Rays Fisheries for Fisheries Resource Management in East Nusa Tenggara Province

Dati Nawastuti, Dwidjono Hadi Darwanto, Jangkung Handoyo Mulyo, Suadi

Rays fishery products in the international market especially luxury products, medicine, and tonic during the last decades are quite high. Government has issued regulations to protect, to use and to trade this species but it needs understanding from all stakeholders for good application of the issued...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Comparative Advantage Analysis of Indonesia's Clove (*Syzygium aromaticum*) Export in International Market

Ayunina Zenti, Ratna Satriani, Adwi Herry K.E

The plantation sub-sector has a role in the national economy. Clove is one of the leading commodities of the plantation sub-sector, so Indonesia has the potential as an exporter country of this commodity. This study aims to analyze whether Indonesian cloves have a comparative advantage in the international...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Economic Efficiency of Rice in South Lampung Regency

Aryan Ari Sepri YH, Masyhuri, Lestari Rahayu Waluyati

This study aims to determine the factors that affect rice production and determine the level of economic efficiency of rice farming. The research was conducted in Taman Agung Village, Kalianda Sub-District and Sidorejo Village, Sidomulyo Sub-District, South Lampung Regency with 85 farmers as respondents....

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Comparative Advantage of Myanmar's Selected Fruits in the Global Market

Saw Yan Naing, Masyhuri, Dwidjono Hadi Darwanto

The objective of the paper is to measure the comparative advantages of Myanmar's selected fruits, namely bananas, dates, mangoes, oranges, plums and watermelon using the United Nations Comtrade yearly data during the period 2011 to 2020. The methods of Balassa revealed comparative advantage (RCA), symmetrical...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Comparative Advantage, Technical Efficiency and Risks Production of Inpari Unsoed 79 Agritan Farms in Saline Soil, Pemalang Regency

Altri Mulyani, Irene Kartika Eka Wijayanti, Ratna Satriani, Budi Dharmawan

One of the efforts to increase rice production is using marginal land, such as saline soil. The advantages of Inpari Unsoed 79 Agritan seeds are tolerance of saline soil, leafhoppers, and high productivity. This study aims to: Analyze the comparative advantage of Inpari Unsoed 79 Agritan on saline soil,...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

The Identification of Local Wisdom in *Lebak* Swampland Management (Shallow and Middle Type) and Its Relation c Rice Farmers' Household Income in Ogan Ilir Regency

Eka Mulyana, Indri Januarti, Friska Syaiful, Dini Damayanthi

Lebak Swampland is a sub-optimal land that has potentially been used by the community as an integrated agricultural land, generally located in basin areas, forming in various depths and durations of inundation, so that it requires different management techniques. In its management, lebak swampland is...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Sustainable Livelihoods of Indigenous Community: A Bibliometric Study

Muh. Syukron

Literature has shown the significance of sustainable livelihoods for community development to reduce poverty, address sustainable development goals, and increase well-being. However, indigenous people face threats to their identity, livelihoods, and sustainability. Nevertheless, little attention has...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Labor Productivity and Its Managerial Implications at XYZ Tea Processing Company, Indonesia

Azizatun Nurhayati, Putri Perdana

As one of the business units of A-University, XYZ should be managed based on appropriate managerial principles and apply Smart Eco Bioproduction.

This study was conducted to understand the workload and managerial implications needed to increase employee productivity. The method used in this study is...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Development Model of Business in Local Food Processed in Women Farmers Group "An-Naba" in Gamping Sub-District, Sleman District

Mesalia Kriska, Syarifah Alfi Nurumami, Alka Arisma

The development of local food processed businesses has been widely carried out in the Special Region of Yogyakarta, but not all are managed in groups. One of the groups that developed this industry is the Women Farmers Group (KWT) "An-Naba" in Sleman Regency. This group has received several awards in...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Consumer Preference Towards Layer Chicken Eggs and Native Chicken Eggs in Yogyakarta

Fildzah Shabrina Putri, Any Suryantini, Jangkung Handoyo Mulyo

Protein needs in the body can be met by consuming chicken eggs. Native chicken eggs were the first to be consumed and produced in Indonesia, but layer chicken eggs are more widely consumed and produced than native chicken eggs. The study aimed to determine consumer attitudes and consumer preferences...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Household Poverty Analysis of Local Farmers and Transmigrants in Gorontalo District

Amelia Murtisari, Irham Irham, Jangkung Handoyo Mulyo, Lestari Rahayu Waluyati

Transmigration program is normally used to improve the welfare and reduce poverty of transmigrants which consist of both Local and Non Local Transmigrants. The objectives of this study are 1) to measure the poverty level of local farmers households and transmigrant farmers households based on their household...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Paddy Supply Response in Sleman Regency

Adi Britanianto, Lestari Rahayu Waluyati, Azizatun Nurhayati

This research aims to identify and analyze the variables that affect the paddy supply response in Sleman Regency and determine the level of elasticity of paddy supply in Sleman Regency. This research used a descriptive method with Nerlove adjustment. The research location was chosen purposively in Sleman...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Strengthening Community Economics on the Slopes of Merapi through Innovation in Merapi Coffee Management Regional Potential of Sleman Regency

