

CONFIRMATORY FACTOR ANALYSIS IN ENTREPRENEURSHIP ON ADMINISTRATORS AND MEMBERS OF STUDENT COOPERATIVES IN SURABAYA PRIVATE UNIVERSITIES

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Abstract

Universities are expected to be able to provide students with both theoretical knowledge and the soft skills to use them through student cooperatives. Based on this, our research aims to find solutions to foster entrepreneurial spirit in student cooperatives present in private universities in Surabaya. This study drew its population from members and administrators of student cooperatives who are part of the Surabaya Student Cooperative Association. The sample was taken from 150 people, using a questionnaire for data taking. The results showed that the involvement of students in cooperative activities, both as members and administrators, would encourage growth in entrepreneurial spirit. Factor analysis proved that self-confidence, leadership, creativity, risk-taking, task- and result-oriented, and future-oriented outlooks were important variables of entrepreneurship growth. Thus, it can be concluded that student cooperatives can be used as a place to encourage development of student entrepreneurship skills, so that private universities in Surabaya are able to use this information to address soft skill development.

Key words: student cooperatives, entrepreneurship, soft skills.

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1. Introduction

One of the purpose of university as the educational institute concerned with independent behavior development may be realized though student-run cooperatives. These entities serve as a form of cooperative established by students, as a form of cooperative established by students under the Cooperative Act No. 25 of 1992. Student cooperatives have an important role for both members and non-member. The benefits of cooperatives for non-members, among others, make it easier for students to get the items they need in the campus environment, without the need to go far away from their campus. For members, they have an opportunity to, among others, learn how to organize, understand the concepts of human resources, procedures for accounting and financial management, business management, administration, management, communication, cooperation, and other aspects that fosters independent behavior. The entrepreneurial spirit of the students will be fostered through this, which in turn will help them when they enter the workforce, and may also lead to new job opportunities.

The student cooperative may also be used to foster other aspects of entrepreneurship, such as creativity to make their own products to sell, social relationships, to leadership qualities, so that the students are able to use it well after their graduation and hopefully reduce unemployment. Cooperatives are also able to provide for members to open their own business (Anoraga, 2007). Nugroho (2015) also proved that student-run cooperatives played a role to motivate and train aspects of entrepreneurship in its members.

This research maims to determine the significant indicators that compose the aspects of entrepreneurship in the members of student-run cooperatives in private universities in Surabaya using confirmatory factor analysis, or CFA. This is a system to test how a measurement of a construct of concepts fits to a hypothesized measurement model, thus explaining the concept. (Hair et al., 2006)

2. Basic Theory

2.1. Confirmatory Factor Analysis (CFA)

A CFA model may be written as follows (Joreskog and Sorbom, Schumacker and Lomax, 2004)

$$\mathbf{y} = \mathbf{A}_y \boldsymbol{\eta} + \boldsymbol{\varepsilon} \quad (1.1)$$

$$\mathbf{x} = \mathbf{A}_x \boldsymbol{\xi} + \boldsymbol{\delta} \quad (1.2)$$

Where $\mathbf{y} = (p \times 1)$ and $\mathbf{x} = (q \times 1)$ are vectors of observed variables, $\mathbf{A}_y = (p \times m)$ and $\mathbf{A}_x = (q \times n)$ are coefficient matrices that shows the relation from \mathbf{y} to $\boldsymbol{\eta} = (m \times 1)$ and \mathbf{x} to $\boldsymbol{\xi} = (n \times 1)$, and $\boldsymbol{\varepsilon} = (p \times 1)$, $\boldsymbol{\delta} = (q \times 1)$ are measurement errors of \mathbf{y} and \mathbf{x} . For example, if there are equations as follows:

$$y_1 = \lambda_{y_{11}} \eta_1 + \varepsilon_1$$

$$y_2 = \lambda_{y_{21}}\eta_1 + \varepsilon_2$$

$$y_3 = \lambda_{y_{32}}\eta_2 + \varepsilon_3$$

$$y_4 = \lambda_{y_{42}}\eta_2 + \varepsilon_4$$

and

$$x_1 = \lambda_{x_{11}}\xi_1 + \delta_1$$

$$x_2 = \lambda_{x_{21}}\xi_1 + \delta_2$$

This can be rewritten in matrix form as follows.

