

## THE IMPACT BETWEEN FAMILY BACKGROUND IN A DEVELOPMENT AND TECHNO- PRENEURSHIP MINDSET AMONG UNIVERSITY STUDENTS: A CASE STUDY IN BALI

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### ABSTRACT

*This paper investigates the relationship between family background and development of technopreneurship mindset among university students in Bali. This study used questionnaire to collect information from 145 respondents. The results show that father's occupation affects the type of business that respondents want to have in the future and the choice of respondents related to their academic background, where academic background strongly affects the understanding of the respondents to technopreneurship. In conclusion, this study shows that that family's background has a strong impact to both respondents' understanding of technopreneurship (indirectly) and the type of future business of respondents (directly).*

Keywords: technopreneurship, entrepreneurship, education impact, Bali

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### INTRODUCTION

It is widely known that entrepreneurship plays a significant role in the advancement of economic growth [38]. In the entrepreneurship literature, Urban Barreira [65]'s study shows that technology and knowledge give significant impact in the economic development of the 21st century. Entrepreneurship combined with technology, capital, and supportive environment can be advanced significantly, as technology holds the most critical role in transforming the contemporary world [1]. More and more new ventures are created with the use of technology commercialization as a platform [15]. João J. M. Ferreira et al. [22] conducted a study that yielded results showing how human initiative in the development of new technologies paves the way to create profitable activities. And such improvement, of course, is direly needed in developing countries, such as Indonesia.

Corresponding to economic growth, significant wealth development is possible through not only educational institutions, but anywhere the youth can produce fresh ideas and human capital improves. In the advancement of techno-logical entrepreneurship, students hold the key role in participating in economic development through it, by recognizing and anticipating opportunities in high technology (Urban Barreira [65]). In terms of successfully pursuing entrepreneurial success, education is important because it increases a person's knowledge and aptitude [41]. Furthermore, a study by George T. Solomon [62] resulted in the finding that in entrepreneurship education, the use of technology has increased dramatically. Especially in Indonesia, students' technological innovations can extend a developing country's chances in becoming an investment target of global industries [7].

As stated by Musa et al. [45] in their study, technopreneurship with its established role in economic development depends on the education of students to ensure its sustainability, especially through the knowledge of technopreneurship craft. However, the study did not mention how and what type of education can support this. Kamarudin Sajilan [30] argued that in the creative technopreneurship industries, although those who come from creative studies rank highest compared to other fields of study in their involvement in the technopreneurship field, assistance in areas such as financial, management, and other business know that how would still be required. This emphasizes that the choice of college major does have a considerable influence in what kind of business one would be inclined to initiate, although the study itself did not evaluate further specific academic majors and their influence in one's chosen business type. Kim et al. [31] also conducted research on the link between college majors and prospective careers. The results of this study showed that high-paying jobs is listed among other reasons such as internal motivations for students to choose business majors. However, the study limited its focus to only business majors and not any other majors. Furthermore, entrepreneurship received very little attention in the research.

As has been established in the preceding paragraphs, students are the force with which economic growth can be improved, thus it is appropriate to address how students can execute that. One's educational choices have a strong link to their career, specifically in higher education, the college major choice of a student narrows down their possible career prospects [37]. Leppelman et al. [34] found in a study that parental education, family income, and family head's occupational status have a strong relation to the educational achievement of their progeny. Boudarbat Montmarquette [13] stated in a study that in reality, evidence can be seen on how investment in education proves to be lucrative.

The impact of family in one's college major choice can be seen from many aspects. Socioeconomic conditions of the family affect many angles in a child's life, such as location of family residence and how that correlate to what kind of school the child gets enrolled in, all of that in turn have an impact on their choice of academic major [61]. Moreover, a study by Yingyi Ma [37] yielded results that show how families with lower socioeconomic status (SES) are more inclined to choose technical, life/health science, and business majors over humanities and social science/education majors. This shows that students from lower SES families are more likely to pursue an academic path that gives more promise of well-paying jobs upon graduation compared to students from higher SES families. However, a deeper understanding on how the parent's background (for example occupation) influences a student's academic major choice to date is still limited. This academic major choice can affect the development of digital entrepreneur and technopreneur [45].

