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# PROCEEDINGS

3rd  
**ICEGE** 2020

The Third International Conference on Environmental Geography  
and Geography Education

September 12<sup>th</sup> - 13<sup>th</sup>, 2020

at Faculty of Teacher Training and Education, University of Jember

PAPER • OPEN ACCESS

## Preface

To cite this article: 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **747** 011001

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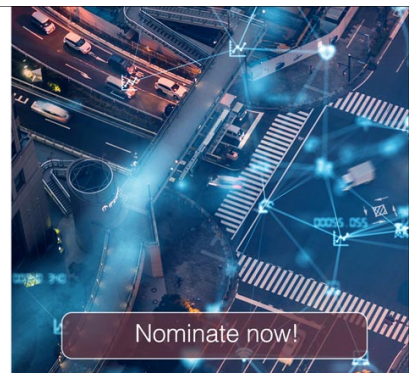
**The Electrochemical Society**

Advancing solid state & electrochemical science & technology

The ECS is seeking candidates to serve as the **Founding Editor-in-Chief (EIC) of ECS Sensors Plus**, a journal in the process of being launched in 2021

The goal of ECS Sensors Plus, as a one-stop shop journal for sensors, is to advance the fundamental science and understanding of sensors and detection technologies for efficient monitoring and control of industrial processes and the environment, and improving quality of life and human health.

*Nomination submission begins: May 18, 2021*



The Third International Conference on Environmental Geography and Geography Education (ICEGE) 2020

## **Sumardi**

Editor in Chief of International Conference on Environmental Geography and Geography Education 2020

E-mail: sumardi.fkip@unej.ac.id

We would like to express our gratitude to all participants joining “The International Conference on Environmental Geography and Geography Education” (ICEGE). The 3<sup>rd</sup> International conference held by the Department of Social Science Education held by FKIP-University of Jember on 12-13 September 2020. The participants of this ICEGE 2020 are research students, academicians and researchers, scholars, scientist, teachers and practitioners from many countries.

Due to Covid-19, this conference was held in dual-mode, namely online and face to face. For those invited speakers from abroad who have travel restrictions presented their research topics through zoom cloud meeting. Likewise, participants who stay outside Jember city joined the conference virtually. Meanwhile, participants from within Jember city joined conference in person by complying the Covid-19 protocol.

Two hundred forty-eight participants attended this conference. The number of submitted papers were 219 and papers sent to the reviewers were 198. Two reviewers reviewed one paper. Each reviewer reviewed maximum 8 papers. Based on reviewer recommendations, finally the number of accepted papers is 130. Thus, the acceptance rate is 59,4 %.

In the plenary season, each invited speaker presented their presentations for 1 hour and 15 minutes for Q/A session. In the parallel session, each participant made the presentation for maximum 15 minutes and 5 minutes for Q/A session. The technology used in the parallel session is zoom cloud meeting with 13 breakout rooms.

This conference becomes a dissemination forum for scientists working on theoretical and empirical research of environmental geography, transportation geography, geography education, social science and its application. This conference's mission is to become an annual international forum in the future, where civil society organization and representative research students, academics and researchers, scholars, scientists, teachers, and practitioners from all over the world could meet and exchange an idea to share and discuss about research. The aim of the second conference is to present and discuss the latest research that contributes to the new ontological, epistemological and axiological knowledge and



to a better understanding in the area as follows:(1) Environmental Geography; (2) Geography Information System and Remote Sensing; (3) Geomorphology; (4) Natural Disaster; (5) Economics; (6) History; (7) Education; (8) Humanities; (9) Social Sciences and (10) Global Science and Studies.

On behalf of the organizing committee, finally we gratefully acknowledge the support from the FKIP-University of Jember of this conference. We would also like to extend our thanks to all lovely participants who have been joining this unforgettable and valuable event.

Assoc. Prof. Dr. Sumardi, M.Hum



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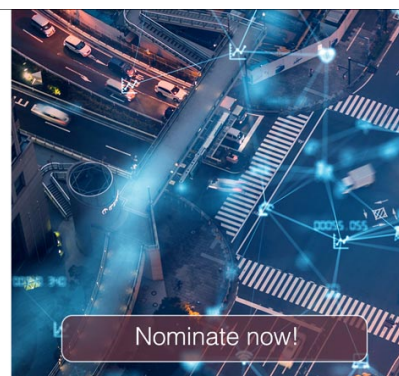
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Advancing solid state &amp; electrochemical science &amp; technology

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*Nomination submission begins: May 18, 2021*



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All papers published in this volume of IOP Conference Series: Earth and Environmental Science have been peer reviewed through processes administered by the Editors. Reviews were conducted by expert referees to the professional and scientific standards expected of a proceedings journal published by IOP Publishing.

