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LINKING FINANCIAL LITERACY AND ENTREPRENEURIAL CHARACTERISTICS

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Abstract: Linking financial literacy and entrepreneurial characteristics remain unexplored in the Philippine setting. This paper tried to address this gap by investigating the correlation between financial literacy and entrepreneurial characteristics. This paper also examined differences and correlations of gender and senior high school (SHS) strand on these factors. This study employed descriptive-correlational design and gathered the needed data from 157 students enrolled in a Philippine university using an adopted survey instrument. The findings revealed a significant positive correlation between financial literacy and entrepreneurial characteristics, except for cash management when linked to innovativeness and tolerance for ambiguity, and no significant correlation of these factors when associated with gender and SHS strand, except for gender and risk-taking propensity. The findings also revealed no significant difference in gender and SHS strand in all variables, except for risk-taking propensity between males and females. The results suggested that innovation and tolerance for ambiguity posed no relevance in managing cash. The findings also implied the influence of gender in risk-taking propensity and on how males and females viewed risks differently. The results further confronted the relevance of the accountancy, business, and management (ABM) strand in promoting financial literacy and entrepreneurship much better than non-ABM as expected.

Keywords: *Gender differences, senior high school strand, risk-taking propensity, ABM, non-ABM*

1. Introduction

The fourth industrial revolution disrupts the present business landscape as it drives more intricacies in the financial market and levels up the global competition. The increasing business complexity demands more financially literate and entrepreneurial citizens. This scenario supports the contribution of financial literacy and entrepreneurship in improving the economy. However, the low financial literacy level among developing countries appeared in many studies (Montalbo et al., 2017; Messy & Monticone, 2016; Yoshino & Morgan, 2015; Jayaraman & Jambunathan, 2018; Sari et al., 2017), in which Coskuner (2017) described this as an international phenomenon.

Ferrer (2018) extended this occurrence in the Philippines, where many Filipinos struggled in their financial literacy. In this context, Llanto et al. (2018) sought the importance of more responsive financial literacy programs in the country. Lusardi (2015) & Yew et al. (2017) found financial literacy to be more crucial among the youth, particularly the university students burdened with financial decisions for the first time (Arofah et al., 2018; Sapir & Ahmad, 2019). Students are prone to more financial challenges when entering a university, especially in facing their everyday life. In this light, financial literacy posed a role in optimizing financial decisions among the students.

A growing body of literature has gauged the financial literacy among university students in the country (Razafimahasolo et al., 2016; Salumintao & Cinches, 2019; Cammayo, 2016). Several studies observed the influence of an individual's financial literacy on their entrepreneurial character (Bayrakdaroglu & Bayrakdaroglu, 2017; Oggero et al., 2019; Suparno & Saptono, 2018; Upa et al., 2018). Contrarily, only a few studies applied this in the Philippine context.

In this light, this paper seeks to address this gap by examining the correlation and regression between financial literacy and entrepreneurial characteristics among students in a Philippine university. This paper also tries to expand the literature on the influence of gender and senior high school strand differences in financial literacy and entrepreneurial characteristics among university students. This study attempts to provide insights to business educators in strengthening entrepreneurship and financial literacy programs in their learning institutions.

In examining financial literacy, this study adopted the concept of Razafimahasolo et al. (2016), which forwarded three essential subscales, which include (a) *cash management* – the ability to manage cash wisely, (b) *financial records* – the ability to keep and interpret financial information, and (c) *savings plans* – the ability to save for future needs. The authors used this concept among college students in a Philippine university that made it more fitting to be applied for this study.

