Quest for entrepreneurial opportunity from the analytics education (course) perspective

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ABSTRACT: This study aims at describing the benefits of studying “data analytics” in understanding the objectives of training students to become entrepreneurs. It signifies that learning analytics has become one part of the special interest domain that encourages the finding of entrepreneurial opportunities. This study exemplifies the perceptions of business students on how the implementation of big data analytics would matter. The data were collected through questionnaires. The finding revealed some important variables based on overall students’ perception, gender, and type of business of interest to assist in identifying the entrepreneurial opportunity process. The indicators were distributed normally using normal distribution. As shown by the results, all variables that were involved in this research can be considered for everyone who are interested in building independent businesses in the era of digital transformation.

1 INTRODUCTION

An entrepreneur must have prior knowledge that drives the establishment of business in seeking business opportunities. Prior knowledge is significant in the search for knowledge, as it can lead to entrepreneurial opportunities. Before technology changes the process of entrepreneurial exploitation, entrepreneurs must look for opportunities by utilizing the use the technology (Shane, 2000). Prior knowledge on the special interest domain is owned by a self-taught person who spends time and effort to learn the necessary skills deeply (Ardichvili and Ray, 2003).

Big data and data analytics are not new, but due to their rapid adoption, they appear to be new (Theobald, 2017). Various fields have used big data, for instance, accountancy (Brink and Stoel, 2018), innovation (Marshall, *et al.*, 2015), procurement (Handfield, *et al.*, 2019), academic librarians (Ahmad, *et al.*, 2019), and competitor analysis (Guo, *et al.*, 2015). Big data is also studied because of the benefits of its implementation. Moreover, it gives opportunities to “big analysis” to become “big opportunities”, which has solved a lot of business problems and increased the quality of life (Ishwarappa and Anuradha, 2015).

The analytics course has become a way to obtain knowledge about big data and data analytics. By utilizing the analytics course, people can find relevant information anywhere. It is used to complement the existing information and support the finding of entrepreneurial opportunities. Besides, it can become a potential innovation tool for entrepreneurship (Uremovic and Marx, 2018). Sedkaoui (2018) justifies the benefits of big data analytics to entrepreneurship. It supports decision making, decreases expenses, imparts knowledge to the consumer, and is able to use open data. Big data analytics can help entrepreneurs to get a lot of information relevant to their business. This information helps entrepreneurs make a better decision, since the operating cost of making a decision is high. That way, they can use big data analytics and reduce the probable loss for their company. This study exemplifies the perceptions of business students on how the implementation of big data analytics would matter. It describes the benefits of studying “data analytics” in understanding the ultimate objectives of training students to become entrepreneurs.

2 RESEARCH METHOD

The number of respondents participating in this study, sampled randomly, is 122. They were undergraduate students of Business School, Telkom University, Bandung, Indonesia, who had taken big data analytics as well as entrepreneurship courses in the 2016–2017 academic year. They were asked to fill out a questionnaire related to students' perceptions regarding the implementation of the big data analytics course to identify entrepreneurial opportunities.

The questionnaires, adapted from Sedkaoui (2018), were distributed online. He pointed out that the use of IT tools and ability to analyze data can improve skills and develop new business models. His study found that the learning program plays a vital role in changing the possibility into opportunity to become new entrepreneurs. In identifying entrepreneurial opportunities, the further learning of big data analytics is required by involving self-regulated learning. In addition, this research also adopted the concept proposed by Eom (2012), who stated that self-regulated learning demands the learners to study autodidactically to make the learning process active. Variables proposed by Sedkaoui (2018) are “use of IT tools” (indicators: easy to access, provide information, information to develop, privacy, security issue, communication tool, communication network, and dependency), “ability to analyze data” (indicators: understanding, manipulating, interpreting, applying, and benefit), “improve skill” (indicators: reduce risk, identify data error, solving problem, decision making, and efficiency), “develop new business model” (initiative, creativity, goal setting, understand to develop business, ability to analyze the situation, and effectiveness), and “opportunity to be a new entrepreneur” (self-efficacy and optimism); while that proposed by Eom (2012) is “self-regulated learning” (indicators: self-directed, time setting, discipline, target setting, initiative, managing time, on time, elaboration, organization, rehearsal, control, and planning). All variables had satisfied the Cronbach's Alpha reliability test.

3 RESULT AND DISCUSSION

3.1 *Demographics profile of respondents*

From 122 students participating in this study, there were 38 female respondents (68.03%) and 39 male respondents (31.97%). Based on the type of business of interest, most respondents (66.39%) were interested in building an independent business, 25.41% chose to buy a franchise business, while only 8.20% were interested in buying an existing business. Based on gender, both male and female were most interested in building a business, then franchising, and buying an existing business.

3.2 *Relationship of each indicators*

From 703 combinations of correlation between indicators, all values were below 80%. The correlation table shows 203 relationships at the very low level (correlation $\leq 19\%$), 343 relationships at the low level ($19\% < \text{correlation} \leq 39\%$), 135 relationships at the medium level ($39\% < \text{correlation} \leq 59\%$), and 22 relationships at the strong level ($59\% < \text{correlation} \leq 79\%$). It assures that the relationship between indicators will not lead to multicollinearity. The highest correlation was between “discipline” and “time setting”. “Discipline” leads the student to do the assignment, while “time setting” leads to setting the time to study. It may cause miss-perception because students think doing the assignment and studying are the same thing. Therefore, “discipline” and “time setting” could have the strong relationship.