$$\begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \end{bmatrix} = \begin{bmatrix} \lambda_{y_{11}} & 0 \\ \lambda_{y_{21}} & 0 \\ 0 & \lambda_{y_{32}} \\ 0 & \lambda_{y_{42}} \end{bmatrix} \begin{bmatrix} \eta_1 \\ \eta_2 \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \\ \varepsilon_4 \end{bmatrix}$$

and

$$\begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} \lambda_{x_{11}} \\ \lambda_{x_{21}} \end{bmatrix} \begin{bmatrix} \xi_1 \end{bmatrix} + \begin{bmatrix} \delta_1 \\ \delta_2 \end{bmatrix}$$

Parameter estimation in the CFA model uses the Maximum Likelihood (ML) method, which can be formulated as follows:

$$F_{ML} = Ln|S| - Ln|\Sigma| + trace(S\Sigma^{-1}) - p \quad (1.3)$$

where S is the sample covariance variant matrix, Σ is the covariance variant matrix prediction and p is the number of indicators present in each latent/construct variables.

2.2. Entrepreneurship

The growth of the business world presents a ripe opportunity for continuous growth for entrepreneurs, both small and medium scale. Entrepreneurship is, at its core, an ability possessed by an individual to pay attention and evaluate promising business opportunities. Thus, entrepreneurs are people who have the ability to read and assess business opportunities, gather information sources needed to take appropriate actions or decisions, have the nature, character and willingness to realize creative and innovative ideas for the real world in achieving success despite various challenges and risks faced in their life. Schumpeter (Alma, 2010) posits that entrepreneurs are people who disrupts the existing economic system by introducing new goods and services, creating new forms of organization and processing new raw materials. Success in entrepreneurship is not obtained suddenly or instantly and by chance, but by extensive planning, having vision, mission, hard work, and responsible courage. Alma (2010) states that entrepreneurs are innovators, individuals who, by instinct, see opportunities, have enthusiasm, ability and mind to conquer slow and lazy ways of thinking.

Epistemologically, entrepreneurs are people who have the creativity and innovative thinking to plan and carry out actions oriented to succeed in the business

world. Saiman (2009) states that people who decide to start a business as franchisor starts as a franchisee, expands their company, buys an existing company, and allows to borrow money to produce a new product or offer a new service. According to Soegoto (2009), an entrepreneur is a creative and innovative person who is able to establish, build, develop, advance and make his company to be exemplar in its field. Nickels (2005) states that entrepreneurial skills of a person must have such aspects as (a) proper direction, (b) belief in self, (c) being action oriented, (d) energetic, and (e) tolerance for uncertainty, while Suryana (2006) states that a person who has an entrepreneurial spirit must have characteristics such as (a) belief in self, (b) dare to take risks, (c) staunch leadership, (d) task- and results-oriented, (e) creative, and (f) future-oriented.

2.3. Student Cooperatives

Alfred Hanel (1989) defines cooperatives as an autonomous organization that exists as a socio-economic environment, which allows each individual and every group of individuals to formulate their goals through economic activities carried out together. The International Cooperative Alliance (Ann Hoyt, 1996) also defines cooperatives as autonomous associations of individuals who are volunteered to fulfill their same economic, social and cultural needs and aspirations through companies that are democratically owned and supervised. This definition emphasizes the application of values such as self-help, self-responsibility, democracy, equality, honesty, openness, social responsibility and concern for others. These values are described as follows.

