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Editorial Statement

Human Behavior, Development and Society is a refereed multidisciplinary journal that explores a wide range of scholarly topics, especially in fields relating to the humanities and social sciences. It is published online three times a year and is available free of charge through the ThaiJo and Asia-Pacific International University (AIU) websites, with a limited number of hard copies available. The journal, originally entitled *Catalyst*, has been published since 2006 by Asia-Pacific International University, Muak Lek, Thailand, through its publishing arm *Institute Press*.

The journal has the following objectives:

a). To stimulate the creation and synthesis of beneficial information, as well as its broad dissemination, especially in the varied fields of the humanities and social sciences,

b). To foster a deeper understanding regarding the impact of business policies and practices on society, and

c). To promote the adoption of best practices in communities through education, and to aid in the resolution of community issues for the betterment of society; this represents the development aspect referred to in its name.

Editorial Objectives

The editorial objectives are to advance knowledge through use of classical – or the creation of innovative – methods of investigation, and to foster the examination of cross-cultural issues to increase mutual understandings among diverse social groups. Encouraging cooperative studies and scholarly exchange across borders, as well as within Thailand, remains one of its aims. The application of theoretical considerations to the field, business, or community situations is also an outcome that is sought.

Journal Positioning

The journal is broadly based and has the potential to impact thinking and practices across a range of subject areas, dealing with substantive issues that arise in both developing and developed countries. It will likely appeal to readers with a broad appreciation of the social issues facing organizations, communities, and governments operating under varied challenges and constraints. Its contents are meant to appeal to both the academic community and practitioners in numerous areas of interest.

The positioning of the journal means that a variety of topics is covered in most issues. These, in turn, differ in their philosophical content, academic appeal, and practical implications.

Appropriate Content

The journal covers a broad spectrum of topics. These include, but are not limited to, anthropology, allied health focused on community issues and health education, education from the primary to the tertiary levels, literature, language use and acquisition, business, management, finance, geography, psychology, social sciences, philosophy, and theology. Review essays and seminar/forum papers are also accepted when appropriately focused. Well-executed studies that address interesting and significant topics in the areas mentioned above are particularly welcomed. All articles accepted should make significant contributions to understanding and add to the corpus of knowledge in their respective fields.

The following constitutes a partial list of topics that are considered potentially suitable for publication:

1. Applied linguistic or linguistic studies that examine issues related to communication, language pedagogy and use, as well as theories and meaning of language.
2. Religious or biblical studies that explore historical, philosophical, sociological, as well as hermeneutical issues.
3. Anthropological or ethnographic studies which seek to reflect cultural nuances of communities for a better understanding of the society.
4. Cultural/intercultural issues and diversity, including how tensions involving these parameters might be handled to achieve social justice and acceptance.
5. Review articles or studies in the fields of marketing, business, stock market trading, and auditing practices, and their significance to the business and broader community.
6. Organizational behavior, resilience, and the creation of a positive psychological work environment and job satisfaction.
7. Teaching strategies, interventions, assessment, and other issues to the betterment of society.
8. Policies and political movements, and their impact on educational development.
9. Violence, discrimination, and marginalization: how these issues are viewed in contemporary society, and the factors contributing to their emergence.
10. Social trends in addictive behavior; how to address such issues creatively.
11. Impact of specific policies and interventions on health care, including how to promote positive health outcomes in communities.
12. Innovative and cost effective approaches to health care and education in poor, rural communities.

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From the Editor

Human Behavior, Development and Society (HBDS) is an interdisciplinary peer-reviewed journal of Asia-Pacific International University (AIU), listed in Tier 2 of the Thai Journal Citation Index (TCI), and also indexed in EBSCO. *HBDS* strives to maintain rigorous peer-reviewed standards and the highest level of ethical integrity, ensuring consistency and scientific rigor in each of its research articles. The journal aims to advance knowledge through use of classical methods of investigation and to foster the examination of cross-cultural issues to increase mutual understanding among diverse social groups. The journal's scope includes dissemination of new knowledge across a range of topic areas in human behavior, development, and society.

The June 2020 issue of *HBDS* contains 10 articles, 9 of which were written by authors external to the university, and 1 article by an internal research team. We are delighted to see reports and findings from various academic fields, including language arts, education, management, marketing, and health care in this issue. Several articles reflect viewpoints not only from a Thai context, but also those of other Southeast Asian nations. We hope this issue of *HBDS* will contribute to the academic and professional development of society, and serve as a source of information for various disciplines and researchers.

We would like to express our sincere gratitude to all authors, reviewers, editorial board members, executive board members, as well as the journal's staff for their contributions to this issue of *HBDS*. Finally, we would like to invite you, our readers, to publish your valuable papers with us. You can find more information at our website, https://so01.tci-thaijo.org/index.php/hbds/index. We would also appreciate any comments or suggestions that you may have to help improve the journal.

Assistant Professor Dr Damrong Sattayawaksakul, Editor
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Gen Z Consumers' Online Shopping Motives, Attitude, and Shopping Intention

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Abstract

The Internet's explosive growth has facilitated e-commerce and online retailing development. Consumers also benefit from product and service customization, ease of transactions, and real time interactive communications. Gen Z consumers were the main target respondents in this study due to their growing number and dominance in global markets, including Thailand. This study aimed to investigate whether Gen Z's online shopping intention would be influenced by such independent variables as hedonic motive, simplicity motive, and usefulness motive. In addition, attitude towards online shopping was hypothesized to mediate the relationship between the independent variables and online shopping intention. The research results were statistically analyzed using Structural Equation Modeling. The analysis revealed that hedonic and usefulness motives had a significant impact on attitude towards online shopping. Furthermore, attitude towards online shopping had a significant impact on online shopping intention. However, simplicity motive did not have a significant impact on attitude towards online shopping. The findings have considerably contributed to marketing practices in the digitally connected world.

Keywords: *Generation Z, Shopping Motive, Online Shopping, Attitude, Purchase Intention*

Introduction

The explosive growth of the Internet has facilitated e-commerce and online shopping for years. Consumers get what they want online, and sellers can expand their distribution and communication channels. The development of online shopping platforms allows consumers to customize products and services (such as trip booking, food ordering and online product design), simply make payments, and interact with sellers. However, e-commerce business is inundated with competition. Those who survive tend to understand customer needs and try to fulfill them.

Generation Z (Gen Z) consumers have become an attractive prospect for retailers worldwide due to their growing numbers and dominance in global markets (Tunsakul, 2018). According to previous studies, Gen Z consumers show less loyalty to specific brands, and it is not easy to grab and hold their attention (Priporas et al., 2017). Born in 1995 or later in the digital era, Gen Z consumers are highly educated, innovative, and technologically savvy (Bassiouni & Hackley, 2014; Priporas et al., 2017). Studies have revealed that Gen Z consumers are interested in new technologies, prefer simplicity, desire to feel safe, desire to escape from reality, have high expectations, and care more about experience (Wood, 2013; Priporas et al., 2017). Brown (2017) mentioned in his article *AdReaction: Engaging Gen X, Y, and Z*, that it is not simple to access Gen Z consumers using advertising campaigns. They prefer ad content to other compositions, such as presenters or music. In addition, they tend to have selective exposure to ad campaigns in which they are interested, and not the campaigns that intrude upon their privacy. According to Tunsakul's (2018) study, Thai Gen Z consumers showed positive reactions to servicescape alignments which include human elements, as well as physical ambience. As a study on Gen Z's consumer behavior can help contribute to business and marketing theories and practices, this research, therefore, aimed to add empirical evidence regarding Gen Z consumers' online buying behavior that would have both theoretical and practical benefits and implications.

Scope of the Study

This study emphasizes Thai Gen Z consumers' online shopping motives, attitude, and shopping intention. Thai Gen Z consumers were the focal respondent group of this study, due to their growing numbers and their influence on revenue streams of both online and offline businesses.

Research Objectives

This research aimed to investigate the influence of online shopping motives on Gen Z consumers' attitude towards online shopping and online shopping intention. The objectives consisted of two parts: 1) whether online shopping motives consisting of hedonic motive, simplicity motive, and usefulness motive significantly influence Thai's attitude towards online shopping; and 2) whether Thai Gen Z consumers' attitude towards online shopping has a significant impact on their online shopping intention.

Significance of the Study

The study has value for e-commerce businesses to formulate online strategies to motivate Gen Z customers, to satisfy their needs as well as to retain them. Furthermore, the research implications will add to the store of academic knowledge concerning business management and marketing fields of study. Enhancing Gen Z customers' hedonic, simplicity, and usefulness experiences on online shopping platforms may increase revenues.

Conceptual Framework and Hypothesis Development

Independent Variables: Hedonic Motive, Simplicity Motive, and Usefulness Motive

Hedonic motive refers to experience-based enjoyment derived from the entire consumer buying process, including consumption of products or services (Mort & Rose, 2004). Hedonic motive is related to a consumer's cognitive-rational and problem-solving information processing (Escobar-Rodriguez & Carvajal-Trujillo, 2013). Bilgihan's (2016) study revealed that hedonism significantly influenced customer e-loyalty by creating positive online customer experiences in e-commerce. A study by Ingham et al. (2015) indicated that hedonic motive also played a significant part in influencing Internet-enabled television shopping intentions, as shopper motivations included a relaxed attitude and enjoyment. In addition, a website visitor can also be influenced by his or her hedonic motive (Alavi et al., 2016).

Simplicity motive and *usefulness motive* are terms derived from Davis' (1989) perceived ease of use and perceived usefulness, respectively, in the Technology Acceptance Model (TAM). TAM suggests that a user's adoption or acceptance of a new technology is influenced by such factors as its perceived ease of use and perceived usefulness. Examples of new technology include new mobile applications, smart phones, social media, and gadgets. Perceived ease of use refers to the user's belief that a particular system would be easy to use, or free of effort compared to other systems (Davis, 1989). Simplicity motive, therefore, refers to a user's perception of how easy or difficult it will be to perform a particular action (such as shopping at a favorite online store) compared to other actions (such as shopping from other retailing platforms). Perceived usefulness is defined as the user's belief that using a particular system will enhance work performance within an organizational context in which people's performances are reinforced by rewards, raises, and promotions (Davis, 1989). Therefore, usefulness motive refers to a belief that performing an action will help achieve an objective. According to Davis (1989), perceived ease of use significantly affects perceived usefulness.

Mediator: Attitude towards Online Shopping

Attitude refers to internal or latent disposition to respond favorably or unfavorably to a psychological object (Ajzen, 2012). According to Park and Kim (2013), attitude is defined as user preferences when using certain technologies and devices. The attitude towards a behavior is based on a person's readily accessible behavioral beliefs with respect to the behavior (Ajzen, 2012). According to Davis' (1989) TAM, attitude is significantly influenced by perceived ease of use and perceived usefulness. This is consistent with a study by Chang et al. (2012) in that simplicity motive significantly affected attitude towards adoption of English learning among college students. In addition, Childers et al.'s (2001) study confirmed that attitude is directly and significantly influenced by hedonic motive.

According to the information above, the research hypotheses *H1*, *H2* and *H3* concerning shopping motives and attitude towards online shopping are formulated as follows:

H1: Hedonic motive had a significant impact on Thai Gen Z consumer's attitude towards online shopping.

H2: Simplicity motive had a significant impact on Thai Gen Z consumers' attitude towards online shopping.

H3: Usefulness motive had a significant impact on Thai Gen Z consumers' attitude towards online shopping.

Dependent Variable: Online Shopping Intention

The term 'online shopping intention' is used instead of 'purchase intention' to identify Gen Z consumers' intention to shop from their favorite online store. Consumer purchase intention can be defined as the desire of consumers to purchase a product or service (Ku, 2011). The purchase intention represents a customer's likelihood to purchase a product or use a service in the future (Zeithaml et al., 2016). Before a consumer intends to make a purchase, he or she usually believes in the information he or she has (Fishbein & Ajzen, 1975). According to Chu and Lu (2007), purchase intention is determined by perceived value based on an overall assessment of the costs and benefits of a given market offering. In addition, purchase intention can be in the stages of pre-purchase and post-purchase decisions. Regarding the Internet, online shopping intention is an important predictor of actual buying behavior, and it refers to an outcome of criteria assessment by consumers regarding web site quality, information search, and product evaluation (Abdul-Muhmin, 2010; Yang & Lai, 2006). According to Davis (1989), attitude and perceived usefulness are predictive of behavioral intentions. This is consistent with studies by Kuo and Yen (2009), and Rezaei et al. (2016) in that a person with favorable attitude towards an action tends to perform that particular behavior.

According to the information above, research hypothesis *H4* regarding attitude towards online shopping and online shopping intention is stated as follows:

H4: Attitude towards online shopping had a significant impact on online purchase intention.

Figure 1 represents the conceptual model of this study, depicting relationships among all the hypotheses. The conceptual model derives from Davis' (1989) Technology Acceptance Model in which attitude is influenced by different motives, and in which attitude has an impact on behavioral intention. The relationship between each of the variables is supported by the information above.

Figure 1. The Conceptual Model

Research Methodology

Study Respondents and Sampling Procedure

The target population was Thai Gen Z consumers born after 1995, and having online shopping experience. The target respondents' attributes encompassed university undergraduates (as they are Gen Z consumers), who had favorite online stores as previously specified. The selection of target

respondents was based on a purposive sampling method, which depended on the researcher's judgment that the sample would represent the target population. As the target respondents were the author's students, they were approached via LINE application groups for each class section in one semester. Selected students were requested to complete online questionnaires posted in each LINE group.

