Contribution of Local Product Purchase Policy to Improvement of the 21st Century Learning

NUR KHOLIFAH[1a], NUUR WACHID ABDUL MAJID[2b], HANI SUBAKTI[3c], GINA EKA PUTRI[1d], SUYITNO[4e], M. TAJUDIN ZUHRI[5f]
[1]Department of Fashion Design, Faculty of Applied Vocational,
Yogyakarta State University,
Colombo Street No. 1, Slemen regency, 55281 DI Yogyakarta,
INDONESIA
[2]Department of Information System & Technology Education,
Universitas Pendidikan Indonesia,
Veteran No.8 St., Purwakarta District, Purwakarta Regency, 41115 West Java,
INDONESIA
[3]Department of Primary Teacher Education,
Widya Gama Mahakam Samarinda University,
Wahid Hasyim 2 No.28, Sempaja Sel., North Samarinda Regency, 75124 East Kalimantan,
INDONESIA
[4]Department of Automotive Engineering Education,
Universitas Muhammadiyah Purworejo,
Purworejo, Purworejo Regency, 54151 Central Java,
INDONESIA
[5]Department of Social and Politics Science,
Garut University,
Raya Samarang No.52A St. Tarogong Kaler Regency, 44151 West Java,
INDONESIA
[a]https://orcid.org/0000-0003-3775-6461, [b]https://orcid.org/ 0000-0001-9851-2124,
[c]https://orcid.org/ 0000-0002-6376-5807, [d]https://orcid.org/ 0000-0003-2459-7369,
[e]https://orcid.org/ 0000-0003-0314-2445, [f]https://orcid.org/ 0000-0001-7329-5979.

Abstract: - This study aims to analyze the contribution of the "Bela-Beli" policy for improving 21st-century skills in vocational education graduates, including creativity, critical thinking, problem-solving, communication, collaboration, and digital literacy. This research is ex-post facto research with a quantitative data approach. This study involved 155 respondents from the community who graduated from vocational education in Kulon Progo Regency. Data was collected through a questionnaire method with a 4 Likert scale questionnaire instrument with answer options Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The collected data were then analyzed using regression analysis and structural equation modeling (SEM). The results of the research that have been analyzed show that the "Bela-Beli" policy contributes significantly to the improvement of 21st-century skills which include creativity, critical thinking, problem-solving, communication, collaboration, and digital literacy in the vocational community of graduates of vocational education. Thus, the policy is very feasible to continue to be applied, even to be developed, so that the community can continuously improve the 21st-century skills currently needed in the world of work, especially for vocational education graduates.

Key-Words: - Local product policy, 21st-century skills, vocational education, bela-beli, digital literacy, 4C-skills.

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1 Introduction

The absorption of vocational education graduates in the industry is still a big question mark, [1], [2]. The amount of absorption in the relevant industry still shows a low percentage, [3]. This problem has been going on for a long time without a clear solution that

can overcome these problems, so the essence of vocational education that is oriented to the world of work still cannot be achieved, [4], [5], [6], [7], [8], [9]. In addition, vocational education, which should be an institution for sustainable development, actually makes graduates inefficient, hindering their development, [10], [11], [12]. Of course, this problem cannot be allowed to continue without clear effective solutions. Revitalizing in various aspects is an important step that must be carried out as a whole, [13]. In addition, the focus on improving the work skills needed at this time is also an important key to equipping competitiveness for vocational education graduates, so that aspects of absorption in the industrial world can be improved, [14], [15].

The 21st-century skills are now an important aspect that must be mastered by the workforce or human resources throughout the country, especially in vocational education graduates, [15], [16], [17]. The rate of significant change in science and technology is the basic reason 21st-century skills are mandatory for everyone, especially vocational education graduates whose essence is equipped with work competencies, [18], [19]. Skills in problem-solving, critical thinking, and creativity are at the heart of 21st-century work, [20], [21]. In addition, the ability to communicate and collaborate is a basic aspect that is also very important in today's work, [22], [23]. It's not enough, today's world of work that has transformed into digitizing jobs requires strong digital literacy skills, [24], [25]. Thus, in this 21st century, a skilled and competent workforce must master these six skills.

Various aspects continue to encourage various countries to develop 21st-century skills in their human resources, one of which is the economic aspect, [26]. The economy is important to a country's development and progress, [27]. The economy also plays an important role in building the capability of a country's human resources, [28]. The prolonged decline in economic stability will reduce the productivity of human resources and the quality of competition, [29]. Now, all countries continue to strive to boost their economic aspects to become advanced to increase competitiveness and develop human resources based on the 21st-century world of work, [26].