Based on the mentioned studies above, family plays a role in a student's college major decision. However, less attention has been paid to how the occupation type of each parent influences such choice or whether the parents' occupation have an impact in students' decision in choosing their academic major. It is also established that despite how choosing a major narrow down their career prospect, employment can still be a problem. In turn, self-employment can be the solution to this problem. Although studies have shown the connection between education and entrepreneurship [32] [9] [55], further studies regarding how each parent's occupation type affects one's business type decision are still limited [5].

The aim of this study is to investigate the relationship between family background and the development of technopreneurship mindset among students, especially in Bali Province. The contribution of this study to the knowledge is an insight of how family background affects the development of technopreneurship among students in Bali Province. The rest of the paper is organized as follows. Section 2 introduces related work. Our methodology is explained in Section 3. Sections 4 and 5 provide our findings and analysis, respectively. Section 6 provides conclusions.

## LITERATURE REVIEW

Parental involvement in education affects an offspring's academic decision. Based on a study by Robert D. Mare [40] evaluating parents' socioeconomic characteristics and family structure in determining a child's educational continuation shows that family has a strong impact in transitioning to a higher education. This study used a primary data source from Occupational Changes in a Generation (OCG) survey in 1973. Parents' socioeconomic effect becomes a determinant of the following level of education. The results of the study were supported by another research titled Socioeconomic Status, Intelligence, and the Attainment of Higher Education by William H. Sewell et al., [58].

This study aims to examine the relationship between parental socio-economic status and higher education plan. The data used was taken from a questionnaire survey done in Middle School in Wis-consin, private schools, and parish schools in 1957. The results found that parents have the strongest impact on higher education choices. Furthermore, the socio-economic status of parents gives more advantage to further educational development. Research by Samuel R. Lucas [35] also stated that children with higher socioeconomic status have more advantages. A similar study was conducted by Karen Leppel et al., [34] on the impact of parental occupation and socioeconomic status to students' college major decision. The data used was results from the 1990 Beginning Post-secondary Students (BPS) survey orchestrated by the National Center for Educational Statistics (NCES) U.S. Department of Education. The findings of this study show that male students with higher socioeconomic family background tend to choose business majors. This condition contrasts with the results for female students.

Such research has also been conducted by Jerry Trusty et al., [64], which showed that the higher the socioeconomic status of the family is, the higher the tendency will be for male students to choose business majors compared to female students. Yingyi Ma [37] stated in her research that the socioeconomic status and involvement of parents are considered to have significant impact on a child's academic choices in deciding for higher education. Parental socioeconomic status is linked to their occupation. However, this journal did not discuss further how the type of occupation that parents have can affect offspring's academic choice.

A study conducted by Charles a. Malgwi et al., [39] discussed factors that influence students in determining their college major. The data in this study was obtained by using questionnaires to business student respondents. The data was processed using one-way analysis of variance (ANOVA). The results show that female students are influenced by their skills and aptitude in a subject, whereas male students are influenced by career levels, job prospects, and salary upon working in the field. These results are also supported by another study conducted by David Kim et al., [31] which shows that choosing a college major, especially business majors, is influenced by prospective jobs that come after graduation and the salary they offer. Though generally, interest in a subject is the highest-ranking determinant of college major decisions despite students' gender. Those factors are internal factors that come from the students themselves. This study did not mention external factors that can affect to college major decision for a student.

Maternal occupation status has a considerable effect on a child's education. Matthijs Kalmijn [53] stated so in his study. He examined the impact of a mother's occupation status on her child's education. In this study he also states that a mother's occupation status is affected by her education. The research yielded results that show how mother's occupation has as much importance as father's occupation status in off-spring's career and education. These results are also supported by an earlier study conducted by Richard J. Murnane et al., [44] and Gail Hackett et al., [24]. There are several further studies that discuss the impact of a mother's occupation on her child's education, such as one done by Jacqueline C. Simpson [61] which evaluated how parental background influences the primary academic choice of a child. The aim of this study was to identify factors which affect a child in choosing their college major in pursuing a bachelor's degree. The data used was 2359 students from High School and Beyond. This study focused on maternal influence in a child's academic program decision. Results from the analysis of this study show that a mother's occupation background is one of the factors that influence her child's academic major choice. Mothers are more inclined to suggest that her child or children take non-technical majors, whereas fathers tend to suggest taking technical majors. This study is supported by Lorren T. Wolfer et al. [56] who stated that a mother's occupation gives a significant effect on her child's education.