Research Instruments / Questionnaire

For the independent variables, the measurements of hedonic motive (3 items, Cronbach's α = .77) were adapted from Escobar-Rodriguez and Carvajal-Trujillo (2013), simplicity motive (4 items, Cronbach's α = .81) were adapted from Davis (1989), and usefulness motive (4 items, Cronbach's α = .79) were also adapted from Davis (1989).

For the mediating variable, attitude towards online shopping, the measurements were adapted from Childers et al. (2001) with 4 items (Cronbach's α = .83).

Table 1. Summary of Measures and Item Reliability

Measures	Items	Cronbach's α (*n* = 584)
Hedonic Motive		
1. I have fun when shopping from my favorite online stores.	3	.77
2. When I shop from my favorite online stores, I feel happy.		
3. Shopping from my favorite online stores is very entertaining.		
Simplicity Motive		
1. I find it easy to shop for what I want from my favorite online stores.		
2. My favorite online stores offer clear and understandable interactions.	4	.81
3. I am skillful at navigating through applications or web pages of my favorite stores.		
4. Overall, my favorite online stores are easy to use.		
Usefulness Motive		
1. My favorite online stores enable me to accomplish shopping very quickly.		
2. My favorite online stores enhance effectiveness in information search.	4	.79
3. Shopping from my favorite online stores is useful.		
4. My favorite online stores offer advantageous transactions.		
Attitude towards Online Shopping		
1. I feel that shopping from my favorite online stores is wise.	4	.83
2. I feel that shopping from my favorite online stores is good.		
3. I feel that shopping from my favorite online stores is sensible.		
4. I feel that shopping from my favorite online stores is rewarding.		
Online Shopping Intention		
1. Given a chance, I will continue shopping at my favorite online stores.	3	.81
2. I am willing to shop at my favorite online stores in the near future.		
3. I will continue shopping at my favorite online stores.		

The measurements of online shopping intention (3 items, Cronbach's α = .81) were adapted from Jaafar et al. (2011). The respondents were asked to indicate their response to all questions on a scale of 1 to 5 consisting of 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, and 5 = *strongly agree*.

Table 1 shows the measures of all variables, including the number of items and Cronbach's Alphas (α). The Cronbach's Alphas for all items and 584 samples ranged from .74 to .83, which are acceptable as being reliable according to Maholtra (2007).

Data Gathering Procedure

Primary data were gathered via self-administered questionnaires from the respondents. A link to the online questionnaire was sent to all target respondents through LINE groups. The process of data gathering took 3 days (from August 21–23, 2019). In total, 584 responses were received, higher than

the minimum requirement of appropriate sample size as recommended by Berenson and Levine (1999). All questions were answered because they were required and could not be skipped.

Research Results

Demographic Profile of Respondents

The demographic profiles in this study comprised three main sections, including gender, income, and frequency of visiting favorite online stores. A Google Form document provided descriptive data, including frequency and percentage; the results are shown in Table 2.

Table 2. Demographic Profile of Respondents

Demographic Profile of Respondents		Descriptive Statistics	
		Frequency	Percentage
Gender	Male	248	42.5
	Female	336	57.5
Income	Below 5,000 Thai Baht	97	16.6
	5,000 – 10,000 Thai Baht	245	42.0
	10,001 – 20,000 Thai Baht	183	31.3
	Over 20,000 Baht	59	10.1
Frequency of Visiting Favorite Online Stores	Less than once a month	88	15.1
	Once a month	144	24.7
	2 – 4 times a month	237	40.6
	More than 4 times a month	115	19.7

According to Table 2, out of a total of 584 respondents, the majority were female (336, or 57.5%), while 248 respondents (42.5%) were male.

Regarding income levels, a majority of respondents (245, or 42.0%) had monthly income levels of between 5,000 – 10,000 Thai Baht. The minority of respondents had monthly income of over 20,000 Thai Baht, which comprised 59 respondents, or 10.1%.

With respect to respondents' frequencies of visiting their online favorite stores, the majority, 237 or 40.6%, visited 2 – 4 times a month, whereas the minority, 88 respondents or 15.1%, visited less than once a month.

Table 3 shows the means and standard deviations of all variables for the conceptual framework (*n* = 584). The highest mean for each variable indicates that most respondents felt the same way about the measure, while the lowest mean indicates that the largest number of respondents thought differently about the measure or question.

Table 3. Means and Standard Deviations of All Variables of Conceptual Framework (n = 584)

Number	Measures	Mean	Standard Deviation (*SD*)
	Hedonic Motive		
HM1	1. I have fun when shopping from my favorite online stores.	4.35	0.757
HM2	2. When I shop from my favorite online stores, I feel happy.	4.27	0.757
HM3	3. Shopping from my favorite online stores is very entertaining.	4.09	0.892
	Average Scores of Hedonic Motive	**4.24**	**0.668**
	Simplicity Motive		
SM1	1. I find it easy to shop for what I want from my favorite online stores.	4.30	0.741
SM2	2. My favorite online stores offer clear and understandable interactions.	4.10	0.790
SM3	3. I am skillful at navigating through applications or web pages of my favorite stores.	4.17	0.758
SM4	4. Overall, my favorite online stores are easy to use.	4.28	0.719
	Average Scores of Simplicity Motive	**4.21**	**0.600**

	Usefulness Motive		
UM1	1. My favorite online stores enable me to accomplish shopping very quickly.	4.07	0.857
UM2	2. My favorite online stores enhance effectiveness in information search.	4.10	0.819
UM3	3. Shopping from my favorite online stores is useful.	4.14	0.768
UM4	4. My favorite online stores offer advantageous transactions.	4.10	0.838
	Average Scores of Usefulness Motive	**4.10**	**0.645**
	Attitude towards Online Shopping		
AT1	1. I feel that shopping from my favorite online stores is wise.	3.97	0.846
AT2	2. I feel that shopping from my favorite online stores is good.	4.03	0.816
AT3	3. I feel that shopping from my favorite online stores is sensible	4.06	0.806
AT4	4. I feel that shopping from my favorite online stores is rewarding.	3.98	0.811
	Average Scores of Attitude towards Online Shopping	**4.01**	**0.670**
	Online Shopping Intention		
OSI1	1. Given a chance, I will continue shopping at my favorite online stores.	4.08	0.850
OSI2	2. I am willing to shop at my favorite online stores in the near future.	4.03	0.832
OSI3	3. I will continue shopping at my favorite online stores.	4.15	0.768
	Average Scores of Online Shopping Intention	**4.09**	**0.697**

Confirmatory Factor Analysis

The main objective of Confirmatory Factor Analysis (CFA) is to determine the degree of model fit. According to Hair et al. (2006) and Ho (2006), there are two important types of goodness-of-fit in order to determine the results of a measurement model. First is an Absolute Fit Measure assessing the level of fit for the proposed model with the actual data (Ho, 2006). The key indices used for statistical analysis include Chi-square statistics, Goodness-of-Fit Index (GFI), and Root Mean Square Error of Approximation (RMSEA) (Hair et al., 2006; Ho, 2006).

Typically, an insignificant difference between the actual and predicted matrices is expected for Chi-square statistics (χ^2), which should not be more than 2.0. However, according to Hair et al. (2006), there is no generally acceptable point for Chi-square statistics because the Chi-square ratio result is sensitive to the sample size, especially when the number of respondents is larger than 200. Researchers are thus warned not to rely only on Chi-square statistics. The other recommended key indices are GFI and RMSEA (Ho, 2006).

The CFA results from this study (Table 4) with the use of modification fit indices show that the model fits with the dataset: $\chi^2(N = 584, df = 171) = 2.010$, $p < .05$, and GFI shows quite an acceptable fit at 0.955, which is close to 1 (0 = *poor fit*, and 1 = *perfect fit*). For the Root Mean Square Error of Approximation (RMSEA), the smaller values indicate better model fit. Values ranging from .05 to .08 are considered acceptable, values from .08 to .10 indicate mediocre fit, and those greater than .10 indicate poor fit (Ho, 2006). In addition, since the recommended value for the incremental fit indices should be above .90 (Hair et al., 2006; Ho, 2006), the baseline comparison fit indices of Comparative Fit Index (CFI), Normed Fit Index (NFI), Relative Fit Index (RFI), Incremental Fit Index (IFI), and Tucker-Lewis Index (TLI) for this study show improvement for the hypothesized model (default model). When compared to the null model, from.026 (or 1 – .974) to .062 (or 1 – .938) appears to be so small as to be of little practical significance. Therefore, the model fits well with the dataset.

Table 4. Summary of CFA Fit indices of Measurement Model

	Measures of Absolute Fit			Measures of Incremental Fit				
	χ^2/df	RMSEA	GFI	NFI	RFI	IFI	TLI	CFI
Requirement	< 2.00	Acceptable at .05 – .08	Close to 1	.900	.900	.900	.900	.900
Model	2.01	.04	.955	.950	.938	.974	.968	.974

Hypothesis Testing

Structural Equation Modeling (SEM) was used to investigate and explain the relationships among the predictor variables and dependent variables. Table 5 shows the summary of SEM Fit Indices of the Measurement Model, which indicates that the model fits well with the dataset.

Table 5. Summary of SEM Fit indices of Measurement Model

	Measures of Absolute Fit			Measures of Incremental Fit				
	χ^2/df	RMSEA	GFI	NFI	RFI	IFI	TLI	CFI
Requirement	< 2.00	Acceptable at .05 – .08	Close to 1	.900	.900	.900	.900	.900
Model	2.266	.047	.949	.942	.930	.967	.960	.967

The results of SEM indicate that the unstandardized regression weights are significant by the critical ratio test (CR > ±1.96, p < .05), except for the relationship between simplicity motive and attitude towards online shopping. The explained variances for all independent variables are represented by the squared multiple correlations (R^2). The percentage of variance explained ranges from 0.593, or 59.3% (purchase intention) to .807, or 80.7% (attitude towards online purchase). For all measurement variables, the residual variances (1-R^2) ranged from 19.3% to 40.7%. Figure 2 shows the structural path model with hypotheses 1 to 4. The solid lines represent the hypotheses supported by the findings while the dotted lines represent those not supported by the findings. The arrows pointing to the latent constructs of attitude towards online shopping and online shopping intention represent unexplained (residual) variances for these 2 factors. The residual variances are calculated by subtracting the factors' squared multiple correlations (explained variances). Hence, for this hypothesized model, 19.3% of variation in attitude towards online shopping is unexplained, or 80.7% of the variance is accounted for by the joint influence of hedonic motive, simplicity motive and usefulness motive. Similarly, 40.7% of variation in online shopping intention may be influenced by other factors, or 59.3% of the variance is accounted for by the joint influence of hedonic motive, simplicity motive, and usefulness motive, as well as in attitude towards online shopping.

Figure 2. Structural Path Model with Summary of Findings
Notes: *** p < 0.001

According to the structural path model with standardized path coefficients (Figure 2), hedonic motive had a significant and positive impact on attitude towards online shopping (β or standardized regression weight = .174, $p < .001$). Simplicity motive, however, had no significant impact on attitude towards online shopping (β = .051, $p > .05$). Usefulness motive had a significant impact on attitude towards online shopping (β = .749, $p < .001$). Lastly, attitude towards online shopping had a significant impact on online shopping intention (β = .770, $p < .001$).

Table 6 shows the hypothesis statements, unstandardized regression weight, critical ratio, *p*-value, and whether each hypothesis is supported by the dataset.

Discussions and Conclusions

This study has fulfilled two main research objectives. The first objective was to find out whether online shopping motives consisting of hedonic motive, simplicity motive and usefulness motive significantly influence Thai Gen Z consumers' attitude towards online shopping. The results show that the shopping motives–except for the simplicity motive–had significant impacts on Thai Gen Z consumers' attitude towards online shopping, and Hypotheses 1 and 3 were supported by the findings. These results were also supported by Childers et al.'s (2001) study in that hedonic motive played a significant part in influencing attitude towards online shopping behavior. Furthermore, the results were also consistent with Davis' (1989) work in that attitude is influenced by perceived usefulness (usefulness motive). However, H2 was not supported by the findings. It is assumed that Gen Z consumers may not pay much attention to simplicity of using an online shopping platform because they are already skilled at using it or accustomed to it. On the contrary, other generations might consider simplicity an important element of an online shopping platform.

Table 6. A Summary of Hypothesis Testing

No.	Path of Relationship	Unstandardized Regression Weight	Critical Ratio (CR)	*p*-value	Hypothesis Supported
H1	Hedonic motive had a significant impact on Thai Gen Z consumers' attitude towards online shopping.	.195	3.729	0.000	Yes
H2	Simplicity motive had a significant impact on Thai Gen Z consumers' attitude towards online shopping.	.061	0.629	0.529	No
H3	Usefulness motive had a significant impact on Thai Gen Z consumers' attitude towards online shopping.	.823	8.429	0.000	Yes
H4	Gen Z consumers' attitude towards online shopping had a significant impact on online shopping intention.	.780	14.115	0.000	Yes

The second objective was to find out whether Thai Gen Z consumers' attitude towards online shopping has a significant impact on their online shopping intention. The empirical evidence shows that Thai Gen Z consumers' attitude had a significant impact on online shopping intention. Hypothesis 4 was also supported by the findings. The research results were consistent with Davis (1989) in that behavioral intention is influenced by attitude towards system use. In addition, the results were also supported by studies by Kuo and Yen (2009) and Rezaei et al. (2016), in that a person with favorable attitude towards an action tends to perform that particular behavior.

