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Research

Cryptocurrencies: Business Students' Awareness and Schools' Adoption Readiness and Compatibility of Use Considering the Mediation of Attitudes

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Abstract

This research article seeks to examine the link between business students' comprehension of cryptocurrencies and the readiness of universities and colleges to accept cryptocurrencies as a medium of exchange, taking into consideration the views of business students. The study comprised partial least squares structural equation modeling (PLS-SEM) and a questionnaire geared to the knowledge and attitudes of business students concerning cryptocurrencies, as well as their preparation and appropriateness for use in institutions and colleges in Ilocos Norte. The analysis indicated no correlation between business students' understanding of cryptocurrency and universities and colleges are not necessarily prepared to adopt cryptocurrencies as a medium of exchange, even if students comprehend cryptocurrencies. The research suggests holding seminars and workshops for business students and professionals to boost their understanding and acceptance of cryptocurrencies.

Keywords: Cryptocurrencies, attitudes, awareness, PLS-SEM



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INTRODUCTION

The development of internet technologies, such as the internet of things, reinforces and improves the experience of smart contracts, and may lead to a new economic paradigm. Rapid technological advancement has enabled the rise of digital currencies administered and regulated by digital communities (Carrick, 2016). Innovative technological developments and financial economics have enhanced the demand for crypto-currencies and contributed to the global spread of trust. Cryptocurrencies may be enticing due of their technological and economic advantages. There are new service providers in the digital economy. Despite the fact that innovations in information technology and communications have been occuring for decades, the last decade has witnessed really revolutionary developments.

The Covid-19 pandemic may have increased the rate of digital transition. There are currently over 1,000 unique cryptocurrencies in circulation, with Bitcoin being the oldest and most popular. The absence of a physical form distinguishes cryptocurrencies from traditional currencies. There are no physical bills or coins that can serve as proof of ownership. It is not issued nor managed by a government or centralized entity such as a central bank. A cryptocurrency is, at its core, a unit of value that is typically pegged to a traditional currency, such as the US Dollar, and whose ownership is monitored by a decentralized database. The blockchain, a decentralized database, is essential to the entire process. In a globally distributed peer-to-peer (P2P) network, bitcoin transactions are validated and recorded on the blockchain. All computers that engage in this peer-to-peer network

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are known as nodes, and they play a crucial role in confirming each transaction and creating and storing a permanent record of it. According to data from the Bangko Sentral ng Pilipinas, the Philippines is one of the fastest adopters of cryptocurrencies in the world. According to research, the pandemic exacerbated this trend, as Filipinos recognized the worth of the money as an investment and source of income. The prevalence of crypto-friendly technology in the country has also contributed to its acceptance, bringing the Philippines on par with Vietnam and Nigeria. While both coins and tokens are cryptocurrencies, they perform distinct functions. Coins rely on their own blockchain and are intended as a form. Ether (ETH) is an example of a blockchain-based cryptocurrency. Altcoins are any blockchain-based cryptocurrencies that are not bitcoin. Similarly, tokens are built on an existing blockchain, but they are not cash. They are instead programmable assets that permit the creation and execution of customized smart contracts. These contracts can establish the ownership of assets that are not reliant on the blockchain. Tokens may be used to represent electricity, money, points, currencies, and digital assets, and they can be delivered and received. In 2017, the value of cryptocurrency in the Philippines skyrocketed from \$1,000 to more than \$19,000 in a few of months.

Since then, BSP has developed a trustworthy infrastructure that safeguards cryptocurrency users and promotes the acceptance of bitcoin, which is still in its infancy. The BSP has also developed relationships with seventeen industry-compliant virtual currency exchanges as of December 2020. Recently, the Bangko Sentral ng Pilipinas issued guidelines for virtual currencies (VCs). The BSP Circular No. 1108 Series of 2021 will create new standards for Virtual Asset Service Providers. Specifically, these Guidelines declare that venture capital is not legal money since it is not backed by a central bank, a specific commodity, or any territory. As a conduit for delivering certain financial services, such as remittances and payment transactions, virtual currencies must be registered with the BSP and suitable risk mitigation and management measures must be implemented. And financial economics has raised the demand for cryptocurrencies and contributed to the global growth of trust. Minimal study has been conducted on young people's awareness and views of cryptocurrencies, despite their meteoric rise in popularity. Never before has it been more important to know cryptocurrencies in their entirety, not just as a technology but also as an investment vehicle or a commodity.