Dyah Permata Budi Asri, Edy Sriyono, Subeni

Merapi Coffee is a superior product of local potential in Sleman Regency because it attracts domestic and foreign tourists. This can also be seen from the great demand for this Merapi Coffee product, especially after the Helsinki Coffee Festival exhibition, which has been participated in by the Sleman...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Implementation of Role Playing's Learning Model on the Agribusiness' Entrepreneurship Course Using Brainwave Technology

Budi Dharmawan, Anisur Rosyad, Alpha Nadeira Mandamdari, Lutfi Zulkifli, Sunendar, Lusia Maryani Silitonga

Before learning occurs, the lecturer must do strategic planning and hopes that learning will achieve optimum goals by designing a role-playing approach based on SWOT analysis to build optimal learning achievement. This experimental study uses SWOT analysis with the role-playing paradigm of learning on...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Increasing Livelihood Strategy of Rice Farmer by Developing New Rice Variety "Inpago Unsoed 1" in Central Java, Indonesia

Budi Dharmawan, Ratna Satriani, Ulfah Nurdiani

The livelihood approach is a popular concept for identifying the nexus between environmental and social entities. Strategies for sustainable livelihoods are usually used to achieve successful rural development related to food security, realize social equity and sensitivity to environmental integrity....

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Response of Agricultural Extension Agents in Yogyakarta Special Region Towards Social Media Application as the Agricultural Extension Media

Alia Bihrajihant Raya, Diah Fitria Widhiningsih, Mesalia Kriska

In order to improve communication effectiveness, the performance of source, message, channel, and receiver is necessary. In agricultural extension and communication, the channels become very important that the extension agent as a source can carry out the technology transfer successfully. Not only mass...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

The Sustainability of Household-based Urban Farming in Yogyakarta City

Riesma Andiani, Roso Witjaksono, Wanda Anastia Sari, Elia Mustika, Hega Deri Hernandau, Fadhila Annisa Puspadjati, Nadia Annastana, Yerman Aprilyanus Hia

Due to the quantity and quality degradation of urban land for farming activity, the Yogyakarta City Government has started to conduct studies to prove the importance of developing an urban farming program. Based on the studies, it is known that implementing urban farming in the form of a household-base...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Sustainable Livelihood Approach Farming Communities in Temoloyo River Basin, Kebumen Regency

Nisrina Galuh Afifah, Widyawati Sumadio, Andry Rustanto

The Sustainable Livelihood Approach is a concept for measuring human or community efforts in existing livelihood assets and activities needed as a means of life to cope with and improve pressure, maintain, or increase assets and capabilities but not destroy existing natural resources. One of the sources...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Managerial Competence Level Among Urban Farmers in Yogyakarta City

Nungki Maghdalia, Irham, Hani Perwitasari

Urban Farmers as entrepreneurs need to have managerial qualities. Managerial competencies help them to develop their farm. The aims of this study are (1) to describe the socioeconomic characteristics of urban farmers, (2) to determine personal managerial competence level such as planning, organising,...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

The Impact of Climate Variability on Economic Sustainability on Urban Agriculture: A Case Study in Yogyakarta City, Indonesia

Riskie Amanda Wahyu Primaningrum, Irham, Hani Perwitasari

The impact of climate variability on life has been widely studied. Climate variability has an impact on urban agriculture. It is suspected that the level of knowledge and the impact of climate variability would influence the sustainability of urban agriculture in the economic aspect. This study aims...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Value Chain Analysis of Turmeric in Ponorogo District, East Java

Gusti Randy Pratama, Devi Urianty Miftahul Rohmah, Rustamaji, Hidayatun Nufus

Turmeric has a long history of use as a spice and a traditional medicine in many Asian countries, especially in Indonesia. Ponorogo District is one of the turmeric producers in East Java Province. Turmeric has been cultivated by the local community for herbal medicine and a source of income for the village...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Empowering Quality Cococraft Craftsmen Through Strengthening Partnerships Network

Dumasari Dumasari, Budi Dharmawan, Sulistiyan Budiningsih

Empowerment through strengthening partnerships is urgent and crucial for quality cococraft craftsmen. The research location was determined using a

purposive sampling area technique at a quality cococraft craft center in Purbalingga Wetan District, Purbalingga Regency, Central Java Province, Indonesia....