Research Implications

This study provides some useful implications for e-commerce and online shopping behavior. This research results are both consistent and different from the theory of TAM and previous studies. Even though the study shows that simplicity motive does not significantly influence Gen Z consumers' attitude towards online shopping, it is recommended that simplicity of ease of use be taken into account in the development of online shopping platforms. Online retailers should still pay attention to providing a pleasant shopping experience. Many consumers enjoy shopping through flash sales, dynamic pricing (prices change regularly), or coupon collecting. In addition, simplicity of shopping platforms includes ease of subscription, transaction, page navigation, payment, and order tracking. Previous studies suggest that simplicity significantly influences behavioral intention and action. Lastly, online retailers should also pay attention to the usefulness of an online shopping platform. Smart phone users, for instance, keep mobile applications they find useful, and uninstall those they do not. Usefulness is the ability of a system to help users fulfill their goals, save cost and time, and quickly search for information. An e-marketplace such as eBay, Lazada or Shopee allows buyers to search for and compare product information, to get what they want, and to pay the best prices for products. E-marketplaces nowadays also give consumers hedonic experiences and are easy to use. Fulfilling users' motives will influence consumers' attitude and behavioral intention in the end.

Limitations and Suggestions for Further Research

The main limitation of this study was that it was conducted in a private university in which most respondents had a high level of purchasing power. Furthermore, the respondents are all Thai nationals, and may not represent Gen Z in general. Future research is encouraged to expand comparisons between Gen Z consumers and other generations. As generational gaps and differences exist, research on Gen Z consumers' behavior in different business categories can add empirical knowledge about Gen Z consumers as compared to other generations.

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Thai Students' Production of English Coda Clusters: An Experiment on Sonority with Thai University Students Taking an English Fundamental Course

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Abstract

In studies of English language learning and teaching, phonological development of second language (L2) learners has received considerable attention. Investigation of phonological acquisition, as well as problematic areas, are useful to predict difficulties that L2 speakers of English may confront when perceiving and producing particular sounds. Consequently, this research was initiated to understand how Thai students of English produce English coda clusters patterning Consonant-stops. To predict the areas of difficulty in producing such clusters, use was made of the Universal Principle (Sonority Sequencing Principle), together with the Markedness Differential Hypothesis established by Eckman (1977). This case study involved participation of 10 students who were taking a third fundamental English course at King Mongkut's University of Technology, Thonburi, Thailand. The students were asked to produce target sounds in cluster elicitation tasks. The tasks required students to produce the target clusters in both formal and natural situations. Areas of difficulty in producing clusters for Thai learners of English were identified, though the hypothesis generated was not confirmed. Deletion and substitution were frequently used as ways to modify problematic clusters.

Keywords: *Articulatory phonetics, English coda clusters*

Introduction

In Thailand, the influential role of English as a means for communication is undeniable since it has been accepted as an international language for decades (Smalley, 1994). However, it should be acknowledged that successful communication is affected by many factors, of which pronunciation is among the key aspects in oral communication. Kenworthy (1987) noted that mispronunciation may lead to unintelligibility. Therefore, being understood by other people can be a result of having accurate pronunciation at both segmental and supra-segmental levels. In fact, mastering English segmental sounds is not easy, especially for people who learn English as a foreign language (EFL).

Using the Contrastive Analysis Hypothesis (CAH) approach, Lado (1957) suggested the nature of differences between two languages which caused difficulty for learners. Thai learners of English suffer great difficulty in their attempts to articulate accurate sounds, especially final consonants. Certainly, it has been concluded by researchers that Thai EFL learners try to accommodate English sounds with Thai ones due to the absence of these sounds in Thai (Kruatrachue, 1960; Mano-im, 1999; Sahatsathatsana, 2017; Smyth, 2001). Kanokpermpoon (2007) also noted that Thai speakers have considerable difficulty in producing English consonants, in which English coda clusters appear particularly problematic. An empirical study is needed to confirm this hypothesis. Hence, the aim of the present investigators was to determine how Thai learners of English articulate English coda clusters, not only by looking at differences between the English and Thai languages, but also at different sonority distances between the two segments within an English cluster. The results could be interesting as they can extend the explanation of Thai EFL learners' production of English codas.

Literature Review

Contrastive Analysis Hypothesis

The English phonological development of non-native speakers has been among the most interesting areas to study in the field of English language teaching. The *Contrastive Analysis Hypothesis*, developed by Lado (1957), emerged as the first modern approach to investigate the areas

of difficulties that non-native learners may experience. The theory indicates that differences between the native and target languages would cause difficulty that affects learners' acquisition, while similarities would not. Kanokpermpoon (2007) concluded that sounds of English that do not exist in the Thai language are likely to pose a great challenge for Thai learners of English. Table 1 illustrates consonant inventories of the Thai and English languages. In particular, the differences are highlighted between the two languages that may pose potential problems for Thai learners of English.

Table 1. Thai and English Consonant Inventories (Kanokpermpoon, 2007, p. 10)

Table 1.1. Thai Consonant Inventory

	Bilabial		Labio-dental	Alveolar		Lamio-prepalatal	Palatal	Velar		Glottal	
Plosive	p p^h	b		t t^h	d			k k^h			ʔ
Nasal		m			n				ŋ		
Fricative			f	s						h	
Affricate						tc tc^h					
Tap					ɾ						
Lateral					l						
Semivowel		(w)					j		w		

Table 1.2. English Consonant Inventory

	Bilabial		Labio-dental		Dental		Alveolar		Post-alveolar		Palatal		Velar	Glottal
Plosive	p	b					t	d			k	g		ʔ
Nasal		m						n				ŋ		
Fricative			f	v	θ	ð	s	z	ʃ	ʒ				h
Affricate									tʃ	dʒ				
Lateral								l						
Approximant		(w)						ɹ		j		w		

As observed in Table 1, English consonants are richer than those of the Thai language. When it comes to final consonants, the differences seem to be more obvious, as the Thai final consonant system is quite limited in comparison with the English final consonant inventory. Jantharat (1995) showed that Thai has a fairly large inventory of consonants in the onset position, but a smaller inventory in the coda position. In fact, while English allows up to 21 consonants, Thai only allows eight final consonants. These are described in the 'Matra' system as /k̚/ Mae Kok or 'ก', /t̚/ Mae Kod or 'ด', /b/ Mae Kop or'บ', /ŋ/ Mae Kong or 'ง', /n/ Mae Kon or'น', /m/ Mae Kom or 'ม', /y/ Mae Koeiy or 'ย', /w/ Mae Kew or 'ว' (Noss, 1964). Additionally, a final consonant cluster is not allowed in spoken Thai language, while up to four-member consonant clusters such as texts /teksts/ or prompts /prɒmpts/ are allowed in English.

The difficulty in producing coda clusters among Thai learners of English has been recognized in several studies, such as by Patibat and Cochran (1997), and Mano-im (1999). To scope the study, different types of two-member coda clusters were investigated. As mentioned, *transfer*, which is the focus of CAH, predicts that such codas create great challenge for Thai speakers to produce (Kanokpermpoon, 2007). However, it does not make any prediction on the level of difficulty between different coda clusters. Based on observations from other studies, it is worth considering alternative methods to examine how Thai learners of English produce different two-segment coda clusters. For such a purpose, the Markedness Differential Hypothesis developed by Eckman (1977) was considered.

Markedness Differential Hypothesis

The Markedness Differential Hypothesis (MDH) introduced by Eckman (1977) is well-known for its predictive ability in two areas, namely implicational universals, and differences between the native language and target language. According to the theory, the areas of target language that are different and more marked than the native language are likely to be more difficult to acquire (Eckman, 1977). In this study, a stronger form of MDH (termed Interlanguage Structural Conformity Hypothesis—ISCH) was favored, as it takes into account these universal principles to explain how Thai EFL learners produce marked sounds. The ISCH theory determines "the universal generalizations that hold for the primary languages hold also for interlanguages" (Eckman et al., 1989, p. 24). Accordingly, in the present study, ISCH was used to examine the Sonority Sequencing Principle in revealing how Thai learners of English produced English two-segment coda clusters.

Sonority Sequencing Principle

According to Broselow and Finer (1991), the Sonority Sequencing Principle (SSP) refers to the degree of difference in sonority value between two members in the onset or coda. SSP is considered universal as it applies to many languages. According to the theory, each phoneme is believed to have a sonority scale that shows the relative degree of phonological prominence. Tropf (1986) developed the scale of sonority to identify different degrees of markedness in consonant clusters. The scale of sonority can be described as Glides > Liquids > Nasals > Fricatives > Stops. This theory can be linked with another principle, namely Minimal Sonority Distance (MSD; Broselow and Finer, 1991). Now, MSD refers to the degree of difference of sonority value between two adjacent segments in onset or coda. According to SSD and MSD, the smaller the distance is, the more marked the cluster becomes. (Broselow & Finer, 1991). For instance, stop + stop (e.g., /kt/, /pt/) is considered to be more marked since the MSD is smaller in comparison with liquid + stop (e.g., /lp/, /lt/).

In order to explain how Thai learners of English produce marked coda clusters using MSD, it is important to restrict the sounds in a particular pattern. In the present study, each stop– fricative, nasal and liquid–was put into examination when they preceded a stop at the coda position. As a stop is the least sonorous among the four consonants, the distance of sonority differs when it is attached to different consonants at coda. Among the two-member clusters investigated, the hypothesis implies that the cluster *liquid*-stop (help; bolt) is easier to articulate, while the coda *stop*-stop (protect; correct) would potentially create the most difficulty as the minimal sonority distance between the two neighboring consonants of the former is greater than the latter. The hypothesis can be described in Figure 1.

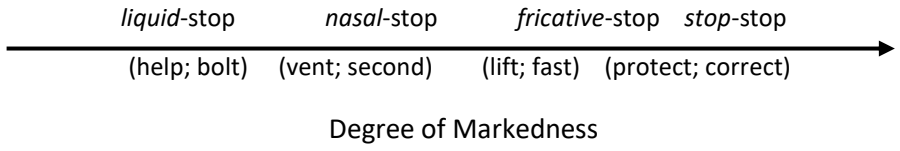

Figure 1. The Hypothesis of Markedness Hierarchy of English Consonant + Stop Clusters

Production of English Coda Clusters and Cluster Modification by Thai Speakers

In the Thai context, a few studies have been conducted to investigate the ability of Thai students of English to produce final consonantal clusters. The first study was conducted by Mano-im (1999) who investigated the way that Thai students articulate English two-member-consonant clusters and the relationship between articulating ability and gender. The study involved the participation of 30 Grade 11 high-schoolers performing a flashcard articulating test that included one-syllable vocabulary endings with most final clusters found in textbooks, such as /nt/, /nk/, /sk/, /ns/. It was concluded that most students tended to produce both segments in the final clusters, while some students either omitted or replaced one or both consonants of the examined clusters. This also was observed in a study by Sahatsathatsana (2017).

The suggestion is made in Figure 1, which presents the hypothesis utilized in this study, is that Thai learners of English are likely to find final *stop*-stop clusters more problematic than *fricative*-stop, *nasal*-stop, and *liquid*-stop codas as the sonority distance between two segments of the former cluster group is bigger than the latter one. Such an outcome is illustrated by Patibat and Cochran's (1997) study. They investigated how Thai learners of English produced English codas in their speech based on the principles of sonority. Their study used Clement's (1992) framework of Sonority Dispersion, which elaborates on SSP, and illustrates the relationship between level of difficulty and distance between two neighboring sound segments. The researchers discovered that Thais were likely to have problems with the clusters situated at coda positions.

With regards to sound modification, Thai speakers of English are believed to modify complicated phonological features. Broselow (1987) and Lado (1957) suggested that first language (L1) transfer leads to consonant cluster modification. In dealing with problematic clusters, a few studies revealed that Thai speakers tend to substitute the closest consonants available in the Thai inventory (Kruatrachue, 1960; Smyth, 2001). According to Padibat and Cochran (1997), deletion, substitution, and a minor epenthesis were found as ways to modify the problematic clusters. This finding corresponds with many previous studies (e.g., Sherwin, 1999; Trof, 1986). It also indicates that EFL learners tend to modify marked structures more than less marked ones. In addition, students tend to omit less sonorous sounds, while keeping more sonorous ones. For example, *band* tended to be produced as *ban* while *left* was produced as *lef*. Substitution of sounds was also found in Thai speakers of English by some studies such as Smyth (2001) and Kruatrachue (1960). In the present study, the researchers expected to elaborate on this matter as they took the combination of ISCH and MSD to identify how difficult different types of English coda clusters are, and how they are modified.

The research questions that guided this study were:

1. How do Thai learners of English produce two-segment coda clusters with a final stop?
2. How do they modify those clusters?

Methodology

In the present investigation, a quantitative approach (rate of accurate production) was used to measure the participants' ability of articulating English final consonant clusters. Also, sound modification employed by the participants was measured by counting the frequency of this kind of articulation.

Participants

The present study involved 10 undergraduate engineering students at King Mongkut's University of Technology, Thonburi (KMUTT). At the time of this research, they were in their second year and were taking LNG 103: an English for Workplace Communication course. The participants would have passed the compulsory LNG 102 at KMUTT, which is a prerequisite for LNG 103. They are assumed to have reached the Common European Framework of Reference for Languages (CEFR) Level A2: Elementary to Pre-intermediate, as these courses are grounded according to those levels. These students were also assumed to have similar backgrounds, English proficiency, exposure to English, and fields of study. Before data collection, the participants were informed by the researchers of the study's procedures and educational purpose. They understood that their participation, as well as their performance, had no impact on their academic results.