- **Type of peer review:** Double-blind review. The authors and the reviewers do not know each other. The managing editor send the papers to the reviewers by hiding the authors' name and their affiliation.
- **Describe criteria used by Reviewers when accepting/declining papers. Was there the opportunity to resubmit articles after revisions?** There were 13 aspects of assessment for accepting/declining papers, i.e. Clarity of abstract, Significance of research, Sufficiency state of the art, Contribution to the field (novelty), Research objective, Appropriateness of the research method, Relevance and clarity of drawings, graphs and tables, Experimental/evidential support, Quality of data or findings, Discussion and conclusions, Direction for future research and recommendations, Clarity of English, Writing style (according to EES format). There are no opportunities to resubmit papers after rejection. For the revised papers regarding to reviewer comments, they should resubmit their papers.
- **Conference submission management system:**  
<https://easychair.org/conferences/?conf=icege2020>
- **Number of submissions received:** 219
- **Number of submissions sent for review:** 198
- **Number of submissions accepted:** 130
- **Acceptance Rate (Number of Submissions Accepted / Number of Submissions Received X 100):** 59,4 %
- **Average number of reviewers per paper:** 2
- **Total number of reviewers involved:** 50
- **Any additional info on review process (ie. plagiarism check system):** We used TURNITIN software to check the plagiarism issue during the review process.



- **Contact person for queries:**  
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Volume 747

2021

◀ Previous issue    Next issue ▶

3rd International Conference on Environmental Geography and Geography Education, 12 September 2020, East Java, Indonesia

Accepted papers received: 12 April 2021

Published online: 12 May 2021

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Coastal Community Resilience Planning Toward Disaster: A Case Study on Coastal Area in Malang Regency, East Java, Indonesia

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Landslides susceptibility mapping based on geospatial data and geomorphic attributes (a case study: Pacet, Mojokerto, East Java)

L Y Irawan, Sumarmi, S Bachri, D Panoto, I H Pradana and R Faizal

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<p><b>OPEN ACCESS</b></p> <p>Adaptation strategies for pedicab drivers in their socio-economic life</p> <p>A Rizal, P Suharso, W Hartanto, Sukidin, H M Ani and L O Mardiyana</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012100
<p><b>OPEN ACCESS</b></p> <p>The effectiveness of the digital books' usage to improve the XII IPS 3 class students' motivation at SMAN Pakusari Jember</p> <p>F Diarta, Tiara, S Kantun and D E Sari</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012101
<p><b>OPEN ACCESS</b></p> <p>Effectiveness android-based learning media on basic competence of service company financial statements class X AKL at SMK Negeri Darul Ulum Muncar Banyuwangi</p> <p>S B Silviana, Tiara, S Kantun and A Najib</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012102
<p><b>OPEN ACCESS</b></p> <p>Implementation Of STMCpE Textbooks On Students' Problem Solving Skill</p> <p>Indrawati, S Hariyadi, A S Budiarmo and E Anjarwati</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012103
<p><b>OPEN ACCESS</b></p> <p>Influence of occupational health and safety culture implementation to productivity of work to heavy equipment worker at PT. X Surabaya</p> <p>F Ayu, D F Karya and M N Rhomadhoni</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012104
<p><b>OPEN ACCESS</b></p> <p>Relationship of work position with complaints of musculoskeletal disoeders (MSDs) in cracker industrial worker at Kedungdoro village, Sidoarjo</p> <p>F Ayu and R A Ratriwardhani</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012105
<p><b>OPEN ACCESS</b></p> <p>The identification of <i>Salmonella</i> sp. in "cilok" road food in campus area of Jember University</p> <p>Budayatin, J Waluyo and D Wahyuni</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012106
<p><b>OPEN ACCESS</b></p> <p>Utilization of plastic and fabric waste into economic valued products to minimize household waste</p> <p>M Conilie, U Farihah and N E A Nasution</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012107
<p><b>OPEN ACCESS</b></p> <p>Analysis of pedagogical content knowledge on students of science education as pre-service teachers in Madura secondary school</p> <p>A Fikriyah, M Yasir and N Qomaria</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012108
<p><b>OPEN ACCESS</b></p> <p>Analysis of Gluten Free Casein Free Compliance (GFCF) Diet in Terms of the Incidence of Gastroenteritis in Children with Autism Spectrum Using Rank Spearman Test</p> <p>Firdaus, T Herlambang, L N Afifa, P A Inawati and A Muhith</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012109
<p><b>OPEN ACCESS</b></p> <p>Work-family conflict and organizational commitment of female lecturers of Nahdlatul Ulama University of Surabaya: an investigation of job satisfaction as a mediator using partial least square</p> <p> <a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a> </p>	012110