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Determinant Factors of the Consumption on Traditional Herbal Medicine as Processed Biopharmaceutical Products Post Covid-19 Pandemic in the Special Province of Yogyakarta, Indonesia

Arif Wahyu Widada, Gilang Wirakusuma, Aji Pangayoman

The Covid-19 pandemic has created a significant economic recession in almost all countries in the world, including Indonesia. Almost all economic sectors experienced negative growth except for the agricultural sector with positive growth. One of the agricultural commodities suspected of experiencing...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Analysis of Paddy Production to Support Food Security in The West and East Coasts of North Sumatra

Mitra Musika Lubis, Bakti Darma, Ginting Rahmanta, dan Ayu Sri Fajar

This study aims to analyze rice production in the last 10 years (2010 – 2019) to support food security in the west and east coasts of North Sumatra province. The research location was determined using a purposive method by analyzing the West Coast and East Coast regions. The sample area is the West Coast...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Adoption of New Farming Technology as an Effort for Creating Food Security and Development of Barns in Rural

Livia P Faradila, Adibta D Notari, Ranny N Jati, dan Sunarru S Hariadi

The study about adoption of new farming technology as an effort for creating food security and development of barns in rural, conducted in three places, they are in 1) Gempol Village, Karanganom Sub-district, Klaten Regency, 2) Pendowoharjo Village, Sewon sub-district, Bantul Regency, and 3) Canden Village,...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Economic Sustainability of Certified Rice Farming at Piat UGM

Fatkhiyah Rohmah, Hani Perwitasari, Triya Andriyani

Rice productivity can be increased by using certified rice seeds, but the availability is still an obstacle for farmers, especially from information and prices. Therefore, The Center for Agrotechnology Innovation, Universitas Gadjah Mada (PIAT UGM) develops certified rice seeds so that the supply of...

[+ Article details](#)[+ Download article \(PDF\)](#)

Proceedings Article

Can Indonesian Biopharmaceutical Plant Grab a Chance in Global Market?

Ginger Trade Revisited

Gilang Wirakusuma

Biopharmaceutical plants have shown remarkable expansion since the outbreak of COVID-19. Ginger, one of the leading biopharmaceutical crops, grows rapidly in transactions in the global market. Among many countries, Indonesia has consistently been one of the world's main suppliers of the ginger. This...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Proceedings Article

Socio Economic Factors Affecting Adoption and Non-Adoption of Modern Hive in Stingless Beekeeping Practices in Malaysia

Norhidayah Che Soh, Marlia Musa, Mohd Mansor Ismail

The study aims to investigate the socio-economic factors affecting the adoption of modern hives in stingless beekeeping in Malaysia. A total of 117 stingless beekeepers were selected as respondents using purposive sampling technique. The data were analyzed using descriptive statistic, factor analysis...

[+ Article details](#)

[+ Download article \(PDF\)](#)

Atlantis Press

Atlantis Press – now part of Springer Nature – is a professional publisher of scientific, technical & medical (STM) proceedings, journals and books. We offer world-class services, fast turnaround times and personalised

communication. The proceedings and journals on our platform are Open Access and generate millions of downloads every month.

For more information, please contact us at: contact@atlantis-press.com


- ▶ PROCEEDINGS
- ▶ JOURNALS
- ▶ BOOKS
- ▶ POLICIES
- ▶ MANAGE COOKIES/DO NOT SELL MY INFO
- ▶ ABOUT
- ▶ NEWS
- ▶ CONTACT
- ▶ SEARCH

[Home](#) [Privacy Policy](#) [Terms of use](#)




Copyright © 2006-2023 Atlantis Press – now part of Springer Nature

INDEXING

 ATLANTIS PRESS

ABOUTNEWSPRODUCTS & SERVICESPOLICIES AND GUIDELINESINDUSTRY AFFILIATIONSCONTACT













Part of **SPRINGER NATURE**PROCEEDINGSJOURNALSBOOKS

Search 

Atlantis Press

Atlantis Press – now part of Springer Nature – is an open access publisher of scientific, technical and medical (STM) content founded in Paris in 2006. Our mission is to support the advancement of STM research by contributing to a more efficient and effective dissemination and exchange of knowledge both for the research community and society at large.

Atlantis Press is a member of and/or works with the following organizations/platforms:



Atlantis Press Acquired by Springer Nature
March 10th, 2021

2019 Impact Factors and CiteScores for Atlantis Press Journals

New Partnership Journal in Intensive Care Medicine for Atlantis Press

Implementation of Role Playing's Learning Model on the Agribusiness' Entrepreneurship Course Using Brainwave Technology

Budi Dharmawan^{1,*}, Anisur Rosyad¹, Alpha Nadeira Mandamdari¹, Lutfi Zulkifli¹,
Sunendar¹, Lusia Maryani Silitonga²

¹ Department of Agricultural Economics and Social Sciences, Universitas Jenderal Soedirman, Jl. Dr. Suparno, P.O. Box 125, 53123, Purwokerto, Central Java, Indonesia

² Graduate School of Technological and Vocational Education, National Yunlin University of Science and Technology, Section 3, Douliu City, Yunlin County, 64002, Taiwan

*Corresponding author. Email: budi.dharmawan@unsoed.ac.id

ABSTRACT

Before learning occurs, the lecturer must do strategic planning and hopes that learning will achieve optimum goals by designing a role-playing approach based on SWOT analysis to build optimal learning achievement. This experimental study uses SWOT analysis with the role-playing paradigm of learning on the agribusiness' entrepreneurship course. The role-playing model phases include the group being inspired by the lecturer, choosing roles, planning observers, preparing role levels, playing, discussing and evaluating, re-playing, exploring and evaluating II, exchanging experiences, and drawing generalizations. The research objective was to determine 1) the effect of student activity and process skills on learning achievement, and 2) differences in student achievement to get a role in agribusiness' entrepreneurship learning model based on SWOT analysis with conventional learning. The findings of this study are the application of SWOT analysis to obtain (1) student activity and process skills on learning achievement, and (2) student activity and process skills in learning through role-playing learning models. Based on SWOT analysis, the agribusiness' entrepreneurship courses can jointly affect student achievement. Research objectives using a role-playing model based on SWOT analysis in agribusiness entrepreneurship courses are achieved optimally.