Instrument

A cluster elicitation task was designed to investigate Thai students' production of English coda clusters. It consisted of three tasks, namely Word List Task (WLT), Sentence List Task (SLT) and Picture-based Task (PT). This instrument was developed due to the concern that different findings may be a result of different task types to elicit L2 speech data (Tarone, 1979). For the purpose of collecting meaningful data, the researchers intended to create different environments to elicit participant's articulation, such as reading sentences and answering questions in the third task, rather than relying

only on reading words. The words and sentences were collected by the researchers. These were rechecked by an LNG 102 teacher. Thirty-nine words that fell in different categories were used for a preliminary study involving two second-year students, in order to confirm suitability of the instrument regarding its format and content. Final adjustments were made in which 20 words were used, while other words were deleted on account of their potential lack of familiarity to the participants. The suitability of using 20 words was also reported in the preliminary study, ensuring it did not create tiredness and loss of interest among participants. The word order was based on their appearance in the textbook *Tech Talk*. After adjustments, the final versions of WLT and SLT consisted of 20 words and sentences, including coda clusters with consonant-stop patterns.

The PT consisted of 20 questions. This task was administered as a cluster-elicitation task between the researchers and participants. The participants were asked to answer a list of 20 questions printed with different pictures to guide students' answers. Most pictures were taken from "The Simpsons Workplace Safety Posters" set. The participants were familiar with the pictures because the Simpsons is a popular cartoon, and the characters had also been used in the LNG 102 course. This task was designed to encourage participants to utter target sounds as naturally as possible.

The three tasks were conducted in a sound restricted room with a voice recorder. The word list and sentence list were given to participants for the first two tasks. The participants could take as much time as they needed to read through the material before being recorded. In the third task, pictures were presented while questions were being asked. In this task, it should be noted that the participants' responses were varied. The students could give answers until the target clusters were articulated. There were small breaks before each task. Examples of the three tasks are presented in Table 2.

Table 2. Examples of Three Clusters Elicitation Tasks

Cluster Types	**WLT**	**SLT**	**PT**	
Stop-stop	protect	The gloves can protect your hands.		Can you describe the picture? (What can this hat do?)
Fricative-stop	lift	It can lift cars fifteen meters in the air.		Can you describe the picture? (What can this machine do?)
Nasal-stop	tent	I bring a tent when I go camping.		Can you describe the picture? (Where do they sleep at night?)
Liquid-stop	belt	Wearing a seatbelt is necessary.		Can you describe the picture? (What should we wear when we drive?)

Data Analysis

To answer the first research question, transcribed speech data were collected from the three tasks. The combination involving ISCH and MSD was used as the framework. Based on the transcription, the production of coda clusters by each student was analyzed and scored. Each score was allocated to the appropriate cluster articulation. Then, the scores were collected and categorized into three groups—low, medium and high-performance. The score interval in this study was five. That

is to say, if a participant received a score less than or equal to 5, the participant was then considered to belong in a low performing group. If the score ranged between 5 and 10, the participant's performance was considered medium, while anything more than 10 was counted as high-performance. The researchers then identified the clusters that caused difficulty for the participants to articulate. The results were compared with the hypothesis presented in Figure 1 for either confirmation or rejection.

To answer the second research question, speech data were analyzed to find potential cluster modification emerging in the participants' speech. The data were put into categories according to different modification types, namely, deletion, epenthesis and substitution. For example, if the participants pronounce/lɪf/; /lɪftə/ or /lɪp/ for the target word lift /lɪft/, it was considered deletion of /t/, epenthesis (vowel /ə/ was inserted), and substitution of /p/ for the *fricative*-stop coda /ft/. The ways that the participants accommodated difficult coda clusters were tabulated, and the differences were recorded in the form of percentages.

Data Presentation and Interpretation

Findings from the cluster elicitation tasks are organized in this section based on the research questions being addressed.

RQ 1: How do Thai speakers produce coda clusters Consonant + Stop in English?

The performance of 10 participants articulating clusters in different groups from *stop*-stop, *fricative*-stop, *nasal*-stop and *liquid*-stop is recorded in Table 3.

Table 3. Participants' Coda Cluster Production among Four Cluster Groups

	Cluster Groups			
Participant	*Stop*-stop	*Fricative*-stop	*Nasal*-stop	*Liquid*-stop
1	0	1	7	11
2	0	0	5	2
3	0	0	3	0
4	1	0	5	3
5	6	7	6	9
6	3	6	7	8
7	1	0	5	8
8	0	0	3	1
9	9	9	7	12
10	0	0	4	3

**0–5*: low 6–10: medium 11–15: high

From the results collected, it can be seen that the performance of 10 participants does not conform to the hypothesis generated for this study. According to the hypothesis described in Figure 1, the performance of participants was expected to increase from *stop*-stop to *fricative*-stop, *nasal*-stop and *liquid*-stop, as the former group is considered to be more marked than the latter, due to the sonority distance between two segments of each cluster. However, most participants' performance was categorized as low (five students' performance ranges from 0 to 5) or medium (three students' performance ranges from 6 to 10) across the four cluster groups examined. Only two participants' performance (Participants 1 and 6) increased from lower to higher within a cluster across the four cluster groups examined. What this illustrates is that the degree of markedness in relation to the level of sonority may not play an important role in explaining how Thai students produce different coda clusters.

On the other hand, it is clear that in the 10 participants' production of four cluster groups, most of them performed poorly in articulating the four different types of coda clusters used in the current study. They may have considerable difficulty producing final consonant clusters. Specifically, eight out of 10 participants had difficulty producing coda cluster *stop*-stop, while seven, six and five students

had the same problem in the remaining *fricative*-stop, *nasal*-stop and *liquid*-stop respectively, as their scores were low (ranging from 0 to 5). Only two students (Participants 1 and 9) were deemed high performing, seen through their attempt of producing *liquid*-stop codas. It is safe to suggest that the coda clusters are relatively challenging.

Stop–Stop

This cluster group contained five tokens in each task. As seen in Table 4, this group of clusters posed a challenge for articulation. Only two participants managed to achieve medium production performance throughout the three tasks. Low production performance was identified in the other eight participants' speech. In this cluster, surprisingly, participants 1, 2, 3 and 8 did not provide a single accurate articulation.

Table 4. Participants' Production of *Stop*–Stop Coda Clusters

Task	**WLT**					**SLT**					**PT**					**Total**
Participant	correct	protect	architect	insect	connect	correct	protect	architect	insect	connect	correct	protect	architect	insect	connect	
1																0
2																0
3																0
4	/															1
5	/		/	/	/	/		/								6
6				/	/				/							3
7					/											1
8																0
9	/	/	/	/	/	/		/			/		/			9
10	/		/			/		/					/			5
Total	4	1	3	3	4	3	0	3	1	0	1	0	2	0	0	

* Accurate production is represented by /

Among the three tasks, the data indicate that most students' production of coda *stop*-stop clusters drops from WLT to SLT and PT. This suggests that this coda cluster tends to be infrequently found in longer and more natural contexts, rather than in isolated words.

All five words examined containing the cluster *stop*-stop were challenging for the 10 Thai participants to produce, especially in the SLT and PT. Very few participants could produce both members of the target cluster throughout the three tasks. Interestingly, students who failed to produce the coda clusters tended to substitute it with a weakly articulated stop. For instance, the cluster /kt/ was commonly replaced by the weakly articulated consonant [k̚]. This phenomenon will be explained in the discussion section.

Fricative–Stop

Following *stop*-stop, coda clusters of *fricative*–stop were also a great challenge for the participants. The data are presented in Table 5. The five examined words were distributed among three tasks—WLT, SLT and PT. According to the information collected, the difficulty in articulating this cluster group is reflected in the low performance of most students. To be exact, seven students could not articulate the cluster accurately, while three students' performed in the medium range. Six students failed to produce the cluster accurately with two consonants articulated, signifying that the cluster appeared to be extremely difficult for some Thai students.

Similar to the previous cluster group, the general trend of dropping articulation performance from the former to the latter task also occurred in this group. It can be seen that the participants were likely to produce the target codas in reading isolated words more frequently than in sentences, or when answering the researchers' questions.

Table 5. Participants' Production of *Fricative* – Stop Coda Clusters

Task	WLT						SLT						PT				Total
Participant		desk	lift	last	first	fast	desk	lift	last	first	fast	desk	lift	last	first		
1			/														1
2																	0
3																	0
4																	0
5	/	/		/		/	/				/	/					7
6	/	/		/	/	/			/								6
7																	0
8																	0
9	/	/	/	/	/		/	/	/			/					9
10																	0
Total	3	3	2	3	2	2	2	1	2	0	1	2	0	0	0		

* Accurate production is represented by /

All five words containing *fricative*-stop clusters happened to be almost equally challenging for the 10 participants to articulate. Students tended to omit the final stop, while keeping the fricatives. This phenomenon is in line with Clement's theory (1992) regarding two neighboring sounds having different levels of sonority. This finding will also be elaborated in the later section.

Nasal–Stop

Table 6 shows the production of the coda clusters *nasal-stop*. It was found that six Thai participants' showed low performance, while the remaining four were medium performers. None of the students' cluster production was deemed to be in the high-performance group. This indicates that it was not easy for the participants to produce this type of coda cluster.

Table 6. Participants' Production of *Nasal* – Stop Coda Clusters

Task	WLT						SLT						PT				Total
Participant	drink	vent	second	clamp	behind	drink	vent	second	clamp	behind	drink	vent	second	clamp	behind		
1	/	/		/	/		/		/			/					7
2	/	/	/				/					/					5
3	/	/	/														3
4	/	/	/				/					/					5
5	/	/		/	/		/					/					6
6	/	/		/	/		/		/			/					7
7		/		/			/		/			/					5
8		/			/		/										3
9	/	/		/			/		/			/		/			7
10	/	/					/					/					4
Total	8	10	3	5	4	0	9	0	4	0	0	8	0	1	0		

* Accurate production is represented by /

Among the three tasks, the tendency of dropping production of the clusters from WLT to SLT and PT was still noticeable in this group. However, it was found that, among the five words investigated in three tasks, *nasal*-stop /nk/ in *drink* appeared to be much more problematic to produce when it was situated in longer and natural discourse rather than in isolated words. Eight participants could produce it in the first task, while no articulation was found in the remaining two tasks.

After investigating the participants' speech, it was found that the 10 participants tended to delete one or both consonants in order to modify most clusters. However, /nt/ in *vent* did not seem to be problematic for most participants as they could produce such sounds in all three tasks. In the

meantime, /nk/ in *drink* and /nd/ in *behind* and *second* appeared to be more problematic exclusively in SLT and PT tasks, as none of the participants could produce the sounds.

Liquid–Stop

Table 7 shows the production of *liquid–stop* cluster at the coda position. Five words were introduced in each task. According to the combined framework between *Interlanguage Structural Conformity Hypothesis* and *Minimal Sonority Distance*, among four cluster groups investigated in current study, *liquid*–stop cluster required the least effort to produce due to the greater distance in sonority degrees between the two segments of the clusters in comparison with other cluster groups. Yet, there were low-performing students. Five participants had a score of less than or equal to five. Two students were in the high-performance group (greater than 10), while another three students' performance was deemed medium (from 6 to 10). This suggests that some can produce this cluster group with ease, though it may still be problematic for many others.

Table 7. Participants' Production of *Liquid*–Stop Coda Clusters

Task	**WLT**					**SLT**					**PT**					**Total**
Participant	belt	fold	help	difficult	bulb	belt	fold	help	difficult	bulb	belt	fold	help	difficult	bulb	
1	/		/	/	/	/		/	/	/	/			/	/	11
2				/					/							2
3																0
4	/					/					/					3
5	/		/	/	/	/		/	/	/					/	9
6	/	/		/		/	/		/		/			/		8
7	/		/	/		/		/	/		/			/		8
8			/													1
9	/	/	/	/	/	/		/	/	/	/		/	/		12
10	/	/				/										3
Total	7	3	5	6	3	7	1	4	6	3	5	0	1	4	2	

* Accurate production is represented by /

Following the overall tendency of previous cluster groups, performance of participants continued to drop across the three tasks. The clusters being put in natural speech were still challenging for participants to articulate as not more than five students could accurately produce both consonants in each coda cluster. Furthermore, /ld/ in 'fold' appeared to be challenging for Thai participants, since no correct articulation was found in the third task.

As mentioned, /ld/ in 'fold' seems to be very problematic for the 10 participants to produce in PT. At the same time, most of the remaining coda clusters situated in five words examined appeared to be quite difficult for the participants to produce. Among the five words, coda consonantal clusters in 'belt' and 'difficult' are, perhaps, easier for the participants to produce, as a majority could articulate such sounds in isolated words and in sentences.

RQ 2: How do Thai EFL learners modify two-member coda clusters?

Coda clusters in the form of consonant–stop were considered for the participants of this study. To understand how they dealt with problematic clusters, further investigations regarding cluster modification were completed. The findings are presented as follows.

Table 8 summarizes how the Thai participants modified problematic coda clusters in four different groups, with a total of 150 occurrences of coda clusters in each group. Between the two types of modification diagnosed, deletion appeared more frequently, perhaps to cope with English two-member coda clusters across the three groups: *fricative*-stop (91.3%), *nasal*-stop (96.9%) and *liquid*-stop (69.9%). The cluster group of *stop*-stop, which is considered to be the most marked according to the combined framework between ISCH and MSD, received 82.4% of substitutions. This high tendency

of substituting marked *stop*-stop clusters with weakly released stops may be because the latter sounds are available in Thai language. This feature was found across all who participated in this study. For instance, /kt/ in 'correct', 'architect', 'connect', 'insect' is mostly produced with a very weakly released single stop [k], available in Thai. These sounds can be described as ก [k̚] in Thai Matra. The phenomenon was observed in other studies (e.g., Patibat & Cochran, 1997; Smyth, 2001; Kruatrachue, 1960).