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<p><b>OPEN ACCESS</b></p> <p>Assessment of the implementation of customer relationship management systems to support the competitive advantage of the company</p> <p>W Sardjono, M N F Izrullah, E Selviyanti, M Mukhlis and G R Putra</p> <p><a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a></p>	012114
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<p><b>OPEN ACCESS</b></p> <p>The analysis on implementing discovery learning-based learning instruments in improving students' creative and innovative thinking skills in completing problem of simple multiplication by using <i>jarimatika</i></p> <p>R Triwahyuningtyas, Dafik and T D Prastiti</p> <p><a href="#">+ Open abstract</a> <a href="#">View article</a> <a href="#">PDF</a></p>	012121
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## Factor analysis of ruangguru application use on high school students in Jember

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**Abstract.** The quality of education in Indonesia is oriented toward the education in Jakarta. PISA 2015 Results in Focus published in 2018 indicates that Indonesia occupies the 62nd place of 70 countries. On the other hand, COVID-19 pandemic has a significant impact in education. All schools in the world are simultaneously doing online learning, which leads to a shift in interaction patterns in the world of education from face-to-face to technology-based learning. The aim of the research is to know the dominant factors in influencing high school students in Jember on the use of Ruangguru Online Tutoring application. The research used the quantitative method. The sampling technique in the research was the incidental sampling technique to 100 respondents. We have found the most dominant factor of some other influencing factors for Ruangguru users was the product, besides that there was a significant influence between product, price, location, promotion and service with purchasing decision. We recommend that the Ruangguru application is more innovative in technology-based education contents.

Keywords: online tutoring, education, Ruangguru application

### 1. Introduction

The quality of education in Indonesia is oriented toward education in Jakarta, supported by quite complete facilities and infrastructures, is the dream of the government for all regions in Indonesia. However, the reality is different from the results of the Program for International Student Assessment (PISA) 2015 [1] Results in Focus published in 2018. It indicates that Indonesia, with a total of 218,234 schools, 2,708,011 teachers, and 45,540,700 students, occupies the 62nd place of 70 countries. It is in line with the latest research from Prof. Lant Pritchett (2016) [2] entitled The Need for a Pivot to Learning: New Data on Adult Skills from Indonesia, known that the majority of the quality of education for children, especially those aged 15 years, is 128 years behind compared to other countries.

The quality of teaching staff plays an important role in determining the quality of education, which can be seen from the average TCT (Teacher Competency Test) results. The national performance of teachers in Indonesia from the national TCT average result carried out in 2015 was 53.02 out of 100, a value which is still far from the standard of Teacher Competency Test (TCT) completeness. On the other hand, the outbreak of COVID 19 (Corona Virus Disease, discovered in 2019) has a significant impact, especially in the field of education. All schools in Indonesia and the world are doing online learning simultaneously. DL (Distance Learning) having been done so far leads to a shift in interaction patterns in the world of education from face-to-face to technology-based learning.

In addition to the average result of TCT score, the COVID 19 outbreak, which requires students to do online learning, has made many students find problems to understand the materials provided by the teachers. This is one of the reasons strengthening parents to find solutions so that their children continue to excel and get far more and better knowledge. Tutoring is one solution that parents then choose so that their children better understand and can develop their knowledge of the subjects explained at school.



The impact of COVID-19 has made several conventional tutoring institutions which originally provide face-to-face services now begin to add to their services by utilizing several applications with the aim that users can learn comfortably like what Ganesha Operation, Neutron and other tutoring institutions do. Ruangguru, which is one of the online tutoring institutions, feels competed with the changes made by conventional tutoring institutions. However, there are some differences between the two, Ruangguru as a basic online tutoring program is much more ready with all online features in one application, from animated learning videos stored in the application, pictorial summaries, to question banks with answer keys and discussions, while the conventional tutoring application uses several applications that make users sometimes confused. Besides, in conventional tutoring application the learning videos change at a certain time, and there are no discussions for each problem in the question banks.