Various ways have been done to encourage the economy to grow well, one of which is through local economic policies. The local economy is a policy to promote the sale and purchase of local products, which can later become the capital for the economic development of a region, [30]. The local economy also plays a role in increasing job opportunities for local people. Appointing the potential possessed by the community is also an advantage of implementing local economic policies, [31], [32]. Increased job opportunities followed by lifting local potentials will trigger motivation and enthusiasm for self-development in human resources, [33]. In addition, awareness, and concern for the development of science and technology will also be awakened within oneself, [34]. Thus, the skills currently needed, namely 21st-century skills will also be easily formed along with self-development, motivation, and awareness of development as a positive influence on local economic implementation policies.

Each country, including Indonesia, has implemented many local economic policies. The regional economic policy system to raise the rate of local economic growth has been carried out by several regions, [35]. One of them is Kulon Progo Regency, namely buying and selling local products from the area known as “Bela-Beli.” The *Bela-Beli* is a policy released by the Kulon Progo district government in 2013, [36]. The main objective of the policy is the welfare of the community with local products produced within the district, [37]. Through the program to buy local products, people's income will increase for the better. In addition, the community, especially those with a vocational education background, will be motivated to increase productivity in making products, [38].

Motivation to increase productivity is important in building competencies, including 21st-century skills, [39], [40]. Motivation is the initial impetus that gives the spirit and willingness to do something, which will help smooth in building these skills, [41]. Through the local economic policy of “Bela-Beli” as implemented by the Kulon Progo Regency, Indonesia is expected to be effective in spurring the community, especially vocational education graduates, to improve 21st-century skills, which are currently the main job qualifications in the world of work. Thus, this study aims to analyze the contribution of the local economic policy "Bela-Beli" implemented by the Kulon Progo district government, Indonesia, in improving 21st-century skills in vocational education graduates.

2 Methods

This study is an ex-post facto study to explore data related to events that have occurred. This study does not directly control or treat the independent variable because of the event. This study was conducted to analyze the contribution of the "Bela-Beli" policy to improving 21st-century skills in the community of vocational education graduates. This study involved

155 respondents from the community who graduated from vocational education in Kulon Progo Regency. Research respondents comprised several aspects, including gender, age range, and work experience. The distribution of research respondents is shown in Table 1 below.

Table 1. Distribution of research sample

Aspect	Sub Aspect	Frequency	Percentage
Gender	Male		
	Female		
Age of range	≤ 20 years	82	52,90
	old	73	47,09
	21 – 25	16	10,32
	years old	47	30,32
Work	26 – 30	64	41,29
experience	years old	28	18,06
	>30 years	36	23,22
	old	61	39,35
	≤ 2 years	33	21,29
	3 – 7 years	25	16,12
	8 – 12 years		
	> 12 years		

Data was collected through a questionnaire method with a 4 Likert scale questionnaire instrument with answer options Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The instrument was developed based on theoretical references relevant to the "Bela-Beli" policy and 21st-century skills. The following grid of research instruments is shown in Table 2 below.

Table 2. Instrument grids

Learning skills aspect	Code	Indicators	Items	References
"Bela-Beli"	BB	Understanding the definition and purpose	4	[36], [37]
		Experience the success of others	2	
		Experience your success	2	
		System support from the government	4	
Creativity	Cr	Market clarity	4	[22]
		Creative thinking	4	
		Creative in collaborating	4	
Critical thinking	CT	Implementing innovation	2	[42], [43]
		Effective reasoning	3	
		Systemic thinking	3	
		Complex assessment	2	
		Quality of decision making	2	
Problem-solving	PS	The quality of the problem	3	[42], [43]
		Complexity of ways	4	
		Solution analysis skills	3	
Communication	Cm	Clarity of verbal articulation	1	[42], [44]
		Effectiveness in listening	1	
		Clarity of purpose of communicating	1	
		The use of ICT in communicating	1	
		Flexible compromises	1	
Collaboration	Cl	Collaborative work responsibilities	2	[42], [45]
		Efficiency of use	2	
		Effectiveness of use	2	
Digital literacy	Dl	Understanding of purpose & benefits	5	[42], [45], [21]
		Understanding of digital ethics	5	