According to Polasik et al. (2016), the majority of cryptocurrency research to date has focused on four pillars: technological aspects, typically in terms of the underlying blockchain composition and security concerns; legal and public dimensions, which typically examine regulatory and tax implications; social, political, and ethical implications of cryptocurrencies; and economic issues surrounding Cryptocurrency as an investment and potential currency replacement. Universities and colleges have increased their understanding, awareness, and engagement with blockchain and cryptocurrency technologies in a covert manner. Several of the nation's most famous colleges, including Cornell, Stanford, MIT, and others internationally, presently offer Blockchain courses. In addition, several of these prestigious educational institutions put their money where their mouths are by investing their endowment monies in cryptocurrency as a payment alternative. Universities and colleges in the Philippines have not accepted Cryptocurrency as tuition fee payment because to the hazards and poor recognition of its legality and legitimacy. This study report investigates the readiness of schools to accept cryptocurrency. Since the emergence of Cryptocurrency in the Philippines, there has been little research on business

students' knowledge and attitudes towards Cryptocurrency. This study aimed to determine the level of knowledge and preparedness for adoption of cryptocurrencies among college students, as well as how these characteristics may impact their ultimate choice to adopt. This study will help create baseline data on the probable factors that determine the amount of success connected with the adoption of innovative exchange systems like the one under discussion. In addition, the results will illustrate the possible degree of bitcoin acceptance in emerging economies such as the Philippines, based on the level of acknowledged awareness and attitude.

LITERATURE REVIEW

Self-Perception Theory

According to the theory (Laird,2007), individuals learn about their attitudes, feelings, and other internal states by inferring them from observations of their overt conduct and the conditions in which it happens. As a result, to the degree that internal cues are weak, ambiguous, or uninterpretable, the individual is in the same functional position as an outside observer, who must rely on the same exterior clues to infer the individual's interior states. The theory states that when people are unsure about their feelings and motivations, they will use their behavior to infer what they feel. This theory tries to explain this research paper on awareness and attitudes of business students toward Cryptocurrency. What are the attitudes of students who are aware of Cryptocurrency compared to those who are not aware?

Theory of Diffusion of Innovation

According to Dearing (2018), TDI has established a reputation as a well-known innovationdecision-making method. Adoption frequently begins with recognizing a need for innovation or change, which results in efforts to find answers. This procedure then progresses to the determination of whether or not to accept such a solution, and lastly to whether or not the solution will be implemented. Thus, the idea suggests that before any intention or actual adoption can occur, the anticipated users must be aware of the presence of an invention or adoption. Rogers further emphasized that individuals and organizations may be classified as low, middle, or high adopters.

Technology Acceptance Model (TAM)

Davis has offered TAM as a solution (1989). Venkatesh et al. (2003) later extended TAM (2003), which is based on the "Theory of Reasoned Action" (Fishbein & Ajzen, 1980), which documented behavioral changes following the adoption of new technology. Two TAM components are primarily responsible for the individual's behavioral desire to use the entire system. TAM's core constructs of perceived ease of use and perceived usefulness aid in developing user intention to embrace new technologies (Roca et al., 2006). TAM is a broad model that predicts an individual's desire to embrace and use new technologies (Folkinshteyn & Lennon, 2016). It has been widely used in information systems, education, and various other fields to understand better how people adopt new technologies (Baker-Eveleth et al., 2016).

Cryptocurrency as a Currency

The primary economic dispute around cryptocurrency is whether it should be classified as a currency. Currency is a simple concept: it is a system of money that is widely used. To qualify as a

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currency, the tender must satisfy three criteria: (1) it must be capable of the transaction, (2) it must be capable of serving as a unit of account, and (3) it must be capable of storing value (Kiyotaki and Wright 1989).