3.3 *Overall view of students' perception*

The average score of the “use of IT tools” variable based on the perception of students interested in “building an independent business” showed a value of 4.3. It is in accordance with the work by Guo et al. (2015) which revealed that the “use of IT tools” could make the benefits of big data analytics

feel better because the “use of IT tools” is used to collect data to produce valuable information. Therefore, students agreed that the “use IT tools” was the most necessary variable to build an independent business. It is consistent with the previous research that “use of IT tools” had led to a new way of communication, information retrieval, and technology dependency (Akcamlar, 2015). Moreover, “improve skill” of analytics was also above average ($\bar{x} = 4.1$). It showed that analytics skill was needed to help students implement data analytics in finding the business opportunity. “Self-regulated learning” ($\bar{x} = 3.7$), “ability to analyze data” ($\bar{x} = 3.7$), “develop new business” ($\bar{x} = 3.8$), and “opportunity to be new entrepreneur” ($\bar{x} = 3.6$) were moderately used in identifying the entrepreneurial opportunity process by business students

Students’ perception to “manipulating” skill was varied (standard deviation 32%). “Manipulating” is a skill to sorting and cleaning up useless data to get the desired result. The process is time-consuming; therefore, students may think that the “manipulating” process can be bypassed to reduce time (Tole, 2013). In addition, the mode on the “manipulating” indicator was neutral. Therefore, students neither disagreed nor agreed to have the “manipulating” skill to help them identify business opportunities. In contrast to the result of the majority of indicators, it was agreed. Indicators “dependency”, “communication for networking”, “provide information”, and “easy to access” were indicators with a strongly agree assessment mode. These indicators were representing variable “use of IT tools”. This ensures that the “use of IT tools” was the most agreed upon thing to be able to assist in the process of identifying entrepreneurial opportunities.

3.4 *Students’ perception based on gender*

When compared by gender, female students showed a higher “use of IT tools” ($\bar{x}_{\text{female}} = 44$, $\bar{x}_{\text{male}} = 43$) and “self-regulated learning” ($\bar{x}_{\text{female}} = 38$, $\bar{x}_{\text{male}} = 35$). Meanwhile, male students showed a higher “ability to analyze data” ($\bar{x}_{\text{female}} = 37$, $\bar{x}_{\text{male}} = 39$) and the “develop new business” variable ($\bar{x}_{\text{female}} = 37$, $\bar{x}_{\text{male}} = 39$). In the “improve skill” variable ($\bar{x} = 41$) and “opportunity to be a new entrepreneur” ($\bar{x} = 37$), both male and female students showed the same average score. It indicated what male and female students preferred in identifying opportunity strategies. Female students preferred using “use of IT tools” and “self-regulated learning” whereas male students preferred having the “ability to analyze data” and the ability to “develop new business” to identify entrepreneurial opportunities. Both male and female students believed that the variables “improve skill” and “opportunity to be a new entrepreneur” are needed in the process of identifying entrepreneurial opportunities

3.5 *Students’ perception based on the type of business of interest*

The pattern that obtained by those were interested in building independent business was in the agree area. This means that the students felt that each indicator used in this study helped them in identifying the entrepreneurial opportunity to build independent businesses. It is not in accordance with the students who were interested in buying an existing business and buying a franchise business. The results showed that a diversity of perspectives resulted in less specific patterns being formed. However, students who were interested in buying an existing business showed a positive pattern by agreeing the “use of IT tools” variable. So, “use of IT tools” did help not only the students who were interested in building an independent business, but also the ones who interested in buying an existing business.

“Identify data error”, “reduce risk”, “problem solving”, “decision making”, “efficiency”, “control”, and “understanding” were antecedents that had consequences for “independent business”. It means that each association of these indicators had a probability of influence of 40% to build “independent business”. This result was considered quite significant because it was represented by 60% of respondents’ perceptions. Of the seven indicators, the corresponding variable “improve skill” dominated the antecedent to the consequences. “Control” is an indicator that represents the variable “self-regulated learning”, and “understanding” represents the variable “ability to analyze data”.

All indicators involved are normally distributed approached by normal distribution even divided by “type of business interest”. Despite this, the result would show the differences on the level of data

variation. The “privacy” indicator, for the students who were interested to “build an independent business”, had higher data variations compared to those who were interested to “buy an existing business”. However, by looking at beta distribution, the “privacy” indicator had high probability to be a predictor. Hence, those who were identifying entrepreneurial opportunities should notice the “privacy” of “using the IT tools”. Moreover, “creativity” was also distributed normally, even though the variation of the data was high. However, based on the beta distribution result, this indicator also had the probability to help in identifying entrepreneurial opportunities.

4 CONCLUSION

It can be concluded the indicators that were used in this research can be considered for those who were interested in building independent businesses in the today’s digital transformation era. Sedkaoui (2018) stated that entrepreneurs in the future must have expertise in managing analytic data by understanding how and when to use analytic approaches. In addition, the result of this study has strengthened Sedkaoui’s (2018) concepts that utilize the data and data analytics to open a new entrepreneurship area. Moreover, students, as the future entrepreneurs, should explore the entrepreneurial opportunity by integrating the big data analytics course to enrich their understanding and improve the effectiveness. Eom’s (2012) concept states that self-regulated learning will lead the student to get a higher level of satisfaction. Thus, the result of this study revealed that “self-regulated learning” is one of the variables that help the students to identify the entrepreneurial opportunity. According to descriptive calculation results, the indicators used in this study could sufficiently interpret each of the corresponding variables. These indicators could also be used for further research using quantitative measurement methods to get more measurable results.

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