In this study, the "Bela-Beli" policy becomes an exogenous variable. Meanwhile, Creativity, Critical Thinking, Problem-Solving, Communication, Collaboration, and Digital Literacy are endogenous variables. Conformity tests and statistical tests include chi square, GFI, AGFI, and RMSEA.

$$X^2 = \Sigma(O_i - E_{i)}{}^2/E_i \quad (1)$$

Where O_i is observed value (Actual value) and E_i = expected value

Adjusted goodness of fit index (AGFI)

$$AGFI = 1 - \frac{k(k+1)}{2df_{test}}(1 - GFI) \quad (2)$$

$$GFI = 1 - \frac{tr(\Sigma^{-1}S-1)^2}{tr(\Sigma^{-1}S)^2} \quad (3)$$

S = the sample covariance matrix, Σ = the estimated covariance matrix, tr = trace of a matrix, I = identity matrix, df_{test} = the degrees of test model, k = the number of observed variables.

Root Mean Square Error of Approximation

$$RMSEA = \sqrt{\max(\frac{d}{df}, 0)} \quad (4)$$

$d = (X^2 - df)/(N-1)$, *where $X^2 - df$ is the sample estimate of the noncentrally parameter*, [46].

The data that has been collected is then analyzed using regression analysis and structural equation modeling (SEM), which allows the relationship between the constructs of exogenous and endogenous variables to be tested while considering measurement errors. Data analysis in this study uses SPSS V21 and Amos 22 software support.

3 Results

3.1 Validities and Reliabilities of Instruments

Before testing the hypothesis using SEM analysis, the validity and reliability of the instrument was first tested using Pearson and Cronbach alpha correlations to assess the feasibility and consistency of buying and selling questionnaires and 21st-century skills questionnaires, totalling seven instruments. The validity test results showed that all research instrument items were valid and ready for research use. None of the items from any of the questionnaires were dropped. All items on all instruments have met the criteria of validity with the indicated significance value (p) above 0.05. Meanwhile, the reliability test shows a number with very high criteria on all instruments. This shows that the seven measuring tools have a good level of accuracy for measuring perceptions of "Bela-Beli" policies and 21st-century skills in the community of vocational education graduates. The following table 3 presents the results of the validity and reliability tests in more detail.

Table 3. Validities and reliabilities instruments

Variable	Validity		Reliability	
	p	Decision	CR	Category
Bela-Beli	.384 – .765	Valid	.892	Very high
Creativity	.211 – .871	Valid	.924	Very high
Critical thinking	.181 – .627	Valid	.927	Very high
Problem-solving	.412 – .711	Valid	.876	Very high
Communication	.269 – .477		.915	Very high
Collaboration	.283 – .884		.897	Very high
Digital literacy	.273 – .867		.908	Very high

Note: significance level = 5%

3.2 The Contribution of "Bela-Beli" to 21st Century Skills Improvement

The results of the first model test show that the structural model has a good fit. This is indicated by the values, among others, Chi-square = 1.471; GFI = 0.992; AGFI = 0.974; RMSEA = 0.042 (see Fig. 1). Each variable has a loading factor value of more than 0.50, so it has a strong level of validity. However, one indicator on the communication variable has a low loading factor value, which is 0.364. The minimum value of the loading factor to be said to have a strong level of validity is 0.50, so the indicator is eliminated.