A currency's primary criterion is that it be usable in transactions. Dozens of websites take Bitcoin: there were around 200,000 daily Bitcoin transactions in December 2015 (Tiller 2015), yet this number is negligible compared to other currencies. However, there are still other lesser-known currencies with far lower daily activity. Additionally, the quantity of Bitcoins utilized in transactions has expanded steadily over the previous three years. There is no universally agreed volume or value requirement for money to be designated a currency. For example, while the currencies of Cambodia, Laos, and Uganda are less active than cryptocurrency, they are still regarded currencies—albeit weak currencies. Although cryptocurrency's daily volume is still tiny, it is widely utilized and has witnessed a dramatic surge in usage. It is generally uncertain whether cryptocurrency satisfies the transactional criterion of a currency—this largely relies on how this condition is interpreted. A currency's second condition is to be used as a unit of account. This is likewise arguable when it comes to cryptocurrency. It exhibits features of a unit of account. To begin, it is divisible. A cryptocurrency may be disassembled into an endless number of parts, each of which can be reassembled to produce a complete Bitcoin. Rogojanu and Badea (2014) highlighted that one of the difficulties with Bitcoin is that the total number of cryptocurrency is restricted to 21 million; however, Van Alstyne (2014) noted that fractional ownership of a Bitcoin is feasible; hence, the 21 million is not a limiting figure.

Second, cryptocurrency is fungible which may be exchanged for other currencies. Each of the 100 cryptocurrency is made identically, and they are all interchangeable. Thirdly, it is a countable object that is amenable to mathematical operations. Although cryptocurrency appears to fit all of the conditions for a unit of account, there is still controversy. The dispute is mostly about Bitcoin's capacity to value goods and services; due to its volatility, it has difficulty valuing commodities and services consistently.

The third criteria for a currency are that it be used as a medium of exchange. According to Glasser et al.'s empirical examination (2014) of Bitcoin users, Cryptocurrency is more in demand as an asset than a currency; they discovered that users hoard the coins to accumulate value for future usage. This has been corroborated by multiple additional studies and is consistent with the reason Bitcoin was founded in the first place—to provide an alternative currency that would not depreciate as a result of government actions (Nakamoto 2008). According to some, Bitcoin's volatility diminishes its usefulness as a money store. Many investors determine a currency's credibility based on its stability and capacity to act as a haven when other financial assets are volatile (Ranaldo and Söderlind 2010).

Awareness and Attitudes towards Cryptocurrencies

A study by Doblas (2019) sought to ascertain college students' level of awareness and attitude toward cryptocurrencies and how these factors may influence their final decision to use the technology. Numerous inferences were drawn as a result of the research. To begin, the percentage of customers who are extremely aware of cryptocurrencies leaves a lot to be desired. Second, while bitcoin is perceived favorably as a possible means of exchange, there is still much doubt over its suitability as an investment instrument, particularly because of its volatility. Finally,

an individual's attitude toward cryptocurrencies and level of awareness has a major impact on their propensity to accept Cryptocurrency.

On the other hand, Patil (2019) studied the attitude of Ireland's millennial generation towards cryptocurrencies. According to the research, Millennials have formally recognized Bitcoin and other cryptocurrencies as a sort of contemporary cash. Despite widespread distrust among those who have never used it, most millennials trust it as a means of payment and transfer. While comparing the amount of trust when investing in cryptocurrencies, the guys who took their time to invest showed a greater understanding and awareness, even though their actual trading or investing in bitcoin varied. However, three of the six experienced respondents in terms of real cryptocurrency trading were eager to invest in it in the future, despite the bitcoin market's volatility. These seasoned investors said that the shift from traditional investment modes to electronic investment modes had captivated the generation, instilling a feeling of pride in doing transactions online and allowing them to grasp the status of their assets.

RESEARCH METHOD

Research Paradigm



Participants

The study respondents were selected using a convenience sampling technique. They were the tertiary students of the seven colleges and universities in Ilocos Norte, namely Northwestern University, Mariano Marcos State University, Divine Word College of Laoag, Data Center Laoag, STI-Laoag, and Ama Computer Laoag. Using the Sample size calculator by Raosoft, with a 5% margin of error and confidence level of 95% and a total approximate population of 20,000 students, the full sample size is 377 respondents were computed. But because Google form was used to gather data virtually, the researchers gathered 908 respondents.