Many users have trusted Ruangguru online tutoring application to learn and add their insights. More than 15 million students and 300,000 teachers in Indonesia have subscribed to Ruangguru. In 2020 Ruangguru also expanded to several countries such as Vietnam named Kien Guru launched in 2019, Thailand named StartDee launched in 2020, and Singapore. The Ruangguru's existence can also be seen from a number of awards that have been won from 2015 to 2019, a total of 16 awards from UNICEF, Bubu Award, Google Launchpad Accelerator, MIT Solve, Forbed, and many others. The Ruangguru's success is more or less inseparable from the users' role, from user satisfaction which makes Ruangguru's consumer loyalty increase.

Many high school students who use Ruangguru have switched from offline to online tutoring because of the various conveniences offered by online tutoring that are not available in offline tutoring. The advantages obtained from studying at Ruangguru are easy because a collection of learning videos and practice questions provided can be accessed anywhere and anytime. In line with Aripurnamayan's opinion in Gideon [3], he states that mobile learning is a service to provide electronic information in general about learning content to users that helps the attainment of knowledge regardless of location and time. The reason for choosing high school students as research subjects is because they are old enough and have a role in making decision about the use of Ruangguru Online Tutoring service.

The interaction pattern of the school community has shifted from traditional (face-to-face) to modern (online) pattern. This is in line with the theory of *Gemeinschaft* (traditional) and *Gesellschaft* (modern). According to Martono [4], *Gesellschaft* (modern) is considered a concept of weak public relations so that the resulting role is not good. It is reinforced by Sztompka's opinion that the concept of the *Gesellschaft* relationship is based on certain goals. The interaction between teachers and students and the interaction between students and other students are now increasingly clear to have a specific goal. There are clear boundaries. The interaction between the two is based on one goal, namely the creation of pleasant learning condition. However, this condition makes the interaction between the two even weaker, due to the lack of intensity of face-to-face meetings. The COVID-19 outbreak creates changes in product purchasing decision, in this case Ruangguru tutoring.

There are several factors for high school students in the City of Jember whose learnings are to switch from offline tutoring to online tutoring. Some of the factors are the external factors: product, price, promotion, location, and service. In line with Suwatnoet al.'s research [6], the factors that influence high school students to choose a tutoring institution are product, price, location, promotion, process, and physical evidence.

## 2. Methods

This study is non-experimental research (survey) with descriptive research design. The sample was chosen using accidental sampling technique, which was performed spontaneously by giving questionnaires to respondents encountered during data collection in the research location. Based on the Lemeshow formula, the sample size was 100 respondents. The sample calculation used the Lemeshow formula because the population was unknown. Here is the Lemeshow's formula:

$$n = \frac{z^2 p(1-p)}{d^2} \tag{1}$$

Information:

n = number of samples

z = standard value = 1.96

p = maximum estimate = 50% = 0.5

d = alpha (0.10) or sampling error = 10%

Respondents in this study were 97 respondents, rounded up to 100 respondents who attended tutoring program at Ruangguru tutoring application. The results are presented in Table 1. Based on gender, the respondents were dominated by females totalling 81 people (81%).

**Table 1.** Respondent Profile

Male	Female	Total
19	81	100
(19%)	(81%)	(100%)

Source: Processed Data (2020)

The validity test was done using Karl Pearson's product moment formula with the criteria if  $r_{count}$  is larger than  $r_{table}$  at alpha 5%. Additionally, the reliability test used was Cronbach alpha with criteria if  $r_{count}$  is larger than  $r_{table}$  at alpha 5%. The data analysis technique used was SEM analysis. Descriptive analysis was used to describe the profile of respondents, while explanatory factor analysis was used to determine factors that shape consumer decisions in choosing Ruangguru tutoring application.

### 3. Results and Discussion

#### 3.1. Validity and Reliability Test

The results of the validity test were two items removed from the model, so that there were only extracted question items that were truly capable of being used to measure the constructs used. While the reliability test results showed that if  $r_{count}$  is larger than  $r_{table}$  at alpha 5%, it can be said that the instrument used was quite reliable to measure the variables studied.