Table 8. Thai Students' Modification of Coda Clusters Patterning *Consonant–Stop*

Cluster Groups	Without both Segments Articulated	Coda Cluster Modifications		
		Type of Modification	Occurrences	Percentage
***Stop*-stop**	125	Deletion	22	17.6
		Substitution	103	82.4
***Fricative*-stop**	127	Deletion	116	91.3
		Substitution	11	8.7
***Nasal*-stop**	98	Deletion	95	96.9
		Substitution	3	3.1
***Liquid*-stop**	93	Deletion	65	69.9
		Substitution	28	30.1

In the remaining three groups, failing to produce the target coda clusters, the participants tended to omit the final stop. For instance, 'fast' /fast/ was produced as /fas/ while 'drink' /driŋk/ was produced as /driŋ/. The participants modified the *nasal*-stop cluster /nd/ appearing in 'behind' /bɪˈhaɪnd/ by omitting both consonants. Similarly, in *liquid*-stops, as the last stop is still commonly deleted, it was also found that some speakers tend to delete both consonants such as /ld/ in 'fold' /fəʊld/ resulting in / fəʊ/. This articulation characteristic was found in the speech of six participants.

Discussion

Thai Students' Production of English Coda Clusters

The adapted framework used in this study combining two theories, namely: 1) Interlanguage Structural Conformity Hypothesis, which is a stronger form of Markedness Differential Hypothesis (Eckman, 1977), and 2) Minimal Sonority Distance (Browslow and Finer, 1991). The hypothesis generated was not confirmed. According to the framework, the level of difficulty of different sounds should have corresponded with their level of markedness. However, according to the data collected, most students' coda clusters production performance remained low or medium across the four sound groups examined. A majority of participants found most clusters at the coda difficult to produce. That is to say, the degree of sonority may play a limited role in the difficulty to articulate English coda clusters. In this case, L1 transfer is still a more plausible explanation for such phenomenon.

The findings revealed that most Thai EFL students in this study found coda clusters problematic to produce. As previously mentioned, the transfer from L1 may play a critical role. Kanokpermpoon (2007) extended Lado's (1957) Contrastive Analysis Hypothesis in the Thai context and confirmed that English clusters, especially codas, are difficult for Thai learners to produce due to their absence in their L1. Sahatsathatsana (2017) confirmed the difficulty of Thai learners in producing English consonantal clusters. An explanation was the influence of the speakers' L1, since Thai language only allows limited consonants at the coda position.

Sound Modification by 10 Thai EFL Learners in Producing Coda Clusters

Turning to the coda clusters modification, deletion was used as the principal method to accommodate marked codas. Moreover, substitution occurred, especially in *stop*-stop target sounds, seen through the modification of marked *stop*-stop /kt/ with the more familiar weakly released [k̚].

From this study, the frequent deletion of the final stop consonant, while the first segment is retained within a coda cluster, is in line with Clement's theory (1992). That is, between two

neighboring sounds within a cluster, if one sound is more sonorous than its neighbor, it tends to be kept while its counterpart is deleted. Using this theoretical framework, Patibat and Cochran (1997) revealed that students tended to omit the less sonorous sounds, while keeping the more sonorous ones. For instance, in this study, as the fixed final stop in the cluster consonant-stop is the least sonorous, it has been noticed that there is a great deal of deletion of such a sound, rather than its preceding *fricative*—nasal or liquid. Smyth (2001) also indicated that Thai speakers generally reduce the coda clusters in the way that the first segment is retained, while the rest is dropped.

While the omission of the first member in consonant-stop clusters was common in four categories of *nasal*-stop, *liquid*-stop and *fricative*-stop, it was interesting that in *stop*-stop clusters group, the students tended to produce the weakly released version of stops that are available in the Thai coda inventory, such as the weakly released version of [k̚]. As a result, substitution was favored in the production of this cluster group. Lado (1957) and Kenworthy (1987) pointed out that non-native English speakers tend to approximate the unfamiliar sounds with the closest sounds available in L1. Since either stops /k/ or /t/ do not occur at the final position in Thai, the weakly released consonants were frequently used by participants of this study to replace problematic clusters. This is in line with Ketkumbonk (2016), who found a great amount of substitution when Thai students simplified difficult stops by using unreleased stops available in the Thai language coda inventory.

Transfer is also a suitable explanation for the phenomenon of cluster deletion by a majority of participants, of the *nasal*-stop cluster /nd/ in 'behind', as well as *liquid*-stop clusters. Kruatrachue (1960) noted that since Thai does not have final sounds after the diphthong /ai/, this feature is probably transferred to the way Thai learners pronounce English. For example, in this study, 'behind' /bɪˈhaɪnd/ was, most of the time, pronounced as /bɪˈhaɪ/. Furthermore, it was found that both segments in *liquid*-stop were also commonly omitted. Kanokpermpoon (2007) cited Ronakiat's (2002) analysis, and confirmed that such challenges arise when Thai students pronounce the dark /l/ at the final position resulting in sound substitution or omission. For instance, in this study, when the liquid /l/ is attached with a final stop /d/ in 'fold' /fəʊld/, it was noticed that most students dropped both segments in the cluster resulting in /fəʊ/. The reduction of /l/ in final clusters was also found in the production of 'bulb' /bʌlb/. Similarly, as the dark /l/ is also problematic, in most of the speech of 10 participants, the sound was commonly deleted, while the final stop was either retained or substituted.

In addition, there was no sign of epenthesis in the speech of the participants. This finding is in line with the study of Patipat and Cochran (1997). They used sonority dispersion to explain how Thai speakers of English produce codas in interlanguage. In their study, epenthesis occurrence was not significant, as it might have been motivated by spelling. Smyth (2001) indicated that epenthesis or insertion usually occur when Thai speakers try to approximate English clusters at the initial position. For example, 'smoke' is produced as 'sa-moke' while frown is produced as 'fa-rown'.

Conclusions

This study investigated how 10 Thai undergraduate students at KMUTT produce marked coda clusters *liquid*-stop, *nasal*-stop, *fricative*-stop and *stop*-stop using ISCH and MSD as a framework for explanation. The findings confirmed that Thai learners of English may find English coda clusters problematic to produce, similar to what was reported by Kanokpermpoon (2007). This addressed the first research question. On the other hand, the adapted framework did not conform to expectations, as the distance of sonority did not explain the level of markedness resulting in different levels of difficulty when participants produced the target coda clusters. To answer the second research question regarding sound modifications, deletion was a common approach for the production of *fricative*-stop, *nasal*-stop and *liquid*-stop, while substitution was favored for the production of marked *stop*-stop clusters. From this study, several implications were drawn.

First, as L1 transfer still plays the main factor that prevents Thai learners of English from articulating coda clusters with respect to the EFL perspective, this study, hopefully, raises both teachers' and students' awareness towards the problem that Thai speakers may have when they encounter problematic coda clusters such as /kt/ in 'insect' or /sk/ in 'desk'. The phonological

differences between English and Thai should not only be introduced, but also emphasized. Second, International Phonetic Alphabet (IPA) transcriptions should be used in instructions to minimize sound modification. Smyth (2001) stated that the sound approximation of Thai learners was motivated from the way that teachers and English-Thai dictionaries attempt to clarify the sounds of English by providing transliterations in Thai scripts. Instead, to avoid such phenomena, both native and non-native English teachers may also implement the use of IPA transcriptions as aids to explicitly introduce English sounds. Also, students should be equipped with phonetic knowledge that enables them to produce the sounds from printed phonetic symbols. Handcock (1994) confirmed the importance of IPA and suggested that it should be included in the classroom–not only for young learners, but also for those who intellectualize the learning process, particularly adults.

Limitations

The findings of this study may not be generalizable to other Thai learners of English, especially with regards to the four groups of coda clusters, since the number of participants was small, as well as the sounds experimented with in current the study were rather restricted. It is recommended that other cluster patterns with a bigger group of participants might be examined. Also, with regards to the difficulty in speech transcription of the inaudible weakly released *stop*-stop /kt/, the researchers assumed that students substitute such a cluster with ก [k̚], which is available in the Thai language. This limitation is quite common in similar studies such as Padibat and Cochran (1997). Future studies should take this constraint into consideration.

Recommendations for Future Research

More experiments regarding the production of coda clusters by Thai students should be conducted in order to find out whether final clusters omission and substitution are distinctive features of Thai speakers of English. As suggested by Trakulkasemsuk (2012), Thai speakers of English might have managed to develop their own production peculiarities. In the scenario where English becomes a second language in Thailand, and errors in coda consonant clusters are considered a distinct feature of Thai English, these varieties should probably be accepted as an emerging variety of World English.

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Behavioral Intentions of Radio Frequency Identification Users at Hospitals in Thailand: An Application of the Unified Theory of Acceptance

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Abstract

The aims of this study were to investigate the behavioral intentions of hospital staff in using Radio Frequency Identification by applying the Unified Theory of Acceptance and Use of Technology 2. Data were collected from 404 respondents who worked in the hospitals and had experience using Radio Frequency Identification. Confirmatory Factor Analysis and the Structure Equation Modelling technique, based on the Unified Theory of Acceptance and Use of Technology 2 model, were used to test among seven hypotheses (performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, price value, and habit) affecting Radio Frequency Identification users' behavioral intentions. The results revealed that perceived utility and hedonic motivation had a strong positive influence over behavioral intention. The current findings could help hospital management teams understand the use of Radio Frequency Identification in healthcare.

Keywords: *Behavioral intention, motivation, utility, Radio Frequency Identification*

Introduction

The utilization of health information technology, such as Radio Frequency Identification (RFID), is well-known as a standardized technology for patient and information traceability, crucial for implementation of desired healthcare services. Though in use for more than a decade, RFID technology remains one of the key technologies due to its sophisticated applications and comprehensive adaptability (Duroc & Tedjini, 2018). Besides healthcare, RFID is also used in related areas such as social services. Other industries, for example telecommunications (Saafein & Shaykhian, 2014; He & Mu, 2012), automobile (He & Mu, 2012), and electronics (Lu & Weng, 2018) also have applied technological tools into their management system.

While the use of management systems is valuable to assist in the organization of a vast amount of information, it is still necessary for stakeholders to understand how such systems or tools are being used. One approach is to understand the behavioral intentions of those employing such technological systems. This approach may contribute to the maturity of such information systems (e.g., Carvalho et al., 2019). Hence, the purposes of the present study were:

1. To explore hospital staff behavioral intentions in using RFID by applying the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2); and
2. To study the relationships among different constructs by using Structure Equation Modelling (SEM), so as to provide hospital managers with suggestions for more effective management of RFID technology systems.

Literature Review

Use of RFID in Hospitals

Public hospitals in Thailand are large, and unfortunately, chaotic. Many hundreds of medical cases are handled daily. In a report published by the World Health Organization on the accessibility of medical services to outpatients in Thailand, the figures showed that there was a dramatic increase from 111.9 million in 2003, to 184.3 million in 2017 (National Health Security Office, 2017, as cited by Patcharanarumol et al., 2018). Considering the increasing number of patients, information supporting systems in Thai hospitals are evidently very important. Compounding the issues created by a large number of patients are critical situations. These include information-sharing among surgeons for

urgent cases, which contributes to the safety of patients, as well as to the control of operational costs (Yao et al., 2011). Identification using RFID can also be extended to follow-up care after an operation or a medical procedure involving groups of people. A significant aspect is the correct identification of patients and allocation of their prescribed medicine, and even the monitoring and regulation of medicines (Cheng & Kuo, 2016; Yazici, 2014).

Given the ability to process large amounts of information and subsequently to support healthcare management, RFID technology is seen as the next disruptive innovation (Haddara & Staaby, 2018). Despite its value, there are still challenges faced prior to or during the implementation of RFID, such as patient privacy and information security (Hadara & Staaby, 2018; Gulcharan et al., 2013; Cheng & Kuo, 2016). These challenges may be addressed by higher management in a hospital, by cultivating support from all levels of the institution, raising awareness to the value of RFID, and also customizing RFID to suit the contextualized needs of a hospital (Hadara & Staaby, 2018; Yao et al., 2011; Lai et al., 2014). Recognizing the potential challenge faced in the use or implementation of RFID, this study aimed to examine the behavioral intentions of hospital staff. Specifically, this study employed the Unified Theory of Acceptance and Use of Technology 2 as its primary tool for analyzing technology acceptance. The analysis of behavioral intentions has several potential advantages. It will allow insights to be gained into attitudes towards RFID, which serve as useful data for hospital management in their endeavors to create efficient work processes. It may also inform researchers and others how RFID, as an information management tool, is localized in the study setting.

Unified Theory of Acceptance and Use of Technology 2 (UTAUT2)

Macedo (2017) claimed that the main goal of applying UTAUT2 was to predict technology acceptance and use determined by behavioral intention. Several other theoretical models also have been introduced in recent decades, such as the Technology Acceptance Model (TAM) by Davis (1989), and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al., (2003). Macedo (2017) revealed that these technology acceptance frameworks were operationalized to apply to workplace contexts to predict people's behavioral intentions and actual usages. Venkatesh and colleagues (2012) developed and formulated UTAUT2 from UTAUT by incorporating three additional constructs in the context of consumer use. These were hedonic motivation, price value, and habit. The original determinants of UTAUT were performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). The UTAUT2 scheme generally was applied to investigate the influence of behavioral intention in using technology. For example, Rabaa'i (2017) used the UTAUT model to examine the effect of e-government services in Jordan. The framework that will be adopted in this paper is shown in Figure 1.