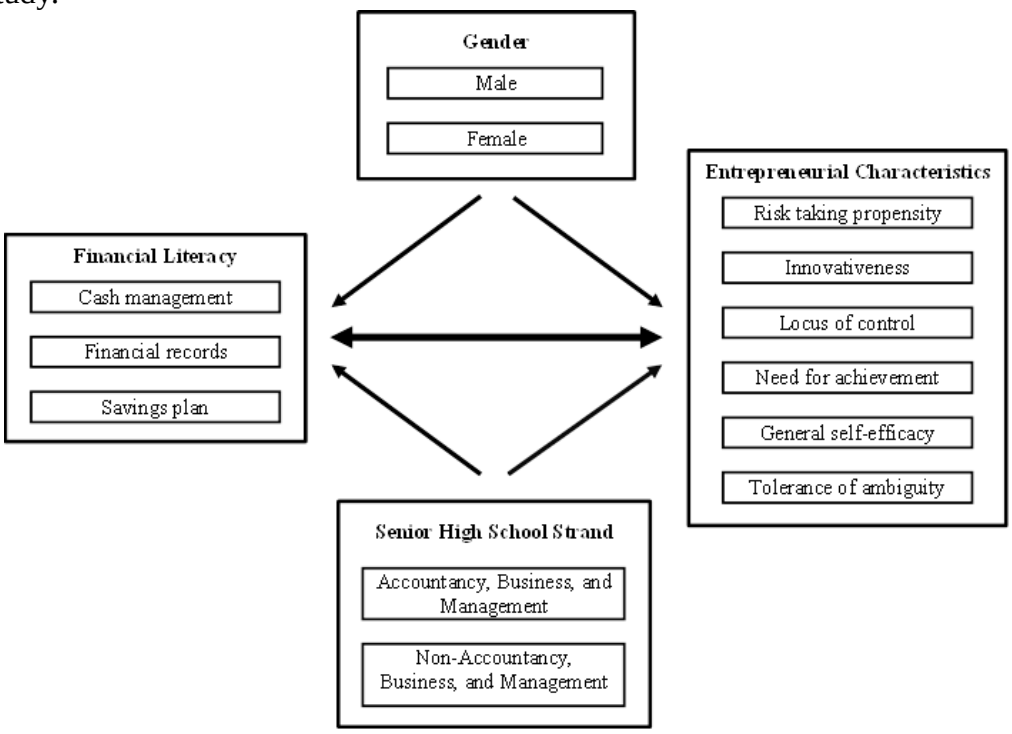

Figure 1. The conceptual framework
Source: Razafimahasolo et al. (2016), & Anwar & Saleem (2019)

In determining the entrepreneurial characteristics, this study adopted the concept of Anwar & Saleem (2019), which advanced six attributes, which comprise (a) *risk-taking propensity* – the tendency to take risks during uncertainties, (b) *innovativeness* – the ability to make innovations that improve existing conditions or exploit foreseen opportunities, (c) *locus of control* – the capability to control oneself during life challenging situations, (d) *need for achievement* – the

drive towards success even if failures challenge along the way, (e) *general self-efficacy* – the belief and confidence in oneself in carrying tasks, and (f) *tolerance of ambiguity* – the lenience to uncertainty especially in less explored situations. Similarly, the authors used this concept in a university setting that suits this study.

Existing literature shows limited studies linking entrepreneurial characteristics and financial literacy. In satisfying this gap, this study used the conceptual framework as reflected in Figure 1, which primarily investigated the correlation and regression between financial literacy and entrepreneurial characteristics, including gender and senior high school strand. It also investigated the gender and senior high school strand differences in these factors. This study aims to amplify the financial literacy and entrepreneurship programs in business schools as well as in discovering the influence of gender and senior high school strand in promoting these programs.

2. Methodology

In determining the relationship between financial literacy and entrepreneurial characteristics and in comparing these factors in terms of gender and senior high school strand, this study employed a descriptive-correlational research design. The students enrolled in the accountancy programs of a Philippine university were the target population, of which 157 out of 170 participated, representing a 92% response rate.