**Table 2.** Validity Test Results

No.	Variable	Indicator	Pearson Correlation	Significance	Validity Result
1	Product	creative learning features	.851	,000	Valid
		complete study package	.616	,012	Valid
		competence of the tutor	.733	,000	Valid
		brand image	.600	,000	Valid
2	Price	affordable price	.712	,002	Valid
		the price suits the facilities	.658	,000	Valid
		the price suits the quality	.634	,000	Valid
3	Access	easy access in 1 application	.849	,000	Valid
		flexible access	.731	,000	Valid
4	Promotion	discount available	.842	,000	Valid
		advertising on tv and social media	.577	,000	Valid
5	Service	the artist's brand ambassador	.588	,000	Valid
		the staff gives good service	.554	,000	Valid
		quick administrative process	.693	,000	Valid
		easy administrative process	.454	,000	Valid
		customer service			

Source: Processes Data (2020)

Table 2 shows the 5 variable components and 16 indicators that influence the students' decision to study in the Ruangguru application. All statement items in the questionnaire can be used and trusted for data collection.

**Table 3. Reliability Test Results**

No.	Variable	Alpha Value	Reliable Crisis Figure	Test Result
1	Product	0,892	0,67	Reliable
2	Price	0,877	0,67	Reliable
3	Access	0,854	0,67	Reliable
4	Promotion	0,873	0,67	Reliable
5	Service	0,822	0,67	Reliable

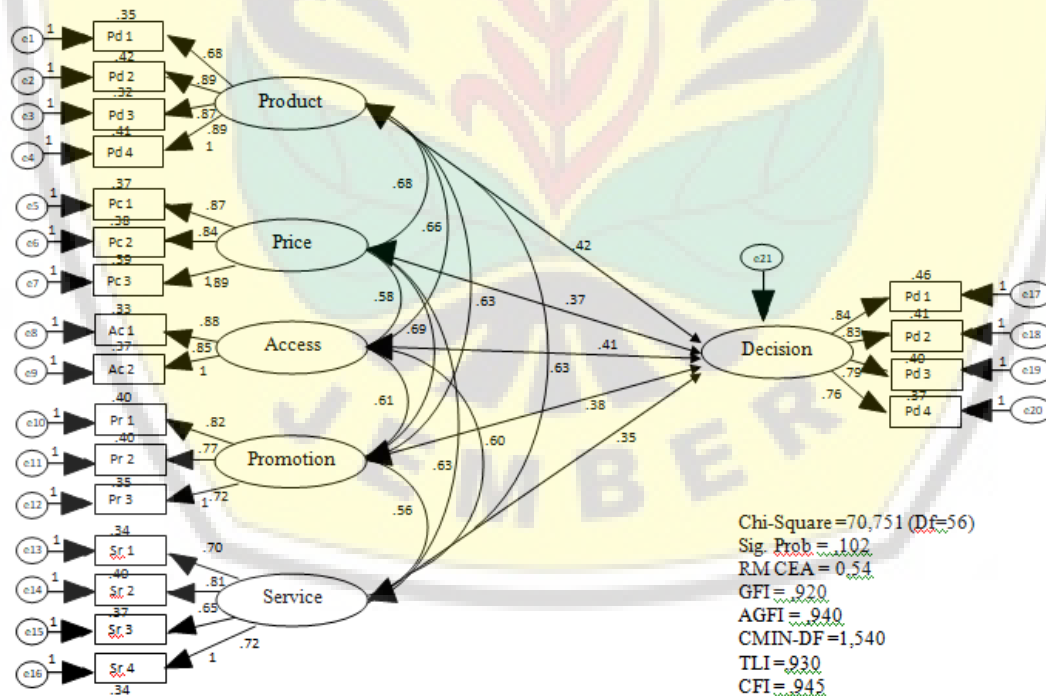
Source: Processes Data (2020)

Table 3 shows that the variables of product, price, access, promotion, and service are proven to be reliable. This means that the research results are quite reliable and in accordance with reality, and the results remain the same even though the questionnaire is distributed twice to the respondents.

3.2. Data Analysis

3.2.1. Structural Equation Modelling Analysis

The analysis used was the analysis of Structural Equation Modeling (SEM) or confirmatory factor analysis using the AMOS software version 20.00.



**Figure 1. Structural Equation Modelling**

Based on the chart above, it is known that the variables of product, price, access, promotion, and service have a direct effect on purchasing decision. The results of data analysis using SEM can be seen that the product factor has a dominant influence on the decision to study in the Ruangguru application. This is indicated with the path coefficient value of 0.420. After that, the second influencing variable is

access with a path coefficient value of 0.412. The third is promotion with a path coefficient value of 0.382, 4th is price with a path coefficient value of 0.372 and the last is service with a path coefficient value of 0.351. Based on the analysis, it is also found that the coefficient of determination is 0.88, which means that 88% of the decision to study in the Ruangguru application was influenced by the five independent variables, while the remaining 12% was influenced by other factors that were not identified in this study.