From the discussion above, there are several shortcomings found in the mentioned literature, which are the small amount of attention paid to the father's occupation and the lack of exposure on what type of occupation, whether of the mother or the father, that can influence their child's academic choices. Thus, the hypotheses that can be drawn are :

H1a: Father's occupation type affects choice of majors

H1b: Mother's occupation type affects choice of majors

Research on entrepreneurial perceptions of engineering and economic students before and after exposure to entrepreneurial learning was conducted by Urban [65]. This study shows that engineering students who have studied entrepreneurship have a greater intention to become entrepreneurs than students who have never had entrepreneurial learning. Students who receive formal and informal entrepreneurship education have the potential to become entrepreneurs [50]. A study by Shinnar et al., [60] also yielded similar results. In Shinnar's research, factors that can influence students' interest in entrepreneurship are also outlined. Entrepreneurship education can significantly increase entrepreneurial interests and mindset [23] [32] [20]. However, the above research has not yet explained what kind of entrepreneurship education is given. Ahmad et al., [2] explained that teaching materials and educational approaches must be in line to improve students' understanding of technopreneurship.

In Taiwan, Tommy Shih et al., [59] developed research on technology-based entrepreneurship education. Technology has an influence on economic growth and innovation, and will also affect to educational programs and entrepreneurial interests. Pierluigi Rippa et al., [54] also mentioned in their research that the latest technological developments such as MOOC, 3D Installation, Big Data, IoT, Cyber Solution, Cloud, Social Media, Business Analytic, and Sophisticated Manufacturing can increase entrepreneurial interest. The study founded that the unpreparedness of technology and lack of student experience led to suboptimal results. These results are supported by previous research from Mohd Zamri Murah et al., [43].

From the above discussion of journals, the proposed hypothesis is :

H1c: Academic major affects the understanding of technopreneurship

Family and business are often perceived to exist in different groups. A study by Howard E. Aldrich et al., [6] stated that family and business have a strong link to each other. This study emphasized the characteristics of the entrepreneurial family system such as transitions, resources, norms/attitudes, values [3] that influence the process of creating new ventures. The researcher suggests to other researchers in the field of entrepreneurship that the "family" category be included in the conceptual model for research on opportunities for new business opportunities. Jodl KM et al., [28] once stated that the family has a very important influence on the development of children's work interests. The bright side to this is that a study by Howard E. Aldrich et al., [6] has answered the question previously posed by Catherine Durnell Cramton [19] which stated that many researchers still fail to focus on how family relationship can pave the way to the creation of new ventures. However, Howard E. Aldrich et al., [6] has not deeply discussed what type of business can be formed from such family condition. This research only explained how various family conditions can affect the initiation of new businesses.

Iciar Pablo-Lerchundi et al., [49] discussed parental occupation that can affect a child's career choice. This study used 851 technical and architectural students from Technical University of Madrid, Spain as respondents and focused on technology-based entrepreneurship. The results show that students with entrepreneur parents tend to also want to become entrepreneurs themselves, whereas students with parents who work as government employees have less interest in becoming self-employed. Parental influence can determine a child's professional career preference in the future. This study is supported by preceding studies conducted by Jon C. Carr et al., [14], Simone Chlosta et al., [17], Edward Mungai et al., [42], and Stavroula Laspita et al., [33] who stated that children who want to become entrepreneurs learn indirectly from their parents or grandparents. However, Stavroula Laspita et al., [33] also emphasized how the entrepreneurial effect from parents or grandparents differentiates in every family and country, even more so with the different existing cultures. A study with the same theme has been conducted by Greg Hundley [26]. The distinction is that Greg focused more on male children and their father as measurement. This study yielded results that show how male children whose fathers are entrepreneurs have more tendency to become entrepreneurs themselves. Entrepreneurship shows inclination to increase the asset and inheritance from parents [21].