This study used a survey instrument in gathering the needed data, composed of three sections. The first section describes the personal information of the respondents. The second section explores the financial literacy level of the respondents using a 5-point Likert scale (1-strongly disagree to 5-strongly agree), of which the study adopted the instrument of Razafimahasolo et al. (2016), consisting of three subscales, which include cash management (α=0.93), financial records (α=0.95), and savings plan (α=0.92). The third section evaluates the entrepreneurial characteristics of the respondents with a 5-point Likert scale (1-strongly disagree to 5-strongly agree), using the adopted instrument from Anwar & Saleem (2019). This instrument includes six subscales, namely, risk-taking propensity (α=0.823), innovativeness (α=0.851), locus of control (α=0.878), need for achievement (α=0.782), general self-efficacy (α=.0804), and tolerance for ambiguity (α=0.835). The reliabilities of Cronbach's alpha of all subscales ranged from 0.782 to 0.95, which fell beyond the acceptable level of 0.70 (Urbach & Ahlemann, 2010).

This study used Pearson correlation and stepwise regression in determining relationships among factors and independent-sample t-test in comparing financial literacy and entrepreneurial characteristics in terms of gender and senior high school strand.

3. Results and Discussion

Correlational analysis

The correlation matrix between financial literacy and entrepreneurial characteristics, as shown in Table 1, displays a significant relationship among all variables except for cash management and its relationship to innovativeness (r=.126) and tolerance of ambiguity (r=.120) that posed no significance. This result supports the significant influence of financial literacy on entrepreneurial skills (Suparno & Saptono, 2018), entrepreneurial motivation (Upa et al., 2018), entrepreneurial intention (Bayrakdaroglu & Bayrakdaroglu, 2017), entrepreneurial inclination (Oggero et al., 2019). This result also corroborates partially the study of Anwar & Saleem (2019) and Mujahid et al. (2020), which observed a significant correlation among variables of entrepreneurial

characteristics. Financial records and savings plan (*r*=.74) showed the most significant relationship among all variables. It suggests that keeping financial records will affect the savings behavior of an individual. It further connotes that when people tend to save when they track their income and expenses. Recordkeeping promotes one's consciousness of how money is earned and spent, especially in differentiating essential from non-essential expenditures.

Table 1. Correlation matrix between financial literacy, entrepreneurial characteristics, gender, and senior high school strand

Variables	Financial Literacy			Entrepreneurial Characteristics					
	1	2	3	1	2	3	4	5	6
Financial Literacy									
1. Cash management	-								
2. Financial records	.675**	-							
3. Savings plan	.649**	.74**	-						
Entrepreneurial Characteristics									
1. Risk-taking propensity	.304**	.410**	.389**	-					
2. Innovativeness	.126ns	.290**	.286**	.561**	-				
3. Locus of control	.196*	.250**	.281**	.276**	.283**	-			
4. Need for Achievement	.231**	.353**	.383**	.429**	.446**	.357**	-		
5. General self-efficacy	.472**	.470**	.511**	.414**	.303**	.411**	.368**	-	
6. Tolerance of ambiguity	.120ns	.209**	.184*	.438**	.576**	.308**	.285**	.270**	-
Gender	.083ns	.063ns	-.062ns	.158*	.075ns	-.028ns	-.077ns	.107ns	.049ns
Senior High School Strand	-.093ns	-.003ns	.068ns	.102ns	.077ns	-.011ns	.029ns	-.067ns	.075ns

*Note: *p< 0.05; **p< 0.01; ns not significant*
Source: Processed Data (2020)

Financial literacy variables showed a significant relationship to general self-efficacy, which supports the finding of Arofah et al. (2018). Meanwhile, tolerance of ambiguity and savings plan (*r*=.184) showed the lowest significant relationship. It proposes that when people have slow tolerance for ambiguity, they will likely not save. It holds when things are so uncertain, withholding cash would be the best option than to invest it. Cash management has a large positive correlation to financial records (*r*=.675) and savings plan (*r*=.649). This finding depicts the interdependence of keeping financial records in managing cash to achieve a better savings plan. Innovativeness portrayed a highly significant relationship to the tolerance of ambiguity (*r*=.576) among variables of entrepreneurial characteristics. It showed a similar result to Anwar & Saleem (2019), in which these two variables got the highest correlation. However, Ogbulo & Sukidjo (2020) observed no significant relationship between financial literacy and entrepreneurial ability.