1. Self-help, which means the cooperative aims to mobilize the potential of members to solve problems together through cooperation, while benefitting its member through the decisions and actions they make.
2. Self-responsibility, meaning each member is accountable for their actions and responsibilities, while working together for the benefit of the cooperative.
3. Democracy, meaning the management of the cooperative as an economic organization owned and controlled by members, which means that each member is actively involved in determining the direction and simultaneously controlling the course of the cooperative.
4. Equality, by treating each member exactly the same regardless of each member's contribution.
5. Equity, the ideal inspired by the fact that injustice occurs in people's lives due to the system of liberalism. The moral value of cooperatives is enforced through institutional mechanisms such as the distribution of the remaining proceeds to members based on the balance of services for each member.
6. Solidarity is an awareness of cooperation and fellowship in each member that works together to achieve their shared goals.

Based on this understanding, student cooperatives are a type of cooperative whose members mainly come from voluntarily-joining students. Students become the main characters in cooperatives, as managers, owners and users of the cooperative's products. Students are prime targets for national cooperatives to become strong entrepreneurs who can build a stable cooperative climate to build a strong national economy. Firmansyah (2014) states that student cooperatives are a good place to form proper cooperatives, using the characteristics of the young generation as being dynamic, creative, innovative, and idealistic. His research posited that student cooperatives, in the stage of greater economic development of the people, can act as a container for the transformation of the cooperative value for the betterment of the member and the nation, a cadre institution that is professional, ideal, creative and constructive, an institution that fights for proper economic values and are catalysts for a conducive climate, and an economic institution with a focus on social characters to improve the nation's economy and the welfare of its members.

Student cooperatives have their own identity and characteristics, distinct from other cooperative types. Fajar Kurniawan (Agustine, 2014) states that student cooperatives have been underestimated by the general public, only understood as business entities that carry out buying and selling transactions to achieve the welfare of their members. This shallow connotation makes student cooperatives less familiar to students. However, student cooperatives are able to become a place for students to strengthen their foundation of morality, by applying the life skills earned in the cooperative environment. Kamil (2010) states that life skills are skills possessed by someone that faces life problems naturally without feeling pressured, then proactively and creatively find solutions that are able to overcome the problems. Chaudhary and Mehta (Parvathy, Renjith Pillai, 2015) According to WHO, life skill refers to abilities for adoptive and positive behavior that enables an individual to deal effectively with the demands and challenges of everyday life.

3. Methodology

The data sources used in this research are primary data, with the number of research samples calculated based on the following formula (Ferdinand, 2006):

$$\begin{aligned}n &= (25 \times \text{independent variables}) \\ &= 25 \times 6 \text{ entrepreneurship variables} \\ &= 150.\end{aligned}$$

From these calculations, 150 respondents were chosen as the research samples, with data taken using accidental sampling from members and administrators of cooperatives who were members of the Surabaya Student Cooperative Association, consisting of 9 (nine) private universities in Surabaya taken from the list as follows:

Table 1. Private Universities in Surabaya

No	Type of University	Total
1	University	23
2	College	24
3	Institute	3
4	Academy	12
5	Polytechnic	2
Total		64

This research uses 6 (six) latent variables to determine the entrepreneurship characteristics of student members and administrators of KOPMA (Student Cooperative), which include variables of self-confidence, risk taking, leadership, task- and results-oriented, creativity and future-oriented. The operational description of the variables used in the research can be seen in Table 2 as follows:

Table 2. Student Entrepreneurship Variables from KOPMA members and administrators

No	Variable	Statement Item
1	Self confidence	I have confidence through KOPMA to study about entrepreneurship (×11)
		I trust and I am confident in KOPMA's value as a great asset for successful entrepreneurship (×12)
		I am always confident about what I do in developing KOPMA's business (×13)
		I am able to overcome the problems that occur in KOPMA (×14)
		I will not ask for help from others as long as I myself can overcome business problems faced by KOPMA (×15)
		Joining KOPMA to learn about responsibility (×16)
		Joining KOPMA to learn to create jobs (×17)
		Joining KOPMA to learn about examples of entrepreneurship (×18)
2	Risk taking	Joining KOPMA to train to overcome difficult situations (×21)
		In making decisions in KOPMA, I always calculate the risks (×22)
		I am ready to bear the consequences of decisions taken in advancing KOPMA (×23)
		I am willing to face challenges to achieve the desired goal (×24)
3	Leadership	Before making a decision in KOPMA, I ask for input from friends or other people (×31)
		I am able to influence friends or other people to act as I wish in advancing KOPMA (×32)