Keywords: *entrepreneurs, agribusiness, brainwave, student achievement.*

1. INTRODUCTION

The trend of still low quality of education in Indonesia, especially at the primary and secondary levels of education today, requires the concern of all parties in the context of efforts to improve the quality of learning outcomes of their students. This condition occurs partly because the educational management approach has tended to be more towards the education production function or input-output analysis. Educational institutions function as production centers, and the quality criteria are only seen from the aspects of the products they produce. The assumption of this approach

is not an educational process but focuses on the quality of the product [1].

The conventional monotonous teaching method of teachers sometimes makes material opportunities a frightening specter for students. Thus, there need to be thoughts that can change the dogma of learning opportunities from the teaching paradigm to the fun learning paradigm [2]. Implementation of learning can be achieved optimal if educators can take advantage of existing education in schools and analyze it. They can understand the school's strengths, which is supported by a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis used as a basis for moving towards effective learning [3]. Therefore, the implementation of

education is strongly influenced by the behavior of educators and student behavior which is part of the SWOT.

SWOT is simple, easy to understand, and can also be used to formulate models. This practical learning model can take the form of conducting an internal survey of program strengths and weaknesses and externally on opportunities and threats that are simple, easy to understand, and can also be used in formulating models-model. The SWOT analysis is not aimed at school institutions, but the SWOT analysis aims to implement the ongoing learning for the material to be taught. One alternative learning model that can be developed to meet these demands is the role-playing learning model. According to [4], this model is used when the lesson is intended to: (a) explain an event which involves many people, and based on theoretical considerations, it is better to be dramatized than told because it will be more transparent and can be lived by students; (b) train student so that they can solve socio-psychological problems, and (c) train student so that they can socialize and provide possibilities for understanding other people and their problems.

Based on the above statement, it is necessary to research the application of role-playing learning models, seen from the activities of teachers in the teaching and learning process. Based on the outlined problem, the following research questions have been developed:

1. Do student activeness and process skills together on learning achievement based on SWOT analysis in agribusiness' entrepreneurship courses?
2. Is student achievement in the role-playing learning model based on SWOT analysis better than student achievement with conventional learning in agribusiness entrepreneurship courses?

2. LITERATURE REVIEW

2.1. Entrepreneurship

Entrepreneurship takes place in institutions of all levels and backgrounds, from domestic segments to multinational corporations. By putting together unique combinations of public and private capital to leverage economic, social, or cultural opportunities in an environment of change, entrepreneurship can be described as the process of generating value for business and social communities. Creativity has been viewed as building significant and relatively shaped features or ideas [5]. However, in an entrepreneurial sense, there should also be a subsequent link to innovation and profitability in monetary and social terms [6]. These ideas can be internally or externally located, although the entrepreneur will tend to search and identify potential solutions shaped in part by internal competencies [7]. Creativity allows the organization to take advantage of

opportunities due to changing environmental conditions [8].

2.2. Creativity: Behaviors, Attention, and Meditation

The word creativity has many interpretations. Sometimes it is used to describe a person's capability; sometimes, it is used to praise a work; and sometimes, it is used to describe daily behaviors [9]. While creativity has multiple meanings and definitions, two consistent elements are commonly recognized: novelty and effectiveness [9]. Dumasari et al. [10] argue that creativity can be seen as a process or a product that is both original and valuable.

Harryson [11] argues that the process of scientific discovery cannot be analyzed, and each discovery contains irrational elements or creative intuition. Downing et al. [12] argue that when looking from different perspectives, the process of scientific discovery and creation can be decomposed into specific behaviors, steps, and procedures.

2.3. Electroencephalography (EEG)

The brainwave is an electrical output rhythm change used by the cyclic pulsing of nerve cells and nerve fibers. An EEG responds primarily to the potential changes in the cerebral cortex. The double electrode placed on the scalp is used to record the possible changes in the cerebral cortex. The brainwave sensor is required complicated preparations in the past because the electrode needed to be fixed with glue on the participant's head. However, it is now possible to use simple devices to collect accurate brainwave data. The brain-computer interface can contain learners' brain waves and is commonly used to measure the brain's attention, anxiety, or relaxation values [13].

The NeuroSky Headset has been used to monitor and measure the attention and meditation of the learning process [14]. NeuroSky is a simple, lightweight, and inexpensive brainwave headset device. After the algorithm calculation, the brain's intensity of attention and meditation can be presented, ranging from 0 to 100.