For the part of adoption readiness, the respondents were the personnel of the Finance Department of the different universities and colleges located in Ilocos Norte. Twelve respondents from different universities and colleges in Ilocos Norte were gathered.

Finance	Personnel's	Frequency	Percentage
Characteristics			
University/College			
MMSU		2	16.67
NWU		6	50
DWCL		1	8
NCC		1	8
AMA		1	8
Data Center		1	8
Gender			
Male		4	33
Female		8	67

Table 1.1 Finance Personnel's' Socio-Demographic Profile

Table 1.2 Students' Socio-Demographic Profile

Student's Characteristics	Frequency	Percentage
University/College		
MMSU	330	38.2
NWU	319	36.9
DWCL	67	7.7
NCC	5	0.6
AMA	19	2.2
STI	19	2.2
Data Center	106	12.3
Year Level		
1 st	73	8.4
2 nd	148	17.1
3 rd	256	29.6
4 th	383	44.3
5 th	5	0.6
Gender		
Male	235	27.2
Female	630	72.8

Research Instrument

The research instrument that was used in the research was questionnaires. There will be two sets of questionnaires. The first set is for students and the second set is for finance personnel. For the first set, there are three sections of the questionnaire. The first part is the demographic profile; the second part is the level of awareness of business students towards cryptocurrency; and the third part is the student attitudes towards Cryptocurrency. The demographic profile consisted of university/college, year level, and course. The second and third parts were adapted in a study by Doblas (2019) entitled **"Awareness And Attitude Towards Cryptocurrencies In Relation To Adoption Among College Students In A Private Tertiary Institution In Cagayan De Oro City, Philippines."**

For the second set, there were two sections. The first section was the demographic profile. The second section is the questions about adoption readiness adopted in the study of Wu et al. entitled **Investigating e-Retailers Intentions to Adopt Cryptocurrency Considering the Mediation of Technostress and Technology Involvement (2022).**

Data Analysis

A quantitative design was used in the present study. Frequencies and weighted means were employed to explain students' level of awareness and attitudes toward cryptocurrencies. Moreover, a causal research approach was utilized to measure the relationships between the level of awareness and attitudes of business students in Ilocos Norte towards Cryptocurrency.

RESULTS AND DISCUSSION

The association between four variables was explored using PLS-SEM: awareness of cryptocurrencies, student attitudes toward cryptocurrencies, university willingness to adopt Cryptocurrency as a medium of exchange, and cryptocurrency compatibility in universities. Two steps comprise evaluating the path model in PLS-SEM (Hulland, 1999). The first part involves evaluating the measurement model. This step evaluates the variables' reliability and validity. The second stage evaluates the structural model, in which the hypothesized relationships between variables are examined (Hulland, 1999; Dimaunahan & Amora, 2016).

Indicators of Model Fit and Quality

The coefficients of model fit and quality indices of the structural equation model are shown in Table 2. According to the overall results, the SEM estimates are within the permissible range. Table 2 Model Fit and Quality Indices of SEM

Model fit and Quality Indices	Coefficients
APC	0.327, p<0.001
ARS	0.392, p<0.001
AARS	0.390, p<0.001
AVIF	1.061
AFVIF	2.301
Tenenhaus GoF	0529

To ensure that the model is suitable, the average path coefficient (APC), average R-squared (ARS), average block VIF (AVIF), and average full collinearity VIF (AFVIF) indices should all have a p-value of 3.3 or below (Kock, 2017). Tenenhaus goodness of fit (GoF), a measure of a model's explanatory ability (Kock, 2017), is defined as small if it is equal to or greater than 0.1, medium if it is equal to or greater than 0.25, and big if it is equal to or greater than 0.36. (Kock, 2017; Wetzels, Odekerken-Schroder, & van Oppen, 2009). The GoF is calculated as the product of the average index of communality and the ARS squared (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005). The fit and quality indices of the model are within acceptable ranges, as indicated in Table 2.