### *3.2.2. Product Influence on Purchasing Decision*

The features in the Ruangguru application product become the factors that have the most significant influence on the decision of high school students in Jember to study in the Ruangguru application indicated by the path coefficient value of 0.420. The available features include animated learning videos for 3 levels, summaries, question banks, learning progress, study schedules, teacher Robo, Ruangguru adventure, questions and answers, playmates and many others. Based on the questionnaire that has been distributed, it is known that respondents really like the products provided by the Ruangguru application because they are very helpful in understanding concepts when learning independently.

COVID 19 changes from traditional (face-to-face) learning to modern (online) learning. This raises negative impacts, one of which is the lack of student interaction to understand the material, which affects the level of students' understanding of some of the materials being taught. In addition, Ruangguru also develops special products for elementary schools' grade 1-3 with a game-like appearance and several majors for vocational high schools.

### *3.2.3. The effect of price on purchasing decision*

Based on the research, price has a significant influence in decision making of high school students in Jember to study in the Ruangguru application indicated by the path coefficient value of 0.412. The price offered to users is much more affordable when compared to conventional tutoring, starting from IDR 499,500 - IDR 3,000,000 per year with an initial payment. The price paid depends on the selected study packages. The study packages are Ruangbelajar, Ruangbelajar Plus, and Brain Academy (offline and Online). Meanwhile, offline tutoring starts from IDR 4,000,000 - IDR 8,200,000 per year depending on the institution you choose.

### *3.2.4. The effect of access on purchasing decision*

Based on the research, access has a significant influence in decision making for high school students in Jember to study in the Ruangguru application indicated by the path coefficient value of 0.382. The features provided in the subscription packages can be accessed in one application to make it easier to transfer knowledge, as well as flexible access. It means that it can be accessed anytime and anywhere. It is different with the access provided by conventional tutoring, whose accesses are limited, such as limited meetings, limited material access at certain levels.

### *3.2.5. The effect of promotion on purchasing decision*

Based on the research, promotion has a significant influence in decision making for high school students in Jember to study in the Ruangguru application indicated by the path coefficient value of 0.372. Promotions carried out by Ruangguru tutoring through TV, print media, promotions to schools, YouTube, and many others. In addition, Ruangguru also uses several matters as a Brand Ambassador such as Iqbal Ramadhan which is quite influential to attract users' attention. But now the Ruangguru Brand Ambassador has been replaced by Betrand Putra Onsu. This is very different from the promotions carried out by conventional tutors.

### 3.2.6. *The effect of service on purchasing decision*

Based on the research, service has a significant influence in decision making of high school students in Jember to study in the Ruangguru application, indicated by the path coefficient value of 0.351. Services provided to users or potential users are carried out quickly, starting from the consultation processes, purchasing products, to reporting problems. This makes users more confident in studying at Ruangguru to support their independent learning. This good service is not only from speed in terms of administration, but also friendly service and explanation that are easy to understand by the users so that it creates a sense of satisfaction with the choice of learning in the Ruangguru application.

The results of this overall study prove that the dominant factor affecting the purchasing decision of high school students in Jember to study in the Ruangguru application is the product indicated by the path coefficient value of 0.420. External factors in this study consist of price, access, promotion, and service. All the factors have an influence, but from the path coefficient value, it is known that the product factor is greater than the factor of price, access, promotion, and service.

Kotler and Armstrong in Jefry and Maskarto [6] state that product quality is a product or service characteristic that depends on its ability to satisfy customers' needs, either stated or implied. It is strengthened by the opinion of experts that brand image (product) has an influence on purchasing decision. Richardson et al. (1994) in the journal Gilaninia and Mousavian [7] state that brand image is often used as an extrinsic factor in making purchasing decision. Schiffman and Kanuk [8] state that consumers tend to trust a brand that is liked or known, if the consumers have no experience about a product.

## 4. Conclusions

This study tries to include several external factors including product, price, access, promotion, service in analyzing the dominant factors that influence the purchasing decision of high school students in Jember to study in the Ruangguru application. Our results show that product factor has a dominant influence on the decision to study in the Ruangguru application. This is indicated by the path coefficient value of 0.420. then, the second influencing variable is access with a path coefficient value of 0.412, the third is promotion with a path coefficient value of 0.382, 4th is price with a path coefficient value of 0.372, and the last is service with a path coefficient value of 0.351.