From the mentioned journals, parental occupation background influences the type of business or career of their child, which is parents as entrepreneurs or government employees. Other than that, several journals only focused on fathers' occupation, even though there are many other parental occupations (both of the father and the mother) that may affect the child's professional career. Thus, the proposed hypotheses are:

H1d: Father's occupation type impact to the chosen business type

H1e: Mother's occupation type impact to the chosen business type

## METHODOLOGY

### Data collection and descriptive of the samples

This study used data of students undergoing higher education in Udayana University, Bali, as respondents. As many as 145 students were asked to fill in the surveys that had been provided. Students who fill out this questionnaire are students who have an interest in starting a business after completing their studies. Factors of entrepreneurial intentions or desires as mentioned by JunCui et al., [20] is very influential on how the student would act. By using Purposive Sampling Technique, all of the data taken from the respondents in this study is according to the criteria [25] [18] [16] [47] [48]. The data to be analyzed is data matches desired criteria. Data of respondents who do not want to start a business will not be used. From the data obtained, student respondents who filled out the questionnaire have an age range of  $\leq 20$  years to  $> 25$  years. The majors are categorized into 3 groups, such as engineering, economics, and business.

It to measure the statistical significance of the relationship between variables in this study. Fisher's exact test is chosen since it is relatively good in analyzing small amounts of data / samples in nominal or ordinal form [36] [29] [8]. Cramer's V-Test is performed to measure the durability of the relationships between variables. Cramer's V test is a nominal scale data test with a category for

each column and each row is more than 2. The results of the Cramer's V test show the strength of the related variable [12] [11] [4].

### Data Analysis

From the literature review discussed above, we obtain 4 variables that will be used to analyze the role of the family in developing the mindset of children towards technopreneurship. The variables used are :

1. Father's occupation (V1)  
In variable V1, respondents were asked to give information regarding father's current occupation. Father's occupation is divided into 6 clusters consisting of Artist, Entrepreneur, Farmer, Government Employee, Private Employee, and Others.
2. Mother's occupation (V2)  
For variable V3, respondents were asked to fill in information regarding mother's current occupation. In the questionnaire, mother's occupation is divided into 6 clusters, namely Entrepreneur, Government Employee, Farmer, Housewife, Private Employee, and Others.
3. Type of future business (V3)  
Variable V3 is information regarding what type of business is to be made in the future. In V3, respondents were given several business choices such as agriculture, trade, IT, and tourism, among other options.
4. Family support level (V4)  
This variable is based on how influential family support is to the child's future entrepreneurial intention. A Likert's scale is used to collect data for this variable.
5. Academic major (V5)  
Respondents were asked to fill in a questionnaire regarding their current college major. The Academic Major is divided into 3 clusters, namely Economy Business, Engineering, and Others. This categorization of majors is based on the results retrieved from the respondents. More than 50% of the respondents come from Economy Business majors. In a research by Daniela et al (2016), it is stated that most businesses start from students of the Economy Business and engineering students.
6. The level of understanding in technopreneurship (V6) Variable 6 shown that students' level of understanding regarding technopreneurship. A Likert's scale is used to collect information for this variable.

To measure the significancy relationship between variables, we use alpha ( $\alpha$ ) equal to 0.05. Fisher's test is used to measure the statistical significance of the relationship between variables in this study. Fisher's exact test is chosen since it is relatively good in analyzing small amounts of data / samples in nominal or ordinal form [36] [29] [8]. Cramer's V-Test is performed to measure the durability of the relationships between variables. Cramer's V test is a nominal scale data test with a category for each column and each row is more than 2. The results of the Cramer's V-test show the strength of the related variable [12] [11] [4].

## RESULTS AND ANALYSIS

### Parent's Occupation

Based on the data that has been obtained from respondents, Figure 1 shows that majority of the respondents who fill the questionnaire have a father with a job as an entrepreneur (31% of the respondents). In the second position is Private Employees and followed by Government Employees, Farmers, Others, and Artists. This means that majority of our respondents come from family with business/entrepreneurship background.

### Level of support from family to open a business

Several journals mention that family support is critical in entrepreneurship. Kevin Au [10] stated that values in the family can affect perception in entrepreneurs. A study by Gary N.Powell et al., [51] and Dianne H. B. Welsh et al., [66] discussed that it was shown that female entrepreneurs who succeed in building their business gain positive support from their families. Family moral support makes the women feel stronger and more able to grow. Fauzia Jabeen et al. [27] also stated the importance of family support in a business.

In this case, the Likert Scale's results are clustered into three: (0-3), (4-7), and (8-10). These clusters are created using Sturges' rule [57]. We identify the first cluster (0-3) as a cluster of respondents who feel that their family do not support them at all, cluster (4-7) as a cluster of respondents who feel that their family mildly support them , and cluster (8-10) as a cluster of respondents who feel that their family encourage them to open a business.