Reliability and Validity Measurements

Construct/Items	Item	AVE	CR	CA
	Loading			
Awareness				
I am familiar with hashgraphs,	0.837			
blockchains, and other cryptocurrencies-				
supporting technologies.				
I am aware of the distinction between	0.806			
"work proof" and "stake proof."				
I am familiar with the distinction between	0.853	0.674	0.912	0.879
crypto coins and crypto tokens.				
I am familiar with systems like Ethereum,	0.817			
NXT, Omni, and waves.				
I am aware that cryptocurrency networks	0.792			
are open and decentralized.				
Attitude				
I understand that cryptocurrency can	0.717			
function as a means of exchange.	0.000			
I believe blockchain technology can be	0.803			
utilized to create smart contracts.	0.701			
I believe cryptocurrency can be	0.781			
Incorporated into nedge funds.	0 772			
is pessible	0.773			
Is possible.	0 772	0 551	0.025	0 000
cryptocurrency	0.775	0.551	0.923	0.909
I acknowledge the possibility that	0 740			
cryptocurrencies might supplant fiat	0.740			
currency				
Using cryptocurrencies we may not	0 730			
require a monetary regulator such as a	0.7.50			
central bank.				

Table 3 Item Loadings, AVE, and Reliability of the Variables

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I believe that the adoption of	0.694	
cryptocurrencies may eliminate the		
necessity for banks.		
I believe that cryptocurrencies will alter	0.70	
commercial dealings.		
I am certain that cryptocurrencies might	0.696	
eliminate the necessity for financial		
middlemen such as Western Union.		
Readiness To Use		
I am prepared to accept cryptocurrency as	0.861 0.657 0.497 0.971	L
a means of payment in the university		
context.		
I wish to become associated with	0.854	
Cryptocurrency in order to implement it as		
a payment method at the university.		
I will make an attempt to become active	0.707	
and implement Cryptocurrency as a		
payment method at the university.		
Compatibility of Use		
Using Cryptocurrency is compatible with	0.994 0.975 0.991 0.987	7
the School's business environment.		
The use of Cryptocurrency by students in	0.994	
the school's e-store/e-business is a natural		
match.		
Using Cryptocurrency is fully compliant	0.974	
with the e-store/e-business requirements		
of the School.		

The measurement model was evaluated using convergent and discriminant validity tests. The examination of construct dependability enables an item or group of things to examine the construct it is meant to measure (Straub, Boudreau, & Gefen, 2004; Roldan & Sanchez-Franco, 2012). Composite reliability and Cronbach's alpha are typically used (Kock, 2017). The composite reliability (CR) and Cronbach's alpha (CA) scores must be equal to or greater than 0.7 to show strong reliability. (1994; Nunnally & Bernstein). According to Table 3, the construct dependability requirement was met by the variables awareness, attitude, readiness, and compatibility. On the other hand, Convergent validity evaluates the quality of a research instrument's collection of items or question statements. This means that participants comprehend the objects or question statements within each construct in the same way that their designers intended to comprehend the items or question statements (Kock, 2017). To ensure adequate convergent validity, the p-values for each item should be less than or equal to 0.05, while the loadings should be more than or equal to 0.5. (2017) (Kock). Item loading is the connection between an item and a construct (Kock, 2017). All item loadings in Table 3 are statistically significant and greater than the 0.5 thresholds. Additionally, the average variance extracted (AVE) quantifies the variation of each construct obtained from its constituents compared to the variance resulting from measurement error (Amora

et al., 2016). Each latent variable has an AVE larger than 0.5, which is an excellent value for validity (Fornell & Larcker, 1981). The AVE coefficients were determined to be correct.

	Awareness	Attitude		
Awareness	0.821			
Attitude	0.617	0.743		
Readiness	-0.004	-0.004	0.810	
Compatibility	0.026	0.018	0.768	0.987

Table 4 Square Roots of AVE Coefficient	ts and Correlation Coefficients
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The discriminant validity of the instrument is determined by using the square roots of the AVE coefficients to calculate the correlations between variables in Table 4. When completing a questionnaire, discriminant validity evaluates whether or not respondents comprehend the statements associated with each latent variable. Additionally, it verifies that statements about a single variable, for instance, do not conflict with assertions about other variables (Kock, 2017). The square root of the AVEs must be greater than the square root of any correlations between variables for each variable (Fornell & Larcker, 1981). The results imply that the study's instruments exhibited discriminant validity.