Both product and promotion have a positive and strong relationship with each other. There are two reasons for the strong positive relationship. First, through promotion, customers find out the product attributes and facilities of the product that encourage people to buy. Second, promotion can increase product sales and brand image. The number of customers using this product makes the brand image higher. This brand image is the key in product marketing. Schiffman and Kanuk [8] state that consumers tend to trust a brand that is liked or known, if the consumers have no experience about a product.

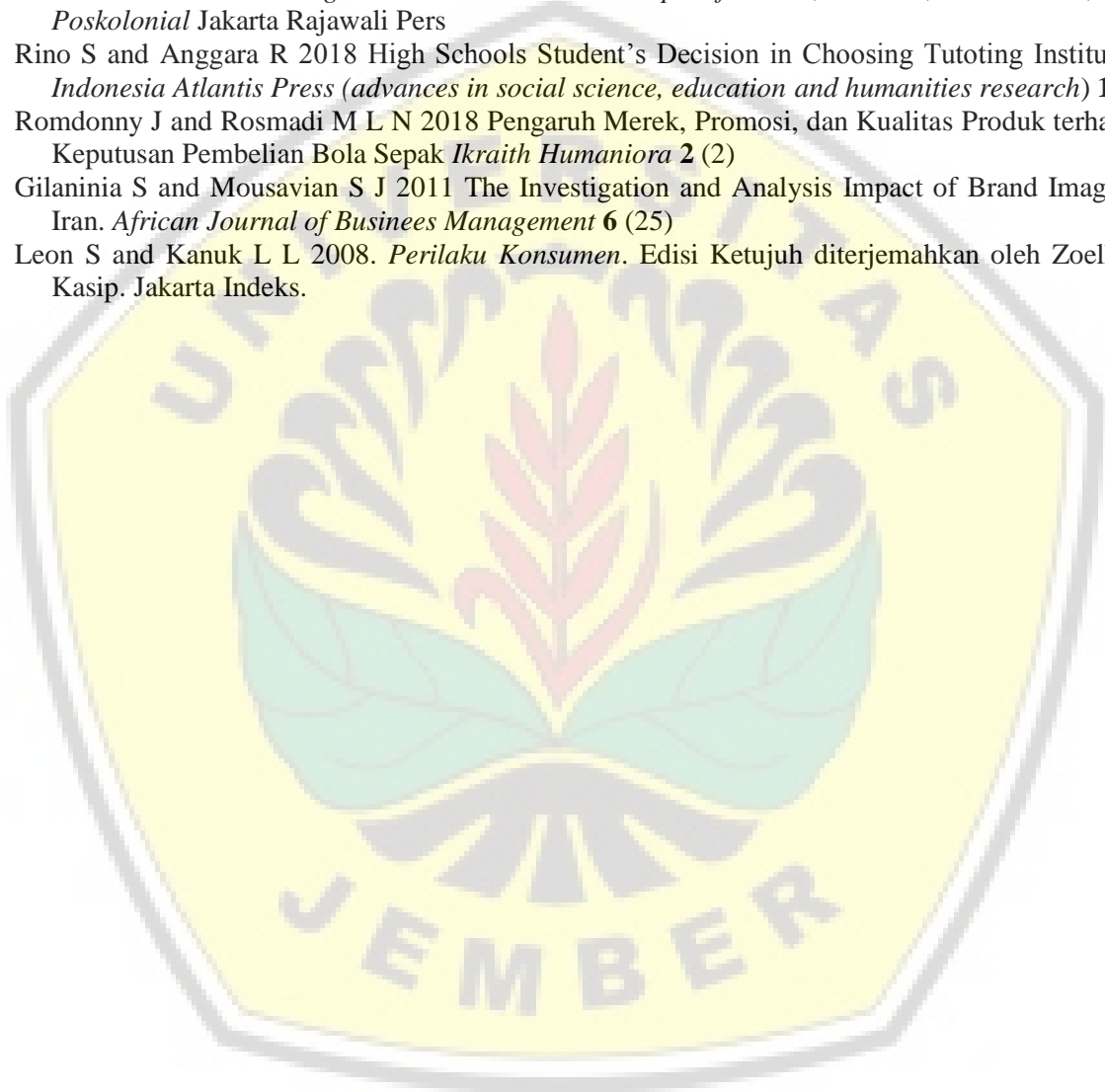
Apart from the results of this study, the Ruangguru tutoring application now competes with conventional tutoring institutions. The COVID pandemic creates a new normal condition that requires all fields including conventional tutoring institutions to start switching to using IT. Even so, the users of the Ruangguru application still entrust their learning to Ruangguru. This is because conventional tutoring institutions are not ready for the use of IT, such as incomplete facilities in the application provided, limited access, so there is no discussion in the question banks. It is different with the Ruangguru application which has innovated and strengthened its brand image regarding online tutoring applications that can be accessed easily in one application.