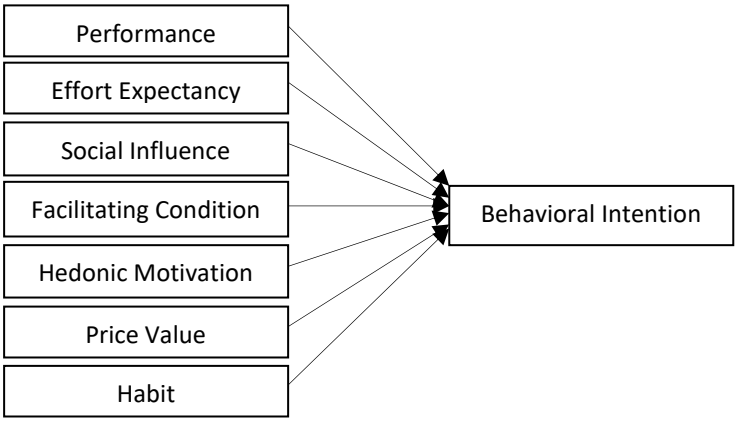

Figure 1. The UTAUT2 Model (Venkatesh et al., 2012)

Behavioral Intention can be identified as an individual's intention that they could perform a predicted act analogously (Islam et al., 2013). Cheung and Vogel (2013) suggested that behavioral

intention might also be identified as an assessor of the strength of one's intention to act or show specific behaviors in an information system context. Davis and colleagues (1989) emphasized that behavioral intention is correlated with an individual's usage of an information system, and this indicates that the user's behavior is a primary determinant. Mafe et al. (2010) studied how motivational factors influenced short messaging service (SMS) users to participate in watching TV programs in Spain. They found that perceived value, attitude, and affinity were key influencers of SMS users' acceptance of programs. This contrasted with the situation in Colombia, where perceived value and attitude were the key elements in SMS user's responses. Behavioral intention needs to be considered as a factor related to the use of technology, for the use of technology is dependent on the decision of the management team, and also on acceptance of the technology by the operators.

In UTAUT2, Performance Expectancy is a variable showing the degree to which technology users receive advantages from adopting a technology while they are performing activities (Venkatesh et al., 2012). Jambulingam (2013) claimed that performance expectancy is similar to the factor of 'Perceived usefulness' from the technology acceptance model (TAM).

> ***Hypothesis One:*** 'Performance Expectancy' will positively influence behavioral intention to use RFID in hospitals.

Effort Expectancy is defined as the degree of ease the users find in using the technology (Jambulingam, 2013). Research conducted by Teo and Noyes (2014) indicated that effort expectancy affects individual behavioral intentions about using information technology.

> ***Hypothesis Two:*** 'Effort Expectancy' will positively influence behavioral intention to use RFID in hospitals.

Social Influence is the influence of others on an individual's perception of the use of technology, such as family members or peers (Leong et al., 2013). The study conducted by Taylor and partners (2011) supported the idea that friends strongly affected students' use behaviors of mobile applications.

> ***Hypothesis Three:*** 'Social Influence' will positively influence behavioral intention to use RFID in hospitals.

Facilitating conditions refers to an individual's perception of existing infrastructure that supports the use of technology (Venkatesh et al., 2003). Many facilitating conditions will be available for technology users–for example, organizational environment, supporting systems provided, and training courses (Venkatesh et al., 2012).

> ***Hypothesis Four:*** 'Facilitating Conditions' will positively influence behavioral intention to use RFID in hospitals.

Hedonic motivation refers to pleasure that RFID users experience from using RFID in hospitals. It shows the important role of enjoyment and/or satisfaction in defining technology acceptance in terms of technology usage (Venkatesh et al., 2012). Brown and Venkatesh (2005) defined hedonic motivation as an experience of pleasure and amusement while adopting a technology. Daim and colleagues (2010) mentioned the psychological processes linked with behaviors by considering core components such as attitudes, intention, and behavior.

> ***Hypothesis Five:*** 'Hedonic Motivation' will positively influence behavioral intention to use RFID in hospitals.

Price Value is defined as the part played by the cost or price on the perceived benefits of products and/or services (Zeithamal, 1988). A price value will be positive if the perceived benefit of using technology is more than a cost or price spent. Thus, a positive price value will drive a behavioral intention (Venkatesh et al., 2012).

Hypothesis Six: 'Price Value' will positively influence behavioral intention to use RFID in hospitals.

Habit is a natural behavior typically functionalized at the time when use of a technology is initiated (Kim & Malhotra, 2005). Habits can be separated into two categories: an earlier behavior, and an automatic behavior (Kim & Malhotra, 2005).

Hypothesis Seven: 'Habit' will positively influence behavioral intention to use RFID in hospitals.

Research Objectives

The aims of this study were to investigate the behavioral intentions of hospital personnel in using Radio Frequency Identification (RFID) by applying Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), and to study the relationships among different constructs, which can be used to give hospital managers suggestions for more effective management in using RFID technology.

Methodology

Sampling Design and Data Collection

Data for this study was gathered through a paper-based survey at selected hospitals in each part of Thailand. The respondents worked in different departments of various hospitals. The study was conducted in three parts of Thailand and eight hospitals, both public and private, where RFID was used. The first part was in Northern Thailand, consisting of three hospitals. The second part was in Central Thailand, consisting of three hospitals, and the last part was in Eastern of Thailand, consisting of two hospitals. From 600 questionnaires distributed, 404 questionnaires were returned. Paper-based questionnaires were distributed face-to-face to RFID users at different hospitals in Thailand. Purposive sampling was used by asking people who were working at hospitals that use RFID technology. Each respondent took approximately 15–20 minutes to complete the questions, and every survey was collected immediately after it was answered.

Questions on demographic aspects such as gender, age, marital status, educational background, RFID knowledge, and the perception of the usefulness of RFID were collected. The demographic data are shown in Table 1.

Table 1. Demographic Profile of Respondents (*N* = 404)

Variables	Category	Number	Percentage
Gender	Male	204	50.5
	Female	200	49.5
Age	25–30	184	45.5
	31–35	126	31.2
	36–40	63	15.6
	Above 40	31	7.7
Education	Lower than a bachelor's degree	104	25.7
	Bachelor's degree	165	40.8
	Higher than a bachelor's degree	135	33.4
RFID Knowledge	Yes	296	73.3
	No	108	26.7
RFID Usefulness	Yes	363	89.9
	No	41	10.1

Research Design and Measurement

The survey was designed in two parts. Part 1 dealt with the demographic aspects of the respondents such as gender, age educational background, knowledge about RFID technology, and the perception of RFID technology's benefits. Part 2 of the survey consisted of 25 items (seven constructs)

selected to investigate the opinion of RFID users, and to show how RFID technology encouraged RFID users' behavioral intention. All items of each construct were measured by a 5-point Likert scale ranging from 1 to 5 where 5 was *strongly agree*, 4 was *agree*, 3 was *neutral*, 2 was *disagree*, and 1 was *strongly disagree*.

A quantitative survey was implemented to investigate RFID users' behavioral intentions in applying RFID in their workplaces by using the UTAUT2 constructs (Venkatesh et al., 2012). These were Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Condition (FC), Hedonic Motivation (HM), Price Value (PV), and Habit (HT). The survey was divided into two parts and adopted to quantitatively describe the relationship among the variables. The pre-test of the proposed construct scales, using 30 respondents, gave Cronbach's alpha values of reliability for the 25-item scales of .93, which exceeded the threshold of .70, and hence was considered acceptable (Hair et al., 2006).

Findings and Discussion

Exploratory Factor Analysis (EFA) was used to conduct a preliminary analysis of the UTAUT2 framework of RFID users in the hospitals. There were seven original constructs derived from the framework; however, five poor-performing items were removed from original 25 items. The 20 remaining items were resolved into elements in new constructs and renamed under five constructs, which were 'Perceived Utility', 'Hedonic Motivation', Perceived Value', 'Performance Expectancy', and 'External Influence'. The new construct of 'Perceived Utility' asked about the perception of ease and reliability of using RFID in the hospitals. The construct of 'Perceived Value' was mainly focused on the worthiness and reasonability of using RFID in the hospitals. Questions were asked about the accomplishments of others to increase efficiency in the hospitals by using RFID for items under the 'External Influence' construct.

Confirmatory Factor Analysis (CFA) exposed the measurement of each property assessed by RFID users in the hospitals. The model fit summary of the measurement model showed an acceptable fit to data [x^2 (n = 404) = 681.70, (p < .001) 2/df = 2.84, NFI = .88, CFI = .92, RMSEA = .07].

Table 2 displays the factor loadings and composite reliability of each construct. Some constructs were deleted, while some were combined from the original model construct. Each construct's composite reliability was greater than .70.

Table 2. Principle Component Analysis Factor Loadings and Composite Reliability of Individual Constructs

Constructs and Items	Standardized Loadings	Composite Reliability
Perceived Utility		.84
1. Staff are interested in using RFID at the hospitals	.60	
2. I have become familiar with using RFID	.74	
3. Using RFID makes hospitals more reliable	.81	
4. I find RFID is easy to use	.72	
5. I have knowledge about the necessity of using RFID	.67	
Hedonic Motivation		.81
1. Using RFID is useful	.61	
2. Using RFID is interesting	.72	
3. Using RFID is challenging	.72	
4. Using RFID has become my habit	.65	
5. I can get help from others when I have difficulties in using RFID	.71	
Perceived Value		.80
1. I find RFID makes me more comfortable at work	.65	
2. The cost of RFID is reasonable	.62	
3. RFID is worthwhile	.64	

Constructs and Items	Standardized Loadings	Composite Reliability
4. I must use RFID	.66	
5. RFID helps facilitating patients' needs	.71	
Performance Expectancy		.72
1. My colleagues think I should use RFID	.58	
2. RFID is a technology that responds to organizational needs and changes	.61	
3. Using RFID is convenient for staffs	.68	
External Influence		.71
1. Staff can accomplish things more efficiently by using RFID	.64	
2. Staff are using RFID	.86	
Behavioral Intention		.85
1. I will continue using RFID	.77	
2. I am trying to use RFID more often	.70	
3. I have a plan to use RFID more in the hospitals	.71	
4. I am going to use RFID more in the future	.75	
5. I will recommend RFID to others	.70	

The correlation coefficients are shown in Table 3 and present the matrix for the new relationship among reconstructed model variables by Pearson's correlation. It was found that all correlations among the proposed reconstructed model were significantly positive at the .01 two-tailed level.

Table 3. Correlation Coefficients of Reconstructed Variables

Factors	1 PU	2 HM	3 PV	4 PE
1. Perceived Utility (PU)				
2. Hedonic Motivation (HM)	.69**			
3. Perceived Value (PV)	.60**	.71**		
4. Performance Expectancy (PE)	.48**	.70**	.87**	
5. External Influence (EI)	.71**	.71**	.80**	.84**

Notes: **Correlation is significant at the .01 level (two-tailed).

The structural model was tested by using the Structural Equation Modelling (SEM) approach. Hypothesis five was supported in that 'Hedonic Motivation' had a significantly positive influence on 'Behavioral Intention' for using RFID in hospitals ($\beta = .81$, $p < .05$). Based on this study, Exploratory Factor Analysis (EFA) was applied to the preliminary analysis of the UTAUT2 model scale of RFID users' behavioral intentions. Five poor-performing items were removed from 25 items. The remaining items were grouped and renamed to five constructs, which were 'Perceived Utility', 'Hedonic Motivation', Perceived Value', 'Performance Expectancy', and 'External Influence'. This means that new hypotheses can be assumed. The results are shown in Table 4.

Table 4. Hypotheses Testing Results of the New Model after Using EFA and CFA

Hypothesis	Coefficients (*SE*) *N* = 404	Result
Perceived Utility → Behavioral Intention	.23*	Supported
Hedonic Motivation → Behavioral Intention	.81*	Supported
Perceived Value → Behavioral Intention	-.09	Not Supported
Performance Expectancy → Behavioral Intention	.08	Not Supported
External Influence → Behavioral Intention	-.06	Not Supported

Note: $p <$ *.05

It can be noted in Table 4 that of the three new constructs, 'Perceived Utility' had a significantly positive effect on 'Behavioral Intention' (β = .23, $p < .05$). However, the hypotheses relating to 'Perceived Value', 'Performance Expectancy', and 'External Influence' affecting 'Behavioral Intention' were not supported (with β = -.09, β = .08, and β = -.06, respectively).

The results from Confirmatory Factor Analysis (CFA), and Structural Equation Model (SEM) are displayed under five constructs in Figure 2. According to the concept underlying SEM, it checks linear relationships between the independent and dependent variables in making decisions (Sin et al., 2015).