No	Variable	Statement Item
		While participating in KOPMA, I can easily interact with friends or other people (×33)
		I try to respond to criticism in advancing KOPMA (×34)
4	Task- and results-oriented	I always try to do well in KOPMA business (×41)
		I have a strong drive to advance KOPMA business (×42)
		I have new ideas to increase KOPMA's business (×43)
		Developing KOPMA can support the economy (×44)
		Joining KOPMA is a useful asset for the future (×45)
		Joining KOPMA to understand what can be done to achieve one's desire (×46)
5	Creativity	Joining KOPMA to increase deftness in activities (×51)
		Advancing KOPMA requires innovations in entrepreneurship (×52)
		Creativity in organization can advance KOPMA's business (×53)
		I am looking for new ways to advance KOPMA's business (×54)
6	Future-oriented	Joining KOPMA is useful for my future (×61)
		Joining KOPMA made me independent (×62)
		Joining KOPMA can support entrepreneurial activities (×63)

Source: data processed by authors

Steps in data analysis are as follows:

a. CFA parameter significance

The parameter significance test aims to determine the significance of the indicator in representing the latent variable. If the t_{calc} value of the loading factor is greater than t_{tab} (1.96), it can be concluded that the indicator is significant in representing latent variables.

b. CFA model suitability test

This step is carried out to determine the suitability of the CFA model based on the GFI (Goodness of Fit Index) and AGFI (Adjusted Goodness of Fit Index) criteria.

4. Results and Analysis

CFA analysis in this research was used to determine the significance of the parameters (loading factor) in representing the latent variables of entrepreneurship (self-confidence, risk taking, leadership, task and results-oriented, creativity and future-oriented). The following is the significance test of each indicator variable coefficient using the t set:

Hypothesis $H_0: \hat{\lambda}_{jk} = 0$

$$H_1: \hat{\lambda}_{jk} \neq 0$$

$$\text{Test statistics: } t = \frac{\hat{\lambda}_{jk}}{se(\hat{\lambda}_{jk})}$$

Rejection Region: reject H_0 if $t_{calc} > 1,96$.

Table 3. Parameter Significance Test

Latent Variable	Indicator	Parameter Estimation	t Significance	Annotation
Self Confidence	X ₁₁	0.562	–	Significant
	X ₁₂	0.782	6,206	Significant
	X ₁₃	0.507	4,750	Significant
	X ₁₄	0.304	3,117	Significant
	X ₁₅	0.423	4,123	Significant
	X ₁₆	0.445	4,292	Significant
	X ₁₇	0.488	4,610	Significant
Risk Taking	X ₁₈	0.622	5,469	Significant
	X ₂₁	0,658	–	Significant
	X ₂₂	0,581	5,345	Significant
	X ₂₃	0,338	3,367	Significant
Leadership	X ₂₄	0,445	4,305	Significant
	X ₃₁	0,603	–	Significant
	X ₃₂	0,602	4,985	Significant
	X ₃₃	0,424	3,890	Significant
Task and Result-Oriented	X ₃₄	0,626	5,090	Significant
	X ₄₁	0,615	–	Significant
	X ₄₂	0,610	5,738	Significant
	X ₄₃	0,574	5,477	Significant
	X ₄₄	0,655	6,040	Significant
Creativity	X ₄₅	0,551	5,305	Significant
	X ₄₆	0,582	5,538	Significant
	X ₅₁	0,535	–	Significant
	X ₅₂	0,661	5,078	Significant
Future-Oriented	X ₅₃	0,533	4,500	Significant
	X ₅₄	0,598	4,822	Significant
	X ₆₁	0,774	–	Significant
Future-Oriented	X ₆₂	0,610	6,464	Significant
	X ₆₃	0,772	7,647	Significant

Based on Table 3, it can be seen that all indicators are significant in representing the latent variables of entrepreneurship (self-confidence, risk taking, leadership, task and results-oriented, creativity and future oriented). This can be seen from t_{calc} values that are greater than 1,96. Reliability results using alpha cronbach for each

latent variable also turn out positive, with reliability values for self-confidence at 0,74, risk-taking at 0,56, leadership at 0,64, task- and results-oriented at 0,76, creativity at 0,66, and future-oriented at 0,75.