The results implied that entrepreneurial characteristics showed relevance to the financial literacy of students. It means that business educators may look into strengthening their financial literacy or entrepreneurship programs as they positively link to each other. It also suggests that financial literacy helps to develop the entrepreneurial side of the students. In this manner, business schools should put a premium on improving the financial literacy of students to produce more future entrepreneurs in the country.

There is no significant relationship between gender and financial literacy, as shown in Table 1, which corroborates the results of some contemporary studies about financial literacy (Tejero et al., 2019; Concepcion-Gallardo & Libot, 2017; de Castro et al., 2020; Sapir & Ahmad, 2019; Yong & Tan, 2017; Sari et al., 2017). However, some studies observed a significant relationship between gender and financial management practices (Loke, 2017) and well-being (Sabri & Zakaria, 2015). These varying results do not necessarily relate gender to one's financial literacy and entrepreneurial characteristics.

The table further showed no significant relationship in all variables except for the risk-taking propensity and gender (r=.158). This study partly supports the results of Soejono et al. (2015), & Lacap (2017), which found no significance in the relationship between gender and entrepreneurial characteristics. Conversely, some studies found a significant relationship between gender and entrepreneurial intentions (Hyun et al., 2019; Hoang et al., 2020) and entrepreneurial self-efficacy (Hyun et al., 2019). The table also presented no significant relationship between senior high school strand and financial literacy and entrepreneurial characteristics. This finding proposes that senior high school might not have any effect on these factors.

Regression analysis

A stepwise regression matrix, as shown in Table 2, provides that financial records (β=.419, t=4.995, p=.000), savings plan (β=.291, t=3.396, p=.001), and general self-efficacy (β=.166, t=-2.185, p=.030) positively influence the cash management subscale of financial literacy, however innovativeness (β=-.129, t=2.503, p=.013) affects negatively. It implies that an individual needs to have proper financial recordkeeping, savings plan, and self-confidence to manage the cash in an optimum manner. Moreover, the result discourages innovation in cash management as it entails cash outflow when one invests for innovation. Cash management (β=.295, t=3.654, p=.000), financial records (β=.516, t=7.207, p=.000), general self-efficacy (β=.162, t=3.158, p=.002), and SHS strand (β=.125, t=2.205, p=.029) posed a significant positive influence to savings plan while gender (β=-.192, t=-2.764, p=.006) showed a negative influence. This result depicted the positive influence of enrolling in an ABM program on the savings behavior of students. The result further revealed that females tend to save more than males. Risk-taking propensity displayed a positive influence on financial records (β=.212, t=2.681, p=.000), innovativeness (β=.430, t=6.756, p=.008), and general self-efficacy (β=.178, t=2.622, p=.010), which suggests that creating innovations requires an individual to take risks, especially in producing disruptive technologies. The result also suggests that an individual tends to confidently embrace risks when grounded on better financial records.

Table 2a. Stepwise regression matrix between financial literacy and entrepreneurial characteristics subscales, gender, and senior high school strand

Variables	Regression Results (β)								
	1	2	3	4	5	6	7	8	9
1. Cash management	-	.365**	.295**	.058^{ns}	-.068^{ns}	-.011^{ns}	-.003^{ns}	.289**	.024^{ns}
2. Financial records	.419**	-	.516**	.212**	.016^{ns}	.009^{ns}	.079^{ns}	.041^{ns}	.017^{ns}
3. Savings plan	.291**	.460**	-	.047^{ns}	.022^{ns}	.035^{ns}	.231**	.248**	-.014^{ns}
4. Risk-taking propensity	.038^{ns}	.113*	.061^{ns}	-	.316**	-.008^{ns}	.162^{ns}	.202**	.144^{ns}
5. Innovativeness	-.129*	.063^{ns}	.067^{ns}	.430**	-	.011^{ns}	.288**	.051^{ns}	.463**
6. Locus of control	-.028^{ns}	.019^{ns}	.038^{ns}	-.030^{ns}	.009^{ns}	-	.199**	.286**	.153*