Mediation Model Results

Tuble 5 mediation nesalts				
Hypotheses	В	P-value	SE	f^2
H1. Awareness Readiness	0.05	0.09	0.037	0.002
H2 Awareness Attitude	0.62	< 0.01	0.37	0.384
H3 Attitude ——> Readiness	0.04	0.13	0.39	0.001
H4 Compatibility → Readiness	0.89	< 0.01	0.36	0.787

Table 5 Mediation Results

Table 5 illustrates the concept of a significant mediating influence test. There are no significant associations between students' awareness and schools' readiness (B=0.05, p-value=0.09) or between students' attitude and schools' readiness (B=0.04, p-value=0.13). On the other hand, substantial connections exist between awareness and attitudes (B=0.63, p-value0.01) and compatibility and readiness to use (B=0.89, p-value0.01).

According to the data analysis, awareness does not affect schools" readiness (B=0.05, p-value=0.09). The transition from awareness to readiness has a negligible impact (Cohen's f2=0.02). In conclusion, H1 is not supported.

Attitudes are significantly affected by awareness (B=0.63, p-value0.01). The positive route coefficient implies that becoming aware of Cryptocurrency improves sentiments toward it. The transition from awareness to attitudes has a significant impact (Cohen's f2=0.384). As a result, the H2 protocol is supported.

Additionally, the attitude has a negligible effect on readiness (B=0.04, p=0.13). The effect size on the path from attitudes to readiness is negligible (Cohen's f2=0.001). As a result, H3 is deprecated.

Finally, compatibility does have a statistically significant effect on readiness (B=0.89, p=0.01). The positive path coefficient suggests that increased compatibility with cryptocurrency usage increases readiness to use. The impact size of the transition from compatibility to preparedness is quite substantial (Cohen's f2=0.787). As a result, the H4 protocol is supported.

CONCLUSION

Based on the data gathered and interpretation Cryptocurrency appears to have passed the early adoption stage that all new technologies go through. Bitcoin has begun to carve out a specialized market for itself, which may help propel cryptocurrencies further into the mainstream, or maybe the primary reason for their demise. Cryptocurrencies are still in their infancy, and it is unclear if they will ever achieve widespread adoption in global markets.

The purpose of this study was to ascertain college business students' degree of awareness and attitude toward cryptocurrencies and the factors that would influence their final choice to use the technology by schools as a medium of exchange. Numerous inferences were drawn as a result of the data. First, the percentage of business students who are extremely aware of Cryptocurrency's existence leaves much to be desired. Second, while Cryptocurrency is perceived favorably as a possible means of exchange, there is still much doubt over its suitability as a medium of exchange (payment of tuition fees in colleges and universities), owing to the fact that Bangko Sentrtal ng Pilipinas has not regulated its use and of course, its volatility. Finally, an individual's attitude toward Cryptocurrency and degree of awareness have no impact on the desire of universities to accept and use it as a medium of exchange. Universities and colleges are not yet ready to adopt cryptocurrencies in their system since in the Philippines, cryptocurrencies are not yet that accepted as medium of exchange.

Implications and Direction of Future Research

The cryptocurrency market is unpredictable and hazardous, but this is largely due to the youthful force that promotes and supports the movement on social media. A great deal of money is being tossed around to benefit from the purchase and sale of tokens. The apparent disadvantage is that inexperienced or ignorant college students are susceptible to being duped by false information and making poor investing selections. The traditional benefit and con of social media are that anyone with access to a computer may say anything and then share it with the rest of the world. However, it continues to lack understanding of emerging technologies and processes. According to the in-depth interviews conducted, numerous workshops, seminars, and conferences should be organized for business students to expand their understanding of cryptocurrencies and how they may help them flourish.

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