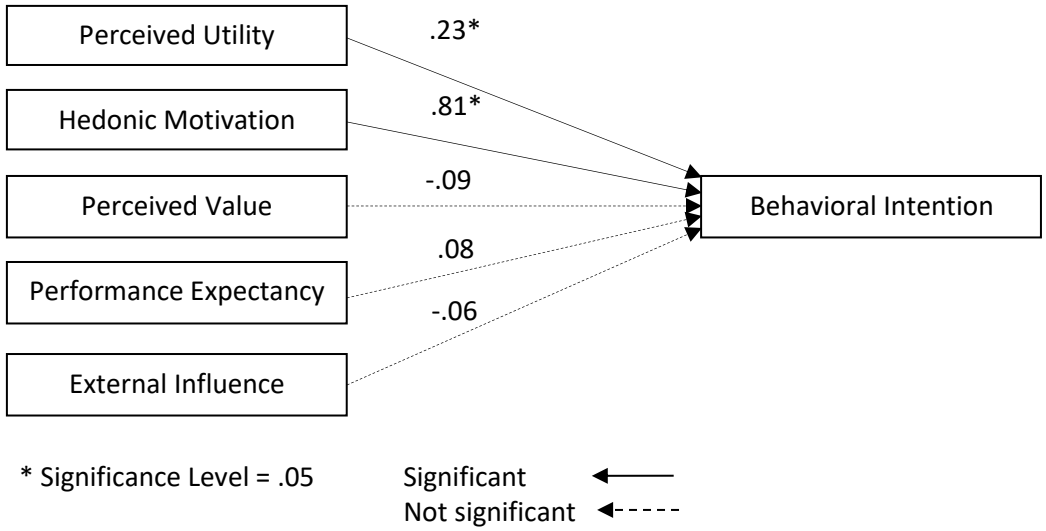

Figure 2. Standardized Total Effects of Reconstructed Model

Perceived utility represents people's evaluation of the merits of technology usage and their abilities to meet people's needs and expectations. Perceived utility was reconstructed and had a high positive influence on behavioral intention. The modified construct of perceived utility was both extrinsic and intrinsic benefits from functional and utilitarian attributes. Perceived utility of RFID can help healthcare services improve the efficiency of using RFID by introducing RFID performance to users in the working environment (Van der Togt et al., 2011). For this study, it indicates how RFID users considered the benefits they would get from RFID, and whether it would meet their expectations. Benefits of RFID technology in the hospitals include the ability for real-time traceability of people and equipment, better monitoring critical systems, and quality control (Roper et al., 2015).

The results indicated that hedonic motivation positively affected RFID adoption, and could be seen as a crucial factor influencing RFID users. Hatz and colleagues (2017) studied technology users' motivation by using hedonic motivation (passion, fun, emotions, and excitement). Such motivation

was a significant driver for adopting technology. Hence, RFID users, in particular doctors, nurses, and other hospital staff, should be willing to adopt this new technology, by focusing on the convenience that it brings.

Woodruff and Gardial (1996) defined perceived value as a perception of attributes that are received and given. External Influence is defined as an aspect and a concern of individuals with the judgments of others–for example, family, peers, and colleagues (Tonglet et al., 2004). For example, they can even increase the convenience and minimize time effort in searching for information related to patients, medicines, or equipment, through this one-click or scanning technology.

The statistical findings failed to indicate that 'performance expectancy,' 'perceived value,' and 'external influence' were important to the behavioral intentions for using RFID in hospitals. Nevertheless, RFID users who perceived it as a beneficial technology would recognize advantages such as convenience and efficiency.

In our study, variables affecting the behavioral intention of using RFID were derived from the values perceived by users themselves. Thus, the results indicate that RFID users' were focused on fulfillment of their expectations and their experiences. Nonetheless, to have a more comprehensive overview, hospital administrative teams should also obtain input from various departments using RFID technology, including clinical services, information technology, human resources, and others. By having a comprehensive overview, hospital management would have a better understanding of how to best integrate RFID technology use into the various hospital departments' existing workflow. Furthermore, personalized design could be achieved through the combination of usefulness and enjoyment. This would not only benefit workflows, but also facilitate users' technology adoption processes (Namahoot & Laohavichien, 2018).

Hospital administrators can be one of the most important stakeholder groups to shape users' perspectives towards the use of RFID technologies. However, Fisher and Monahan (2008) cautioned that a problem for using RFID in hospitals was its quality and extent of use. To ensure that RFID is used to its full potential, vendors also have the responsibility to educate both hospital administrators and RFID end-users. Another worry is that RFID users may feel like they are being watched (Fisher & Monahan, 2008).

Conclusions

This study proposed a novel research model that included five hypotheses regarding the relationships between perceived utility, hedonic motivation, perceived value, performance expectancy, and external influences affecting behavioral intention to use RFID, based on the UTAUT2 model analyzed via SEM. The results showed that perceived utility and hedonic motivation had the strongest positive influence on RFID users' behavioral intention. Perceived utility and hedonic motivation should be taken seriously in the consideration of adopting RFID in hospitals or healthcare services. Besides creating a valued utility for users, management should encourage adopting RFID technology from the point of view of bringing enjoyment. RFID adoption in healthcare services can enhance the productivity of the healthcare sector. It is important to understand the capabilities and limitations that are involved in adopting RFID.

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Students' Vocabulary Enhancement in Grade V: A Comparative Study Using Total Physical Response Storytelling and Jigsaw IV

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Abstract

The purpose of this study was to see the enhancement of student's vocabulary learned through the Total Physical Response Storytelling (TPRS) & Jigsaw IV methods. This study sought to answer the following questions: (1) is there any significance difference in students' vocabulary mastery enhancement between those taught using TPRS and those taught using Jigsaw IV? (2) Which technique is better to use in teaching vocabulary to elementary students? This was a quantitative research experiment with a comparative design using a pre-test and a post-test. The participants of the study were 60 students of Grade V-B and V-C in Kartika X-3 Primary School, Parongpong, Bandung, West Java, Indonesia. They were randomly picked and divided into two intact groups. The students in Grade V-B learned through, TPRS while the students in Grade V-C learned through Jigsaw IV. After analyzing the data, the researchers found that there was a significant difference in vocabulary mastery between students who were taught using TPRS and those who were taught using the Jigsaw technique. Between these two techniques, Jigsaw IV was better in enhancing primary students' vocabulary.

Keywords: *Total Physical Response Storytelling, Jigsaw IV, vocabulary mastery.*

Introduction

In the past, a language has never been spoken more widely in the world than English is today (Melitz, 2016). English is the language that has spread most broadly throughout the world and is used in various fields including global trade, communication, and education (Crystal, 1997). Since learning English is essential, the Indonesian Government included English in the curriculum as one of the official subjects to be learned. It is taught from the elementary level (Katemba & Sitompul, 2018; Katemba, 2013, 2019).

In teaching English, especially at an early age, there are many things to be concerned about, one of which is vocabulary. Setiawan (2010) wrote that vocabulary mastery is comprehensive learning which embraces recognition, comprehension, and the production of words and meaning. Vocabulary manages words and meaning, while mastery implies comprehensive learning. Thornbury (2002) stated that more time spent on studying grammar would not give much improvement. "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (Thornbury, 2002, p. 13). Improvement is seen in learning more words and expressions. Moreover, Hasan (2016) stated that in learning a foreign language, vocabulary is an indispensable concern because there is a tangible connection between the size of students' vocabulary and their performance of language skills.

Accordingly, the importance of vocabulary is a reason for teachers to give serious attention in teaching it, especially to children, because vocabulary is the foundation on which to build language and plays a fundamental role in communication. In short, vocabulary is the top priority in learning English (Hatch & Brown, 1995). Rusiana and Nuraengsih (2016) wrote that when teaching early age students, the lesson should emphasize vocabulary, since they are the very beginning step of learning the language. In other words, teaching English vocabulary should be introduced at the elementary level.

However, Cameron (2003) concluded that teaching vocabulary in elementary school is not easy; teaching vocabulary to young learners really needs extra efforts and strategies. Teachers should exert

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extra power to teach them since children have certain characteristics and need certain treatment. Alam (2009) identified some factors which cause difficulties in learning vocabulary for fifth graders. He confirmed that elementary school students usually have many problems in facing English such as they are too young to learn English, they still like to play with each other during class hours, and they lack interest in learning English. These reasons sometimes hinder fifth-grade students from learning English.

Literature Review

Vocabulary mastery is comprehensive learning which embraces recognition, comprehension, and the production of words and the meaning. Without vocabulary nothing can be conveyed (Hornby (1995), Setiawan (2010), Thornbury (2002). Vocabulary is an indispensable part of learning a language, especially English. Vocabulary must not be neglected by anyone who learns English (Anisa, 2016). Frequently, students instinctively recognize the importance of vocabulary in their language learning. If the students do not have enough vocabulary, they will have difficulty expressing their thoughts to others. In other words, vocabulary obviously plays an important role in speaking and listening skills, as well as writing and reading skills. If students want to read English books, they have to increase their vocabulary; in writing as well, vocabulary influences writing quality (Windasari, Rita, & Salehuddin, 2016; Zhai, 2016).

In order to develop a thorough understanding and deeper insight into previous works and trends about Total Physical Response Storytelling (TPRS) and Jigsaw IV, a review of related studies was done. It showed that according to teachers who were surveyed, both TPRS and Jigsaw IV improved students' motivation in learning.

TPRS increased interest levels and was useful in improving students' scores on both written and oral exams (Abu-Assab, 2015; Anisa, 2011; Powell & Wells, 2010). Similarly, a study conducted by Nurlaili et al. (2015) among first graders showed that TPRS was effective in teaching vocabulary, which was measured by enhancement of students' vocabulary comprehension. Studies of fourth graders by Rosaria (2014) and Dewi (2010) found that TPRS can improve vocabulary mastery, and it can also improve teacher skills during the teaching and learning process. TPRS gives significant influence to improve students' vocabulary mastery and even the grade four students who were taught by using TPRS achieved higher vocabulary mastery than grade four students who were taught by using translation only. Likewise, a study completed on high school students by Kariuki and Bush (2008) showed that TPRS appears to be a powerful tool to use in teaching foreign language students in improving their vocabulary mastery. The students taught using TPRS performed significantly higher than the students taught using the traditional method. So, TPRS is a powerful tool to use in teaching EFL students' vocabulary as proven from the previous studies. Another study on the cooperative learning using jigsaw4 shows that it is useful to enhance vocabulary.

Similarly, Azizinezhad et al. (2013) showed that classes using cooperative learning revealed increases in achievement, attitude, self-esteem, and social relationships. Besides cooperative learning, the Jigsaw Technique is an effective way to promote student participation and enthusiasm (Mengduo & Holliday, 2010). Moreover, the Jigsaw Technique affects the improvement of elementary students' vocabulary achievement (Rachmawati, 2012). In addition to studies in elementary schools, others were also conducted with junior high school students by Katranci et al. (2013) and Zuraida (2012). Students who were taught using the Jigsaw Technique improved their post-test scores. Further, Jigsaw IV was used at the undergraduate level, and the results showed that students who acquired Jigsaw IV increased their achievement levels. Students said that the subjects they learnt become easier, they permanently acquired knowledge, their self-confidence was enhanced, and the cooperation was enjoyable. Jigsaw IV is more effective than many conventional teaching methods (Maden, 2010).

Hence, the researchers decided to apply these two techniques in teaching vocabulary at an elementary school in Bandung, Indonesia: Total Physical Response Storytelling (TPRS), and Jigsaw IV.

Total Physical Response Storytelling

Total Physical Response Storytelling was an improvement derived from Total Physical Response (TPR), which was developed by James Asher, a professor of psychology at San Jose State University, California in the 1960s. TPRS was developed by Ray in the 1990s with the purpose of developing an efficient technique for teaching and learning language. TPRS combines Asher's TPR, allowing teachers to teach reading and writing along with vocabulary through story telling. Total Physical Response Storytelling is now more appropriately called "Teaching Proficiency through Reading and Storytelling", as stated by Nurlaili et al. (2015).

According to Gross (2007), TPRS consists of three important steps, namely: 1) establishing meaning, 2) storytelling, and 3) building literacy. However, these three steps could be accomplished in different ways according to the teacher. Ray (1997) stated that through storytelling, students' interest to listen to each part of the story and fully understand it will increase because students will pay attention to language structures and new vocabulary given in the story.

In her thesis, Simanjuntak (2015) wrote that TPRS begins by establishing the meaning of a word in the target language, and it can be done by giving the word's translation, showing a picture, or teaching words with gestures. The storytelling process plays an important role in this technique (Holleny, 2012), which emphasizes students' prior knowledge as the main point to establish meaningful teaching and learning progress.

Cantoni (1999) stated that in TPRS, the vocabulary teaching in the earlier stages will be learned by incorporating it into the stories that the learners hear, watch, act out, and retell. According to Decker (2008), TPRS begins with introducing the vocabulary; then students will act out the stories as the teacher tells (or asks), re-tells, and asks questions about the story.

The following are some steps to integrate total physical response storytelling in the classroom:

1. Establish meaning: The teacher presents new vocabulary words/phrases, along with the translation.
2. After teaching vocabulary, the teacher introduces the story. Student actors are called to the front of the class to act out each event as it occurs. The teacher strives to make the story elements "bizarre, exaggerated and personalized" by exaggerating details such as size, shape, time, quantity, and quality. As each new sentence is introduced, the teacher asks multiple questions in order to provide repeated exposure to the new vocabulary. Students are encouraged to react to new twists of the plot by making exclamations in the target language.
3. Students are given a printed version of the story they have just learned. One student at a time translates the story into English while the others follow along. The teacher discusses the reading by relating the story to students' lives, and asking if they have ever been in a similar situation.