7.	Need for Achievement	-.045^{ns}	.053^{ns}	.088^{ns}	.127^{ns}	.230**	.201**	-	.084^{ns}	-.011^{ns}
8.	General self-efficacy	.166**	.030^{ns}	.162**	.178**	-.004^{ns}	.256**	.105^{ns}	-	.056^{ns}
9.	Tolerance of ambiguity	.014^{ns}	.033^{ns}	.000^{ns}	.136^{ns}	.442**	.177*	-.008^{ns}	.054^{ns}	-
10.	Gender	.070^{ns}	.049^{ns}	-.192**	.094^{ns}	.025^{ns}	-.054^{ns}	-.082^{ns}	.085^{ns}	.014^{ns}
11.	SHS strand	-.094^{ns}	-.018^{ns}	.125*	.081^{ns}	.012^{ns}	-.011^{ns}	-.010^{ns}	-.082^{ns}	.035^{ns}

*Note: *p< 0.05; **p< 0.01; ^{ns} not significant*
Source: Processed Data (2020)

Innovativeness portrayed a positive influence on risk-taking propensity (β=.316, t=4.400, p=.000), need for achievement (β=.230, t=3.182, p=.002), and tolerance of ambiguity (β=.442, t=5.907, p=.000), which means that to be innovative, an individual must be a risk-taker and goal-driven. The need for achievement (β=.201, t=2.600, p=.010), general self-efficacy (β=.256, t=3.769, p=.000), and tolerance of ambiguity (β=.177, t=2.307, p=.022) presented a positive effect to the locus of control, which connotes that a person can pose better self-control if he/she is confident, motivated and has tolerance for uncertainties. Savings plan (β=.231, t=3.267, p=.001), innovativeness (β=.288, t=4.468, p=.000), and locus of control (β=.199, t=2.770, p=.006) showed a positive influence on the need for achievement. This finding suggests that achievers are highly innovative, have self-control, and strong savings behavior. Cash management (β=.289, t=2.667, p=.008), savings plan (β=.248, t=2.561, p=.011), risk-taking propensity (β=.202, t=2.747, p=.007), and locus of control (β=.286, t=3.783, p=.000) positively influences general self-efficacy. Having self-control, risk tolerance, better cash management and saving plans tend to boost one's self-confidence. Innovativeness (β=.463, t=7.882, p=.000) and locus of control (β=.153, t=2.330, p=.021) has a positive effect on one's tolerance for ambiguity, which means that an individual tends to innovate during uncertainties. It supports the notion that every crisis builds an opportunity.

The regression results in Table 2b showed that only risk-taking propensity (β=.229, t=3.181, p=.002) and general self-efficacy (β=.450, t=6.258, p=.000) positively influence the overall financial literacy. It means that the risk-taking behavior accompanied with self-confidence will improve the total financial literacy of an individual. It further suggests that risk-takers tend to possess better subscales of financial literacy, much more when they believe in their decisions and actions. Conversely, financial records (β=.254, t=2.486, p=.014) and savings plan (β=.303, t=2.960, p=.004) exhibited positive effects on the students' overall entrepreneurial personality as reflected in Table 2c. This result proposes that when students keep their receipts and expenditures and manifest savings behavior, they tend to have the entrepreneurial traits. It also connotes that those who are conscious of their spending and savings behavior incline to engage more in entrepreneurship.