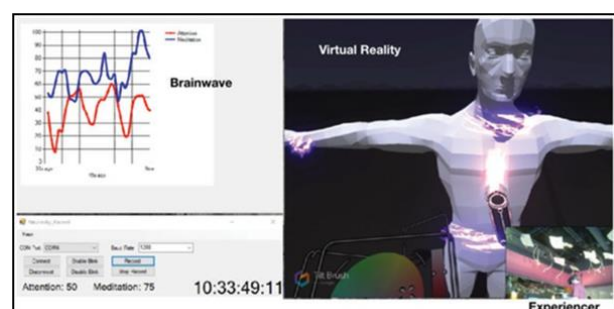


Figure 1 Brainwave information and virtual reality environment images (source: Dharmawan et al., 2021).

As shown in Figure 1, wearing the integrated system of VR and brainwave, participants can move or act comfortably and flexibly with few limits, while their brainwave information and VR environment images (shown in Figure 1) are recorded simultaneously the same computer program.

2.4. Self-evaluation with SWOT Analysis

SWOT analysis is a systematic way of analyzing threats and opportunities to distinguish future conditions to find existing problems. The SWOT analysis carried out is not only aimed at academic institutions, but the SWOT analysis is aimed at implementing the ongoing learning for the material to be taught. It means what strengths, weaknesses, opportunities, and challenges the academic institutions have to carry out learning.

SWOT analysis here is intended to explore the effectiveness and efficiency of learning, including the selection of a SWOT model, which is a technique that is simple, easy to understand, and can also be used in formulating strategies/models [15]. SWOT has no end, meaning that it will always change according to the demands of the times and needs so that SWOT can be used to initiate new innovative programs in education [16].

2.5. Linear Regression Analysis

Regression analysis is a method used to measure the effect of independent variables on the response variable [17]. The purpose of regression analysis is to estimate the average and the value of the response variable based on the value of the independent variable and test the hypothesis of the dependency characteristics. If the independent variable is more than one, the regression analysis is called multiple linear regression. Multiple linear regression happens due to the influence of several independent variables on the response variable [18]. The response variable is assumed to have a probability distribution, while the independent variable has fixed values. Linear regression has an equation called the regression equation. The regression equation expresses a linear relationship between the response variable given the symbol Y and independent variables given the symbol X [19].

2.6. Role-playing Model

Role-playing is a socio-drama approach that can be used to help learners understand facets of literature, social studies, and even certain aspects of mathematics or science more profoundly [20]. In addition, learning about the subject and integrating information into action, solving problems, exploring alternative topics will help them become more active and involved [21].

Role-playing effectively enhances initiative, communication, problem-solving, self-awareness, and team teamwork skills. Role-playing is all of the above, just learning from the truth, or most would be obsolete or trivial in some years to help these young people prepare for the Twenty-First Century challenges [22]. In simple terms, role-playing is an attempt to solve problems through demonstrations of action applied in learning mathematics [23]. The process is: a problem is identified, described, demonstrated, and then discussed. For this purpose, some students act as actors, while others work as observers [24].

2.7. Steps in the Role-playing Model

The data used in this study include primary data and secondary data. Primary data is collected and put together directly from the object under investigation for research purposes. Preliminary data came from respondents, such as answers to a list of questions given to the targeted students [25]. Questions are in the form of data relating to the variables to be studied, i.e., entrepreneurial knowledge, business scale, business experience, type of business, and use of accounting information. Secondary data is data collected by previous studies or published by various published studies or utilizing existing data. Secondary data used in this study were obtained from books or journals (see Table 1).

Table 1. Steps in the role-playing model.

Role-playing stages	Teacher's behavior
Step 1 Motivate the Group	1. Identify the problem 2. Describe the problem 3. Interpret the story, explore an event/problem 4. Describe the role to be played
Step 2 Choosing a Cast	1. Analyze roles 2. Select and assign actors
Step 3 Setting Up Observers	1. Deciding what to and should be observed 2. Describe the duties of the observer
Step 4 Prepare the stages of the role	1. Specifying the sequence of roles 2. Re-explain the roles to be played 3. Entering a problem situation
Step 5 Role	1. Initiate role playing 2. Continue the role 3. Stop acting
Step 6 Discussion and Evaluation	1. Assess the accuracy of the role 2. Discuss main focus 3. Develop a re-role
Step 7 Re-role	1. Play a role that needs to be improved 2. Suggest alternative behaviors that may arise from the re-role
Step 8 Discussion and Evaluation II	1. Assess the accuracy of the role 2. Discuss main focus 3. Develop a re-role
Step 9 Share experiences and draw generalizations	1. Relate entrepreneurial problem situations with real experiences 2. Explore general principles of behavior

2.8. Research Procedure

The experimental process is shown in Figure 2. Before starting the open-ended activity, each participant was asked to complete a copy of the K-DOCS. Each participant was then asked to complete an open-ended training by wearing an integrated set of brainwaves.

The research procedure is as follows:

1. The teacher explains the experiment procedure;
2. Brainwave will be administered and installed on the school computer;
3. Experiment, three meetings (2 hours/meeting) of entrepreneurial course, the students are asked to wear portable EEG technology during the regular class when the teacher is giving a lecture. (Note Teacher will be recorded during teaching class by using a video camera);
4. Examination/presentation (the teacher will prepare the assessment scale);
5. Role-playing model using SWOT analysis.