The next analysis is to see the results of the model appropriateness test simultaneously through the appropriateness index as follows:

Table 4. Model-Appropriateness

Model Appropriateness Index		Value	Annotation
Goodness of fit index	Cut-off value		
GFI	$\geq 0,9$	0,768	Well enough
AGFI	$\geq 0,9$	0,721	Well enough
CFI	$\geq 0,95$	0,742	Well enough

As shown in Table 4, the model is simultaneously said to be well enough with GFI (Goodness of Fit Index) at 76.8%, thus it may be said that all indicators represent the latent variables properly.

5. Conclusions

Based on the results of the analysis and discussion there are some conclusions as follows:

- a. All indicators are significant in representing each latent variable of entrepreneurship. This is shown from the t_{calc} value being greater than 1,96. In the self-confidence variable, the biggest contribution in forming the variable is obtained in X_{12} indicator, with loading factor value of 0,782, and the X_{18} indicator at 0,622. The biggest indicator representing the risk-taking factor was X_{21} at 0,658 and X_{22} at 0,581. For the leadership variable, the biggest representative was X_{34} at 0,626 and X_{31} at 0,603. The task- and result-oriented variable was represented by X_{44} at 0,655 and X_{41} at 0,615. The biggest indicator representing creativity was X_{52} at 0,661 and X_{51} at 0,535, while the future-oriented variable is represented by X_{61} at 0,774 and X_{63} at 0,772. The overall model appropriateness based on the GFI as 76,8%.
- b. Intensive guidance from universities and cooperatives is needed to develop student cooperative in the form of KOPMA in order to produce new entrepreneurs to overcome unemployment.

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KONFIRMACYJNA ANALIZA CZYNNIKOWA (CFA) W PRZEDSIĘBIORCZOŚCI Z PERSPEKTYWY ADMINISTRATORÓW I CZŁONKÓW SPÓŁDZIELNI STUDENCKICH W PRYWATNYCH UNIWERSYTETACH SURABAYA

Streszczenie

Oczekuje się, że uniwersytety będą w stanie zapewnić studentom zarówno wiedzę teoretyczną, jak i umiejętności miękkie, które mogą zostać wykorzystane np. w pracy grupowej. Celem badań, przeprowadzonych przez Autorów na podstawie tego założenia, było znalezie-

nie rozwiązań sprzyjających duchowi przedsiębiorczości w spółdzielniach studenckich obecnych na prywatnych uniwersytetach w Surabaya. Badanie oparte jest na populacji, w skład której wchodziło członkowie i administratorzy spółdzielni studenckich, które są częścią Studenckiego Stowarzyszenia Spółdzielczego Surabaya. Próbę badawczą stanowiło 150 osób, które przebadano wykorzystując kwestionariusz ankiety. Wyniki pokazały, że zaangażowanie uczniów we wspólne działania, zarówno członków, jak i administratorów, zachęciłoby do rozwoju ducha przedsiębiorczości. Analiza czynnikowa wykazała, że pewność siebie, przywództwo, kreatywność, podejmowanie ryzyka, zorientowanie na zadania i wyniki oraz perspektywy przyszłości były ważnymi zmiennymi wzrostu przedsiębiorczości. Można zatem stwierdzić, że spółdzielnie studenckie mogą być wykorzystywane jako miejsce do rozwijania umiejętności przedsiębiorczości studentów, tak aby prywatne uniwersytety w Surabaya mogły korzystać z tych informacji w celu rozwoju programów szkolenia umiejętności miękkich.

Słowa kluczowe: spółdzielnie studenckie, przedsiębiorczość, umiejętności miękkie.