Table 2b. Stepwise regression analysis of overall financial literacy against entrepreneurial characteristics subscales, gender, and senior high school strand

Variables	Regression Results				
	B	*SE*	β	*t*-value	*p*-value
1. Risk-taking propensity	.181	.057	.229	3.181	.002**
2. Innovativeness	.005	.059	.953	.005	.680^{ns}
3. Locus of control	.032	.438	.662	.035	.818^{ns}
4. Need for Achievement	.133	1.797	.074	.144	.772^{ns}

5. General self-efficacy	.336	.054	.450	6.258	.000**
6. Tolerance of ambiguity	-.035	-.478	.633	-.039	.798ns
7. Gender	-.058	-.876	.382	-.071	.973ns
8. SHS strand	.001	.015	.988	.001	.975ns

*Note: *p< 0.05; **p< 0.01; ns not significant*
Source: Processed Data (2020)

Table 2c. Stepwise regression analysis of overall entrepreneurial characteristics against financial literacy subscales, gender, and senior high school strand

Variables	Regression Results				
	B	*SE*	*β*	*t*-value	*p*-value
1. Cash management	-.034	-.342	.733	-.028	.495ns
2. Financial records	.191	.077	.254	2.486	.014**
3. Savings plan	.218	.074	.303	2.960	.004**
4. Gender	.078	1.112	.268	.090	.970ns
5. SHS strand	.028	.410	.682	.033	.989ns

*Note: *p< 0.05; **p< 0.01; ns not significant*
Source: Processed Data (2020)

Comparative analysis

In terms of financial literacy, there is no significant difference between male and female students, as reflected in Table 3, which supports some studies that found no gender differences (Arceo-Gomez & Villagomez, 2017; Parcia & Estimo, 2017; Kenayathulla et al., 2020; Mahdzan et al., 2017; Yong et al., 2018; Soejono et al., 2015). Contrariwise, there were studies in which males got better financial literacy scores than females (Villagomez, 2016; Morgan & Trinh, 2019; Erner et al., 2016; Mahapatra et al., 2016; Lantara & Kartini, 2015; Yong & Tan, 2017). There were also studies that females were more financially literate and well-being than males (Jayaraman & Jambunathan, 2018; Abdullah et al., 2019).

The table also displayed no significant difference between males and females in terms of entrepreneurial characteristics except for risk-taking propensity. This finding relatively supported the results of Ching & Kitahara (2017), & Lacap (2017) that found no significant difference between males and females in terms of entrepreneurial intention and inclination. However, in terms of risk-taking propensity, the males were more risk-taker than females, which corroborates the finding of Mahdzan et al. (2017), & Friedl et al. (2020) in which females are more risk-averse than males. Contrarily, Agustina & Pradesa (2020) noted no significant gender difference in risk-taking among entrepreneurs. Meanwhile, Londono et al. (2020) observed a significant gender difference in entrepreneurial intentions. Moreover, Rahman et al. (2019) noted gender differences in terms of student's entrepreneurial personality while Souza et al. (2016) found gender as a strong predictor of business success.

Table 3. Comparative statistics between male and female, ABM and non-ABM students as to financial literacy and entrepreneurial characteristics

Variables	Gender				Senior High School Strand			
	Male N=32	**Female** N=125	*t*-value	*p*-value	**ABM** N=32	**Non-ABM** N=125	*t*-value	*p*-value

	Mean	*SD*	Mean	*SD*			Mean	*SD*	Mean	*SD*		
Financial Literacy												
Cash management	4.042	.409	3.942	.503	1.038	.301^{ns}	3.911	.443	4.003	.517	-1.172	.243^{ns}
Financial records	3.898	.563	3.813	.542	.786	.433^{ns}	3.829	.489	3.832	.589	-.031	.975^{ns}
Savings plan	3.891	.608	3.978	.561	-.771	.442^{ns}	4.004	.524	3.926	.604	.848	.398^{ns}
Entrepreneurial Characteristics												
Risk-taking propensity	3.719	.523	3.483	.613	1.994	.048*	3.600	.521	3.478	.656	1.270	.206^{ns}
Innovativeness	3.522	.628	3.406	.627	.933	.352^{ns}	3.485	.580	3.387	.661	.969	.334^{ns}
Locus of control	3.624	.585	3.663	.556	-.351	.726^{ns}	3.648	.502	3.661	.605	-.141	.888^{ns}
Need for achievement	3.979	.565	3.979	.565	-.956	.341^{ns}	4.082	.560	4.049	.563	.364	.716^{ns}
General self-efficacy	4.068	.558	3.900	.652	1.335	.184^{ns}	3.886	.606	3.972	.659	-.842	.401^{ns}
Tolerance of ambiguity	3.563	.619	3.496	.526	.617	.538^{ns}	3.555	.521	3.474	.564	.927	.355^{ns}