The result of the students' exam is compared to their level of attention and meditation and analyzed. Moreover, for further discussion, the teaching process, which is videotaped, can be analyzed and compared with the low level of attention and meditation (EEG result during class) and investigated its relation.

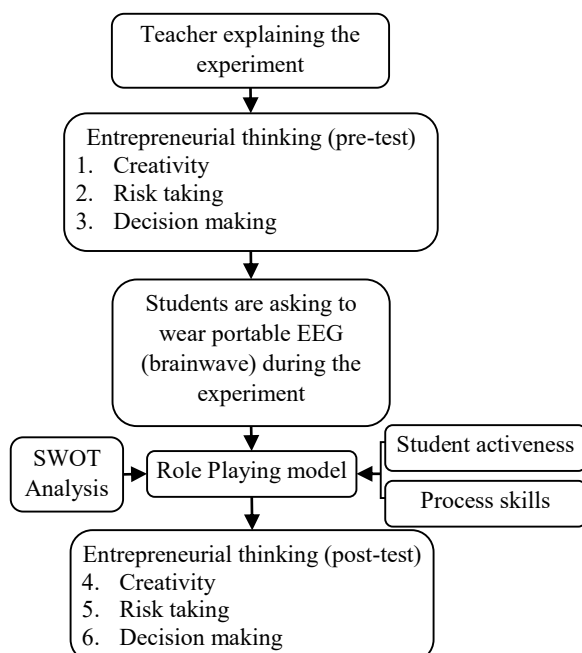


Figure 2. The design of the experiment.

The data obtained is observation data on student activity, process skills, and learning with a role-playing agribusiness' entrepreneurship learning model based on SWOT analysis. The student achievement data in the

experimental class who received learning treatment with a role-playing entrepreneurial learning model based on SWOT analysis. At the same time, learning achievement from the control class received conventional learning treatment, namely a learning method using expository and deductive approaches. In this study, a pre-research activity was held, namely the SWOT analysis activity.

3. RESULTS AND DISCUSSION

The study's first research question sought to know the student's entrepreneurial skill development based on the entrepreneur score. The lesson designed for this study concluded with an assessment designed to assess the students' comprehension of the learning materials and their overall task performance. The lesson assessment was given at the end of the 5-meeting course. The students were presented with their business plan, and the assessment criteria consisted of three types of entrepreneurial skills: risk-taking, creativity, and risk-taking. The teacher assessed the students' presentation individually using a rubric designed by the researcher (Table 2). The summed scores of each lesson assessment at 100-point intervals were used to measure the academic performance variable in the statistical analysis.

Table 2. Assessment scale criteria

SCORE	RISK-TAKING	CREATIVITY	DECISION MAKING
A: 81-100	Very brave to take risks.	Very creative	Very appropriate decision making
B: 61-80	Brave to take risk	creative	appropriate decision making
C: 41-60	Full consideration in taking risks	Creative enough	Appropriate enough decision making
D: 21-40	Less consideration to take risk	Less creative	Less appropriate decision making
E: 1-20	No consideration to take risk	Not creative	Not appropriate decision making

Table 3 showed that students averagely achieved a good score (B) for all skills, risk-taking (68.9), creativity (65.4) and, decision-making (71.4).

Table 3. Descriptive analysis

Criteria	Mean	Std. Deviation
Risk-taking	68.9000	11.57993
Creativity	65.4500	11.65953
Decision making	71.0000	10.10471

Furthermore, Table 3 showed that the learning experience positively influences the development of their entrepreneurial skill.

The results of the SWOT analysis on the agribusiness' entrepreneurship course were.

a. Strengths

- 1) Agribusiness' entrepreneurship courses are related to other subjects that have been taught.
- 2) In terms of the aspects studied, entrepreneurship courses emphasize mastery of concepts and problem-solving skills.
- 3) Lecturers develop the syllabus according to the student's condition by paying attention to the technical instructions for producing the syllabus from the National Accreditation Body for University (BAN-PT).
- 4) Lecturers have the freedom to use and develop learning strategies.
- 5) It supports facilities that can be used in learning, i.e., comfortable learning rooms, computer laboratories, sound libraries, and other learning media tools.
- 6) Lecturers in agribusiness entrepreneurship courses mostly have entrepreneurship certification.

b. Weaknesses

- 1) Many activities do business projects in the learning process so that it takes up a lot of face-to-face time in class.
- 2) Achievement of learning completeness only reached about 78.5%.
- 3) Entrepreneurial material is very dense.
- 4) Student mastery of agribusiness' entrepreneurship material is highly dependent on previous material or prerequisites.
- 5) The learning methods used by lecturers have been less varied, so students tend to be less active in learning.
- 6) Agribusiness' entrepreneurship learning has not made much use of information technology.