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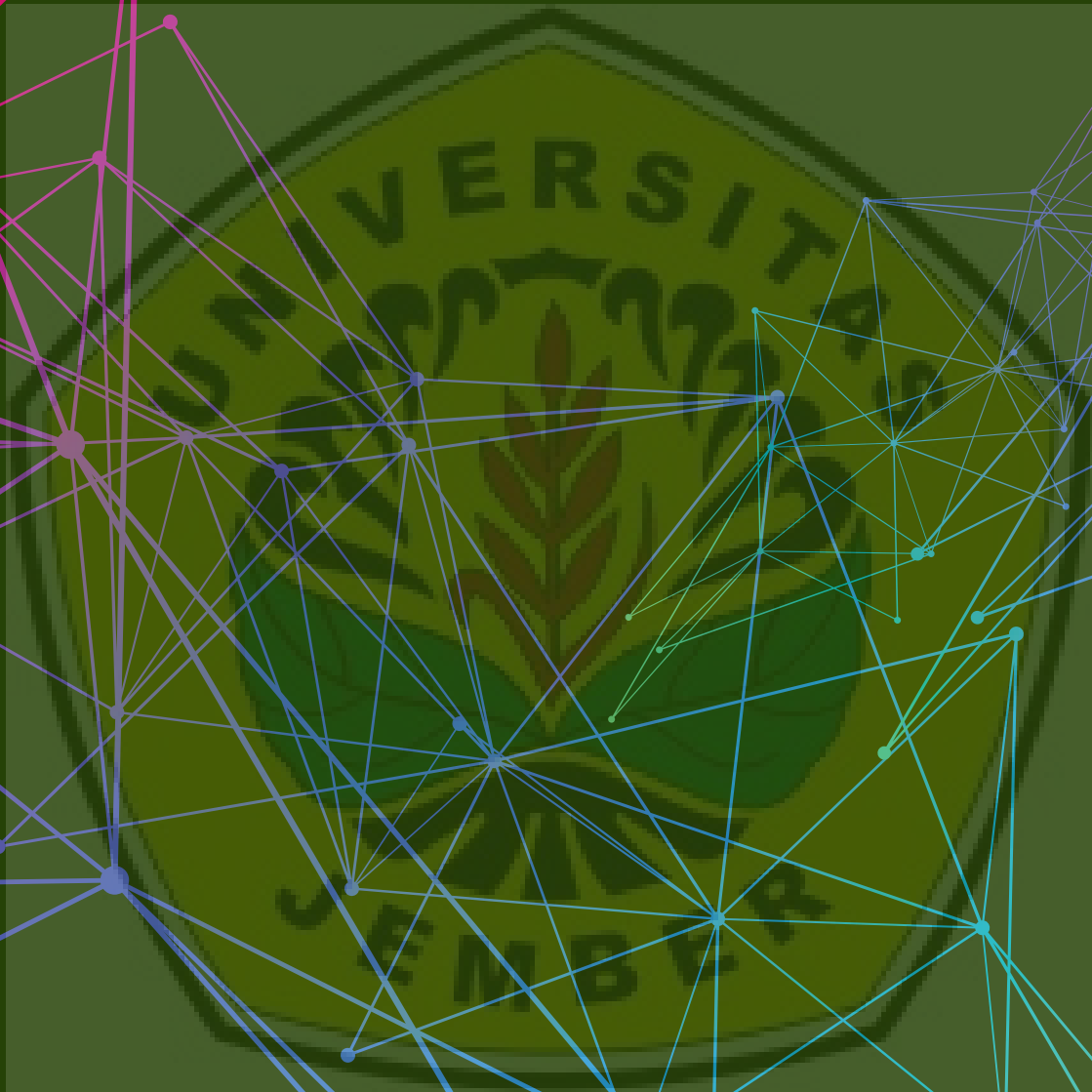
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