*Note: *p< 0.05; **p< 0.01; ^{ns} not significant*
Source: Processed Data (2020)

There is no significant difference between ABM and non-ABM students in terms of financial literacy and entrepreneurial characteristics, as displayed in Table 3. It simply means that taking ABM as an academic strand in senior high school does not make them better than non-ABM in terms of financial literacy and entrepreneurial characteristics. This result may connote that the ABM program does not significantly differentiate the financial literacy and entrepreneurial traits of students taking this strand from those who did not. Schools must integrate financial education into their curriculum (de Castro et al., 2020; Montalbo et al., 2017; Jayaraman & Jambunathan, 2018; Curugan et al., 2019) as it improved the financial knowledge of students (Sari et al., 2017). Students pursuing ABM related education have higher financial literacy level than other streams (Jayaraman & Jambunathan, 2018; Lantara & Kartini, 2015). However, the results portrayed no difference in both strands. It posed a challenge to senior high school educators to revisit their existing curriculum if it improves students' financial literacy and entrepreneurial characteristics. Rivera & Gozun (2019) recognized the offering of ABM strand in the senior high school as a platform in enhancing the entrepreneurial mindset of learners and in strengthening the entrepreneurship of the country.

The results may also connote that since these students chose to enroll in a business-related course, they tend to be inherently inclined to financial literacy and entrepreneurship regardless of their senior high school strand. No significant difference between ABM and non-ABM in terms of entrepreneurial characteristics may be the effect of the integration of entrepreneurship as a core subject in the education system of the country (Tung et al., 2020).

4. Conclusions and Recommendations

4.1 Conclusions

This paper aimed to investigate the correlation between financial literacy and entrepreneurial characteristics, including the relationship of these factors to gender and senior high school strands. This paper also compared males and females and those who graduated from ABM and non-ABM strands based on these factors. This study improves the literature on linking financial literacy and entrepreneurial characteristics in the Philippine setting. It also provides insights into business schools in advancing financial literacy and entrepreneurship among students in the country. In light of the above findings, this paper proposes the following conclusions:

1. There is a significant positive correlation between entrepreneurial characteristics and financial literacy, except for cash management when linked to innovativeness and tolerance for ambiguity. It poses no significance of innovation and tolerance for ambiguity in managing cash.
2. There is no significant correlation between entrepreneurial characteristics and financial literacy and gender and senior high school strand, except for gender and risk-taking propensity variable. The correlation of gender to risk-taking propensity shows the influence of gender in taking risks during uncertainties.
3. There is no significant gender difference in all variables, except for risk-taking propensity. Gender differences in risk-taking propensity suggest how males and females viewed and responded to risks differently.
4. There is no significant difference in all variables in terms of senior high school strand. It challenges the role of the ABM curriculum in improving financial literacy and entrepreneurship much better than non-ABM.

4.2 Recommendations

In strengthening the financial literacy and entrepreneurial characteristics among students, this study advances the following recommendations:

1. Business schools may revisit the relevance of their financial literacy and entrepreneurship programs.
2. The ABM curriculum also calls for a revisit as it does not differentiate itself from non-ABM graduates in promoting financial literacy and entrepreneurship.
3. Other researchers may replicate this study using structural modeling with multiple respondents to increase its generalizability.

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