c. Opportunities

- 1) Agribusiness' entrepreneurship course's learning by presenting events which are the main attraction for students.
- 2) There is the possibility of curriculum content to be developed so that competency standards are easily achieved.
- 3) The national accreditation body for university (BAN-PT) provides technical guidance on syllabus development.
- 4) The application of agribusiness' entrepreneurship courses is very relevant in

everyday life, especially government policies to develop young entrepreneurs

- 5) The implication of implementing agribusiness' entrepreneurship courses that focus on student competence is that teachers are expected to explore students' potential to demonstrate knowledge and skills according to the standards set by integrating life skills.

d. Threats

- 1) Low ability/understanding of prerequisite materials have been received at previous levels of education.
- 2) Agribusiness' entrepreneurship course material can be applied independently.
- 3) The number of story questions from agribusiness' entrepreneurship course material makes students less understanding of the concept.
- 4) The finding of learning sources or information about learning materials is accessible via the internet.

Based on the combination of the SWOT elements, it is resulting in the following programs as listed in the SWOT matrix.

- 1) Achievement of competency standards
- 2) The material is packaged in the student worksheet
- 3) Independent learning activities
- 4) Group learning activities
- 5) Use of computer laboratories
- 6) Learning activities via the internet
- 7) The use of role-playing learning models
- 8) Small business project

Applying the SWOT analysis-based role-playing learning model can lead students to complete learning, namely completing student activeness, student process skills, and student learning achievement. The results showed the activeness variable obtained an average of 87.40; for the process skills variable, the average score was 85.88; and 78.55 for the learning achievement variable.

The active and process skills of students who are grown in learning with a role-playing learning model based on SWOT analysis in agribusiness entrepreneurship courses can jointly affect student achievement. The effect of student activities and process skills on student achievement taught using a role-playing learning model based on SWOT analysis in agribusiness'

entrepreneurship courses is jointly shown by the linear regression equation $Y = -51.51 + 1.49X_1 + 1.55X_2$. The magnitude of student activeness and process skills on learning achievement is known from the R square value of 81.4%, while other variables that affect learning achievement are 11.7%.

There is a significant difference between the learning achievement of class students taught by the SWOT analysis-based role-playing model and the student achievement through conventional learning. The SWOT analysis-based role-playing model has a higher average value of 78.31 compared to traditional education was only 58.25. There is an increase of 36.04%.

4. CONCLUSION

Based on the results described in the previous discussion, the following conclusions can be drawn as follows.

1. Applying the SWOT analysis-based role-playing learning model on the agribusiness' entrepreneurship course can lead students to complete learning, namely completing student activity, student process skills, and student learning achievement. The results showed the activeness variable obtained an average of 87.40; for the process skills variable, the average score was 85.88; and for the learning achievement variable, 78.55.
2. The activity and process skills of students who are grown in learning and a role-playing learning model based on SWOT analysis in agribusiness entrepreneurship courses can jointly affect student achievement. The effect of student activity and process skills on student achievement taught using a role-playing learning model based on SWOT analysis in agribusiness' entrepreneurship courses is jointly shown by the linear regression equation $Y = -51.51 + 1.49X_1 + 1.55X_2$. The magnitude of student activeness and process skills on learning achievement is known from the R square value of 81.4%, while other variables that affect learning achievement are 11.7%.

ACKNOWLEDGMENTS

This research was supported by Universitas Jenderal Soedirman (Unsoed) under the research scheme International Research Collaboration (IRC) 2020 No. T/178.UN23.18/PT.01.03/2020 and National Yunlin University of Science and Technology, Taiwan for Brainwave set and software.