### The relation between parents' occupation and students' academic major

From the statistical analysis using Fisher's test, it can be seen that:

- p-value = 0.01. This means H1a is accepted and H0a is rejected. This result shows that Father's occupation affect on choosing academic majors of the respondents.
- The results of the Cramer's V test is 0.3 (strong). This means that the relationship between father's occupation and respondents academic major variable is strong.

Fathers with a job as a private employee tend to direct their children to choose Economics major. While fathers who work as an entrepreneur tend to direct their children to the Engineering Department. And finally, fathers with an occupational background as a Government Employee tend to direct their child to choose other majors.

H1b: Mother's occupation type affects the choice of academic majors

H0b: Mother's occupation type does not affect the choice of academic majors

The Fisher's test produce p-value = 0.7. This means that H0b is accepted and shows that mother's occupation does not affect the choice of a child's major.

Whereas H1b is rejected.

In mother's occupation, the previously proposed hypotheses are :

To understand the relationship between parents' occupation and the understanding of technopreneurship, an analysis of relationship between academic major and understanding of technopreneurship was done. Figure 6 shows that Engineering students have a better understanding of Technopreneurship than Economics Business students and students from the Others category. Thus, the following hypotheses are tested:

H1c: Academic major affects the understanding of technopreneurship

H0c: Academic major does not affect the understanding of technopreneurship

From the conducted Fisher's test, the following results are obtained:

p-value = 0.001. The p value indicates that H1c is accepted and H0c is rejected. This means that there is a relationship between academic majors and technopreneurship.

Calculation of the Cramer's V test results 0.3 (strong), which means that the relationship between academic major and the level of understanding of technopreneurship is strong.

### **The relation between parents' occupation and students' plan for their future business**

The following results are obtained from the Fisher's test:

- p-value = 0.03. The p-value obtained indicates that H0c is rejected and H1c is accepted. This means that father's occupation affect the type of business that the respondents want to build.
- The Cramer's V test is 0.4 (strong). This result shows that the relationship between father's occupation and the chosen type of desired business is strong. In terms of mother's occupation, the followed hypotheses are tested:

H1d: Mother's occupation type affects the chosen business type

H0d: Mother's occupation type does not affect the chosen business type

The Fisher's test generates p-value equal to 0.3. This means that H0d is accepted while H1d is rejected. This shows that mother's occupation does not affect the type of business desired to be built by the child.

### **DISCUSSION**

In general, the results of this study show that father's occupation significantly affects the choice of the students' academic major, and its relationship is proven to be strong. However, mother's occupation does not significantly affect the academic major of the respondents. These results are supported by the fact that Balinese people follow a patriarchal system [67] [63] [52] [46]. This means that the father has a power to decide their children future, including children's choice of career.

The father's occupation seems not to directly affect the respondents' understanding of technopreneurship (p-value= 0.9). However, education significantly affects the respondents' understanding of technopreneurship. This means that father's occupation affects the understanding of technopreneurship indirectly. This result suggests that if Balinese government wants to develop more technopreneurs in Bali, giving an education related to technopreneurship to fathers is necessary.

Another interesting finding of this study is that father's occupation significantly affects the plan for future businesses of the respondents. There is a considerably influential link in the relationship between father's occupation and the respondents' plan for their future businesses. Furthermore, the results of this study show that most respondents want to open business in the commerce field, with only 15 participants who are willing to open a business in the IT industry in the future. This shows that the popularity for technology companies in Bali comes in the second place. Still, commerce business becomes the most favourites business for our respondents.

### **CONCLUSION**

This study investigates the relationship between family background and the development of technopreneurship mindset among university students in Bali. There are 6 variables used in this study, namely father's occupation (V1), mother's occupation (V2), type of future business (V3), family support level (V4), academic major (V5), and the level of understanding in technopreneurship (V6). Fisher's Test and Cramer's V test are used to measure the significance and the strength of the relationship among of the

variables. The results indicate that father's occupation significantly influences the choice of academic majors and future business plans of students. Student education has an influence on understanding technopreneurship. This means that father's work indirectly influences students' retention of technopreneurship. However, Mothers' occupation does not significantly affect either student choice of majors or the future business plan.

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