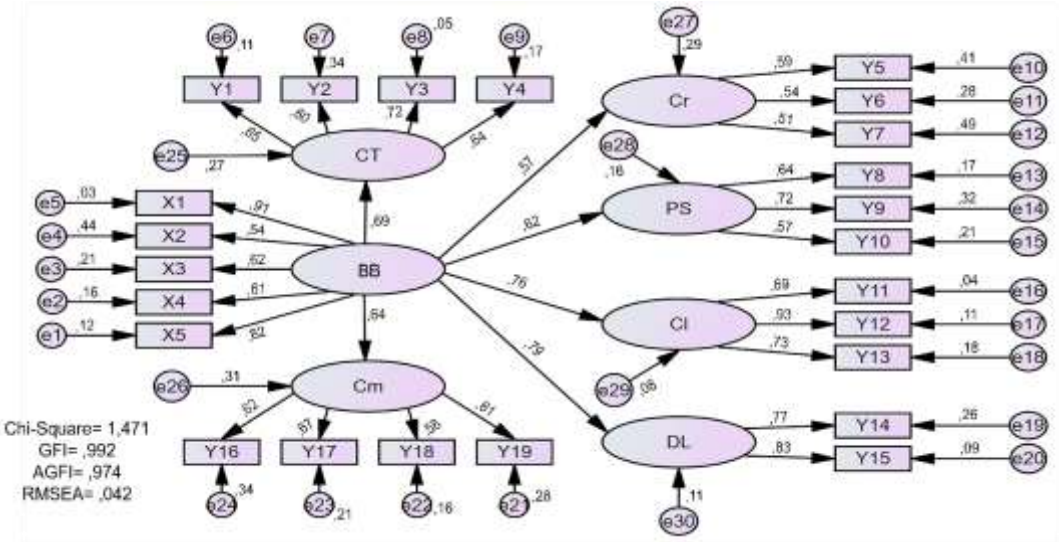

Fig. 1: SEM analysis result

Hypothesis testing was conducted to determine the effect or contribution of the " Bela-Beli " policy on improving 21st century skills in vocational education graduates, which include creativity, critical thinking, problem solving, communication, collaboration, and digital literacy. Hypothesis testing is seen based on the results of path analysis to determine the estimated value of the effect and the significance value with a significance level of 5%. The alternative hypotheses to be tested are: (1) there is a significant positive effect of the "Bela-Beli" policy on the creative skills of the vocational education graduates; (2) there is a significant positive effect of the "Bela-Beli" policy on the critical thinking skills of the people of vocational education graduates; (3) there is a significant positive effect of the "Bela-Beli" policy on the problem-solving skills of vocational education graduates; (4) there is a significant positive effect of the "Bela-Beli" policy on the communication skills of the people of vocational education graduates; (5) there is a significant positive effect of the "Bela-Beli" policy on the collaboration skills of the vocational education graduate community; and (6) there is a significant positive effect of the "Bela-Beli" policy on the digital literacy skills of the vocational education graduate community. The following Table 4 presents the results of hypothesis testing using path analysis.

Table 4. Result of path analysis

Path	Estimate	SE	CR	p
Bela-Beli – creativity (BB – Cr)	.575	.029	1.983	.047**
Bela-Beli – critical thinking (BB – CT)	.690	.027	2.555	.016**
Bela-Beli – problem-solving (BB – PS)	.623	.016	3.894	.001**
Bela-Beli – communication (BB – Cm)	.641	.031	2.068	.038**
Bela-Beli – collaboration (BB – Cl)	.760	.080	9.500	***
Bela-Beli – digital literacy (BB – DL)	.794	.110	7.218	***

Testing the effect of the "Bela-Beli" policy on all 21st-century skills shows a significant effect. The "Bela-Beli" policy affects creativity with a value of 0.575**, so the first hypothesis is accepted. The "Bela-Beli" policy affects critical thinking with a value of 0.690**, so the second hypothesis is accepted. The "Bela-Beli" policy affects problem-solving with a value of 0.623**, so the third hypothesis is accepted. The "Bela-Beli" policy has an influence value of 0.641** on communication, which means that the fifth hypothesis is accepted. Then, the influence value of 0.760*** on the effect of the "Bela-Beli" policy on collaboration makes the fifth hypothesis accepted. Then the last known value of the influence of the "Bela-Beli" policy on digital literacy is 0.794***, thus accepting the sixth hypothesis. The entire value of the influence of the "Bela-Beli" policy on 21st-century skills means that the policy contributes significantly to the improvement of 21st-century skills, which include creativity, critical thinking, problem-solving, communication, collaboration, and digital literacy in the vocational community of vocational education graduates.

4 Discussions

The entire value of the influence of the "Bela-Beli" policy on 21st-century skills means that the policy contributes significantly to the improvement of 21st-century skills, which include creativity, critical thinking, problem-solving, communication, collaboration, and digital literacy in the vocational community of vocational education graduates. The significant influence of the "Bela-Beli" policy on 21st-century skills indicates the importance of a local policy in an area that is oriented to the economic welfare of society, [47]. In other words, the community has a mission to encourage their ability to compete during the development of science and technology in the 21st century if they get an impact, [48]. The policy to raise the potential and local economy has a real impact in encouraging the community, especially those with a vocational education background, to develop 21st-century skills, [33].