REFERENCES

- [1] H. M. Neck and P. G. Greene, Entrepreneurship education: known worlds and new frontiers *J. Small. Bus. Manage* 49(1): 2011, 55-70, DOI: [10.1111/j.1540-627X.2010.00314.x](https://doi.org/10.1111/j.1540-627X.2010.00314.x).
- [2] R. Blackburn and A. Kovalainen, Researching small firms and entrepreneurship: Past, present and future *Int. J. Manag. Rev* 11(2): 2009, 127-48, DOI: [10.1111/j.1468-2370.2008.00254.x](https://doi.org/10.1111/j.1468-2370.2008.00254.x).
- [3] B. Dharmawan, A. Rosyad, A. N. Mandamdari, L. Zulkifli and L. M. Silitonga, Assessing the emerging agribusiness entrepreneurs by using brainwave technology. *IOP Conf. Ser.: Earth Environ. Sci.* 653 012144, 2021.
- [4] J. T. Mahoney and S. C. Michael, A subjectivist theory of entrepreneurship. In *Handbook of entrepreneurship research* (pp. 33-54). Springer, Boston, MA, 2005
- [5] M. J. Petrowski, Creativity research: implications for teaching, learning and thinking *Ref. Serv. Rev.* Dec 1, 2000.
- [6] B. Dharmawan, A. R. Karim and U. Nurdiani, Strategic ways to develop new variety of upland rice: case study of "Inpago Unsoed 1" in Central Java, Indonesia. *IOP Conf. Ser.: Earth Environ. Sci.* 250 012069, 2019.
- [7] T. I. Lubart, Models of the creative process: Past, present and future *Creativity Res. J.* 13 (3-4): 2001, 295-308, DOI: [10.1207/S15326934CRJ1334_07](https://doi.org/10.1207/S15326934CRJ1334_07).
- [8] Y. Y. Kor, J. T. Mahoney and S. C. Michael, Resources, capabilities and entrepreneurial perceptions *J. Manage. Stud* 44(7): 2007, 1187-212, DOI: [10.1111/j.1467-6486.2007.00727.x](https://doi.org/10.1111/j.1467-6486.2007.00727.x).
- [9] R. D. Hisrich, The need for marketing in entrepreneurship *J. Bus. Ind. Mark.* Mar 1, 1992.
- [10] D. Dumasari, W. Darmawan, A. Iqbal, B. Dharmawan and I. Santosa, A Pro-Conservation Adaptation Power Model for Cococraft Craftsmen using Coconut Waste in Purbalingga, Central Java, Indonesia *Int. J. Conserv. Sci.* 11(1), 2020.
- [11] S. Harryson, Entrepreneurship through relationships—navigating from creativity to commercialisation *R&D Management* 38(3): 2008, 290-310, DOI: [10.1111/j.1467-9310.2008.00516.x](https://doi.org/10.1111/j.1467-9310.2008.00516.x).
- [12] S. Downing, The social construction of entrepreneurship: Narrative and dramatic processes in the coproduction of organizations and identities *Entrep. Theory Pract.* 29(2): 2005, 185-204, DOI: [10.1111/j.1540-6520.2005.00076.x](https://doi.org/10.1111/j.1540-6520.2005.00076.x).

- [13] J. R. Wolpaw, N. Birbaumer, D. J. McFarland, G. Pfurtscheller and T. M. Vaughan, Brain-computer interfaces for communication and control *Clin. Neurophysiol.* 113(6): 2002, 767-91, DOI: [10.1016/S1388-2457\(02\)00057-3](https://doi.org/10.1016/S1388-2457(02)00057-3).
- [14] T. M. Ko, C. Y. Tsai, S. Y. Chen, K. S. Chen, K. H. Yu, C. S. Chu, C. M. Huang, C. R. Wang, C. T. Weng, C. L. Yu and S. C. Hsieh, Use of HLA-B* 58: 01 genotyping to prevent allopurinol induced severe cutaneous adverse reactions in Taiwan: national prospective cohort study. *Bmj*, 351, 2015, DOI: [10.1136/bmj.h4848](https://doi.org/10.1136/bmj.h4848)
- [15] D. Dumasari, W. Darmawan, B. Dharmawan and I. Santosa, Empowerment of subsistence craftsmen through the adoption of environmentally friendly cocodust production technology *Int. J. Adv. Sci. Eng. Inf. Technol.* 10(2): 2020, 691-702, DOI: [10.18517/ijaseit.10.2.8522](https://doi.org/10.18517/ijaseit.10.2.8522).
- [16] C. Mainemelis and S. Ronson, Ideas are born in fields of play: Towards a theory of play and creativity in organizational settings *Res. Organ. Behav* 27: 2006, 81-131, DOI: [10.1016/S0191-3085\(06\)27003-5](https://doi.org/10.1016/S0191-3085(06)27003-5).
- [17] U. Sekaran and R. Bougie, *Research methods for business: A skill building approach* John Wiley & Sons, 2019
- [18] J. F. Hair, *Multivariate data analysis*, 2009.
- [19] D. R. Cooper, P. S. Schindler and J. Sun, *Business research methods* Vol. 9 New York: Mcgraw-hill, 2006.
- [20] J. D. Rich and R. W. Weisberg, Creating all in the family: A case study in creative thinking *Creativity Res. J.* 16 (2-3): 2004, 247-59, DOI: [10.1080/10400419.2004.9651456](https://doi.org/10.1080/10400419.2004.9651456).
- [21] R. J. Sternberg, Successful intelligence as a basis for entrepreneurship *J. Bus. Venturing* 19(2): 2004, 189-201, DOI: [10.1016/S0883-9026\(03\)00006-5](https://doi.org/10.1016/S0883-9026(03)00006-5).
- [22] W. J. Wales, Entrepreneurial orientation: A review and synthesis of promising research directions *Int. Small Bus. J.* 34(1): 2016, 3-15, DOI: [10.1177/0266242615613840](https://doi.org/10.1177/0266242615613840).
- [23] J. A. Glover, R. R. Ronning and C. R. Reynolds editors *Handbook of creativity* Springer Science & Business Media, 2013.
- [24] R. J. Sternberg, The nature of creativity *Creativity Res. J.* 18(1): 2006, 87, DOI: [10.1207/s15326934crj1801_10](https://doi.org/10.1207/s15326934crj1801_10).
- [25] R. Conti, H. Coon and T. M. Amabile, Evidence to support the componential model of creativity: Secondary analyses of three studies *Creativity Res. J.* 9(4): 1996, 385-9, DOI: [10.1207/s15326934crj0904_9](https://doi.org/10.1207/s15326934crj0904_9).