Creativity is one of the 21st-century skills that is also increasing due to the influence of the "Bela-Beli" policy. Creativity can be formed if there is a stimulus that is able to encourage one to carry out the process, [49]. Creativity refers to a person's ability to process the mind to find new ideas that are original and implement them in the form of innovation, [22], [45]. The increase in these skills cannot be separated from various factors. Appreciation for local products triggers skilled workers to develop their products to increase product quality, so it is hoped that the community as customers will feel happy and continue to use their products, [47]. Then, people with a substantial income from local customers make sufficient funds to develop a product and make new products that are even better, [50]. In addition, policies that lead to local competition in an area will spur enthusiasm to continue to innovate to create new products as a form of positive competitiveness.

An increase also followed increased creativity and critical thinking skills in vocational education graduates due to the significant positive influence of implementing the "Bela-Beli" policy. Critical thinking skills are great skills that involve the mental activity of individual thinking in analyzing a problem that is being faced through various points of view based on the facts that occur, [51], [42]. The involvement of mental thinking activities in analyzing problems from various points of view certainly requires a stimulus that will also be oriented to reality, [52]. The fulfillment of the element of satisfaction in the individual will motivate him to carry out critical thinking activities. In addition, the distribution of one's thoughts also significantly triggers a deeper critical thinking process, [53]. This is the basis of the "Bela-Beli" policy in increasing critical thinking skills. The policy orientation that leads to the community's welfare motivates and stimulates the community to carry out essential thinking activities, [36]. Thus, the more the "Bela-Beli" policy is further improved in its implementation, the more likely it will increase skills in critical thinking in the community of vocational education graduates.

Problem-solving-oriented activities always require critical and creative thinking to solve them, [20]. A person's motivation to carry out mental activities in critical thinking will indirectly affect his skills in solving problems. In addition, the growth of creativity in a person will also affect critical thinking, [54]. Creativity will allow individuals to formulate new solutions or refine existing solutions for problem-solving. The emergence of new and in-depth solutions from various points of view will provide convenience in solving a complex problem, [43], [55]. On the other hand, critical thinking can also support an in-depth problem-solving process with in-depth analysis from various factual points of view.

Of course, we also need skills oriented toward efficiency and effectiveness in problem-solving. Communication and collaboration are skills that can achieve efficiency and effectiveness in solving

complex problems, [56]. In a good collaboration, individuals can work together to solve problems, so problem-solving quality will also improve, [57]. Meanwhile, effective communication between individuals will provide a clear understanding of one another, [58]. The significant effect of implementing the "Bela-Beli" policy on skills in communicating and collaborating is tangible evidence that is reflected in the community, especially those who graduate from vocational education. Buying and selling local products will trigger a collaborative process between individuals in their work, [36]. Meanwhile, communication is needed to achieve good collaboration so that the estuary of vocational education graduates will be encouraged to improve their communication skills.

The significant effect of implementing the "Bela-Beli" policy on digital literacy skills shows that the digital literacy of the community, especially vocational education graduates, is stimulated by activities oriented to buying and selling local products. The need to understand using the right technology in implementing these policies makes people highly aware of digital literacy, [59], [60], [61]. Digital literacy can be used as an understanding that leads people to market products through digital technology, [62], [63]. High digital literacy will also make it easier for people to communicate and collaborate. In addition, high digital literacy will also make it easier for the community, especially graduates of vocational education to foster creativity and critical thinking through the exploration and filtration of various digital sources relevant to their work, [42]. Then, the estuary is also the skills in solving problems in the community of vocational education graduates will also increase significantly, [43]. Thus, it can be said that digital literacy is a comprehensive basis for supporting the formation of other 21st-century skills.

5 Conclusion

One of the innovations to boost the 21st-century skills in vocational education graduates was revealed. The "Bela-Beli" policy is one of the innovations that has been proven to significantly build 21st-century skills in the community of vocational education graduates. This happens because people are motivated to improve these skills after being stimulated and motivated by implementing the "Bela-Beli" policy. The community very well receives policies that are oriented towards buying and selling local products, always trying to develop themselves in terms of product manufacturing. The self-development includes creativity, critical thinking, problem-solving, communication, collaboration, and digital literacy. The "Bela-Beli" policy will require people to have these skills. Thus, the policy is very feasible to continue to be applied, even to be developed, so that the 21st-century skills currently needed in the world of work can be continuously improved by the community, especially graduates of vocational education.

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Nur Kholifah has, writing – review and editing, conceptualization and supervision.
Nuur Wachid Abdul Majid has, investigation, data curation, methodology and visualization.
Hani Subakti has, funding acquisition and resources.
Gina Eka Putri has, writing – original draft, forman analysis and software.
Suyitno has,validation and software.
M. Tajudin Zuhri has, project administration and visualization.

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