Strengths of Using TPRS

Numpaque and Rojas (2010) stated that TPRS has numerous advantages that are rarely found in other techniques, such as:

1. Since the students can recall the words, they get enough exposure to the words so that they can use the words in context, and consequently speak the language.
2. Stories are simple and easy to remember. Learners may forget what they have been taught in class, but they will remember a story's events and the descriptive words used to narrate it.
3. TPR Storytelling develops fluency with accuracy. Learners acquire language in an amusing way that helps them to speak it without pressure; it is a low-stress way to acquire a foreign language.
4. TPR Storytelling is fun; humor makes learners laugh and promotes better long-term memory.
5. TPR Storytelling is also interesting. Since it is focused on learners' lives, it is more likely that they will be truly interested in the content and in expressing meaningful things in real-life situations.

Jigsaw IV

Jigsaw IV is part of the Jigsaw Technique, so they are generally the same. The differences between them can be seen in the procedures; Jigsaw technique is of a general nature, while Jigsaw IV gives a test at every step. Therefore, both Jigsaw IV and the Jigsaw Technique will be discussed in this section.

The Jigsaw Technique was introduced by Aronson et al. (1978) to improve peer cooperation, to help weaken racial cliques in forcibly integrated schools, and to create team solidarity among students through division of tasks that involved each student in a group to assume learning responsibility. The Jigsaw Technique encourages student participation in a setting where other pupils play a critical role in successful learning achievement, and this success depends on active cooperation and participation. Using the Jigsaw Technique increases the variety of learning experiences, and teaches learners course content and cooperative social skills (Perkins & Tagle, 2011).

Zuo (2011) stated that the Jigsaw Technique is a branch of Cooperative Learning that promotes effective learning by increasing motivation, interdependence, and social and linguistic communication skills. In a similar manner, according to Arlsan (2016), the Jigsaw Technique is a complex strategy in which interdependency is created. In other words, the Jigsaw Technique is a method of organizing classroom activity that makes students dependent on each other to succeed.

As each learner in a cooperative work group is responsible for a small part of the learning material and teaching it to other members, the sense of having a responsible role places each participant in the center of a knowledge creation process (Tran, 2016). Nappu and Angraeni (2017) stated that Jigsaw is a technique that makes students work together; it allows students to get to know each other, and helps them build good relationships as part of the learning process. Thus, they can feel good and enjoy studying. Students in Jigsaw Technique classes will be creative and will have good relationships with each other.

Jigsaw IV was developed by Holliday in the 1990s. In Jigsaw IV, students are typically assessed using review quizzes and other formal instruments created by the teacher (Holliday, 2000). With this technique, students work and think together through discussions with all members of the group. Students help each other in terms of the material to be mastered.

Teaching students in groups gives each student experience in studying together, sharing information within the group, so they will feel comfortable with group work. Therefore, the Jigsaw Technique gives students a good feeling about learning vocabulary because they study and help each other in mastering new words.

The following are some steps for integrating Jigsaw IV in the classroom:

1. Divide students into groups of 5–6 that are diverse in terms of language proficiency, with one person in charge as the leader.
2. Each student in a group is asked to look for the meaning of each word in different paragraphs.
3. Each group is given a short quiz to test their savvy.
4. Each student in every group that looked for meaning in the first paragraph will then be placed in a new group to discuss what they have found.
5. Students are given other quizzes to examine what they have learned from the whole discussion.
6. The whole lesson will be re-taught.

Strengths of Using Jigsaw IV

Collaborative learning has many advantages. It increases self-esteem and motivation among students, improves complex and cognitive thinking, creates positive feelings among students and about school, and makes responsible students. Most teachers have the same point of view (Jacobs et al., 2002).

The advantages of this technique are that (1) each child has a part in the group; (2) this makes students want to learn because they feel needed; (3) it allows each student to learn more; (4) it is efficient, encouraging students to listen to each other and have more social engagement; and (5) the time saved by not having to research by one's self makes this process a huge advantage (Adams, 2013).

So the researchers used the two techniques—TPRS and Jigsaw IV—in teaching vocabulary. In this study the following research questions were posed:

1. Is there any significance difference in students' vocabulary mastery enhancement between those who were taught through Total Physical Response Storytelling (TPRS), and those who were taught through Jigsaw IV?
2. Which amongst the techniques is better to use when elementary students are learning vocabulary?

Children easily get bored while learning and typically lose interest after 10 minutes (Harmer, 2001, 2007; Rachmawati, 2012). So their teachers should be seriously concerned about how lessons should be taught, and they must teach actively to avoid boredom. This kind of problem could be solved by teaching through Jigsaw IV, since Nappu and Angraeni (2017) stated that Jigsaw is a technique that encourages students to work with their peers. This means they can feel good and will enjoy studying together. In short, this way of learning might decrease their boredom.

However, children usually respond well to activities that focus on their lives and experiences. In short, children love to learn by doing. Learning by doing is also a part of TPR Storytelling. This engages students directly and focuses on reflection to increase knowledge, develop skills and also provide a suitable environment for language learning.

Therefore, in harmony with the reasons mentioned above, the researchers were challenged to conduct a comparative study to know which technique, TPRS or Jigsaw IV, is better at enhancing students' vocabulary mastery. The present study is different from previous studies where the researchers did not compare TPRS and Jigsaw IV.

Methodology

Research Design

This was a quantitative research experiment with a comparative design using a pre-test and a post-test (a non-equivalent, pre-test/post-test control design). This study compared the students' vocabulary mastery using TPRS and Jigsaw IV between the comparative intact groups. In the beginning, the two groups were given a pre-test to know respondents' abilities. After that, both groups were treated with different treatment for 66 hours, and at the end of the program, both groups were given a post-test to see whether their vocabulary mastery improved or not.

Table 1. Research Design

Group	Vocabulary Pre-Test	Treatment	Vocabulary Post-Test
Group 1	A	Total Physical Response Storytelling	A
Group 2	A	Jigsaw IV	A

Population and Sample

The population used for the research were students from the fifth-year elementary school who attended Sekolah Dasar Kartika X-3 Primary School in Parongpong, Bandung, West Java, Indonesia. The classrooms were randomly selected with a total of 60 students from two intact groups, grade VB and VC. Each group was composed of 30 students, and these served as the comparative groups. Their ages ranged from 10 to 11 years old. To see whether the two groups were comparable, several tests, such as a normality, homogeneity, and independent samples *t*-test, were performed on the pre-test scores. Please refer to Tables 3, 4, and 5 for the results. They showed that there was no significant difference on the pre-test scores for both groups; they were normally distributed and homogeneous.

Research Instrument

The instruments used in this study were a vocabulary mastery test that was used for the pre-test. The vocabulary mastery test was composed of multiple choice questions to reveal students' prior ability and vocabulary levels. For the materials during the treatment time, they were given school

textbooks and were treated using TPRS and Jigsaw IV as the methods. In the end of the program, students were given a post-test to find the results of their vocabulary mastery after being taught through both methods.

Data Gathering

To gather the data, the researchers implemented several procedures as follows:

1. Administering the Pilot Test. The pilot test was conducted before giving the pre-test. The test was a vocabulary test with a total number of 50 multiple choice questions. The vocabulary test was administered to 60 students who were from another group. The test scores were analyzed by a software package. The result of the computation of reliability test showed that the reliability was .93. It can be concluded that the test's reliability was high.

   Based on the results calculated, there were 49 questions that were valid. There was one question that was not valid, 1 question was very low, three questions were low, 43 questions were moderate, and one question was high. The results showed that there were 43 items that had raw scores ranging from .41 to .70. So, it can be concluded that the validity of the instrument was moderate.
2. Pre-test. Based on the recapitulation test done, this research study used 35 questions for the pre-test and post-test. It was based on the results of question analysis and discussion with the advisor; the 35 questions measured students' ability to improve their vocabulary mastery. The pre-test was given to both comparative groups to diagnose students' prior vocabulary ability before the treatments were applied. It consisted of multiple choice vocabulary questions that focused on nouns, adjectives, and verbs.
3. Post-test. A post-test was conducted at the end of the program to check the results after the two treatments TPRS and Jigsaw IV. The post-test, which contained the same questions as the pre-test but arranged differently, was administered to both comparative groups.

Procedure of Implementing TPRS and Jigsaw IV

After administering the pre-test, the treatments were given to both comparative groups. The procedures of teaching Total Physical Response Storytelling were adopted from Ray (1990), and the procedures of teaching Jigsaw IV were adapted from Holliday (2002). The same teacher taught both classes.

Table 2. Procedures Adopted for the Two Research Methods

TPRS Procedures	Jigsaw IV Procedures
Step One: Establish meaning. Teacher presents new vocabulary words or phrases, along with the target language translation. **Step Two:** After teaching the vocabulary, the teacher introduces the story. Student actors are called to the front of the class to act out each event as it occurs. The teacher strives to make the story elements "bizarre, exaggerated and personalized" by exaggerating details such as size, shape, time, quantity, and quality. As each new sentence is introduced, the teacher asks multiple questions to provide repeated exposure to the new vocabulary. Students are encouraged to react to new twists of the plot by making exclamations in the target language.	**Step One:** Introduction **Step Two:** Experts' sheets assigned to experts in the groups. Each Jigsaw group has an expert, who will later move to another group to share the topic in which they are a master/expert. After this, they will return to the home base group. **Step Three:** Groups answer expert questions prior to returning to home teams. **Step Four:** Quiz on material, with experts from groups checking accuracy.

Step Three: Finally, students are given a printed version of the story they have just learned. One student at a time translates the story into English while the others follow along. The teacher discusses the reading by relating the story to students' lives, and asking if they have ever been in a similar situation.	**Step Five:** Students return to home teams, sharing their information with teammates. **Step Six:** Quiz on material, shared checking for accuracy within groups. **Step Seven:** Review process for the whole group by playing Jeopardy, Quiz Bowl, etc. **Step Eight:** Individual assignments are graded. **Step Nine:** Re-teach any material missed on assessment as needed.

Research Findings and Discussion

The results of pre-test and post-test for each group were calculated using Microsoft Excel and SPSS 21. They can be seen in the following table:

Table 3. Pre-Test, Post-Test, and Normalized Gain Means and Standard Deviations

	TPRS		Jigsaw IV	
	Mean	St. Deviation	Mean	St. Deviation
Pre-test	54.33	11.88	56.63	11.00
Post-test	74.67	11.96	82.30	10.23
Normalized Gain	.464	.224	.597	.198

The results of the data shown in Table 3 suggest that there is a difference in the students' vocabulary mastery enhancement between those who were taught using TPRS and those who were taught with Jigsaw IV. It can be said that both methods are applicable, but the data suggest more favourable outcomes for the Jigsaw group. To comment further, the significance of the normalized gain figures is explained by Hake (1998) "as a rough measure of the effectiveness of a course in promoting conceptual understanding," and it has become a standard measure for reporting scores on research-based concept inventories. A normalized gain was used for this data because it measures strongly differentiated teaching methods, but allowed for "a consistent analysis over diverse student populations with widely varying initial knowledge states." Further, this allows instructors to compare their students' learning to that of other students at very different kinds of institutions (Hake 1998).

A normality test was also conducted to see whether the data obtained was normally distributed or not. The null hypothesis, H_o, would be rejected if the *p*-value was less than or equal to α (.05). The *p*-value for the Jigsaw IV group was .050 and for the TPRS group was .099, which means acceptance of the null hypothesis, meaning for both groups were normally distributed.

Likewise, a homogeneity test for the pre-test score was also completed. The computed results showed that the *p*-value was .919, which means that the population variances between those who were taught using TPRS and Jigsaw IV were homogeneous. Since the pre-test population was normally distributed and also homogeneous, an independent samples *t*-test was conducted subsequently.

From the results of the independent samples *t*-test, only the row for equal variances assumed was considered because the population variances were homogeneous. Since the *p*-value of the pre-test score was .440, which is greater than α (.05), it means that H_o was accepted. Since there was no significant difference between these groups, then the treatments could be carried out. At the end of the treatment period, a post-test was administered to the students. This data was tested for normality of distribution.

A normality test results are shown in Table 4. Based on this data, both tests were normally distributed. Since the gain score was normally distributed, a homogeneity test was conducted. The result of the homogeneity test returned a *p*-value of .832. Since the *p*-value is greater than α (.05), homogeneity was established.

Table 4. Normality Test of Gain Score

Group		Shapiro-Wilk		
		Statistic	*df*	Significance
Gain Scores	Jigsaw IV	.970	30	.540
	TPRS	.942	30	.102

Hypothesis Testing

Since the normalized gain population was normally distributed, then an independent samples *t*-test was done to answer the research question: "Is there any significant difference in the students' vocabulary mastery enhancement between those who were taught through TPRS and those who were taught through Jigsaw IV."

The criteria are:

1. If the p-value is lesser than or equal to α (.05), H_o is rejected. This means that there is significant difference in the students' vocabulary mastery enhancement between those who were taught using TPRS and those who were taught using Jigsaw IV.
2. If the *p*-value is greater than α (.05), H_o is not rejected. This means that there is no significant difference in the students' vocabulary mastery enhancement between those who were taught using TPRS and those who were taught using Jigsaw IV.

The calculation results can be seen in the table below.

Table 5. Results of Independent Sample *t*-test of Normalized Gain

	Levene's Test				
	F	Sig.	*t*	*df*	Sig. (2-tailed)
Equal variances assumed	.002	.965	2.439	58	.018
Equal variances not assumed			2.439	57.137	.018

Since the population variances of the normalized gain scores were homogenous, the row of equal variances assumed was used. The results obtained show that the *p*-value of the gain scores was .018, which is less than α (.05), so it is concluded that H_o must be rejected. Thus, there is a significant difference in the students' vocabulary mastery enhancement between those who were taught using TPRS and those who were taught using Jigsaw IV.

The study points to the superiority of the Jigsaw IV approach over that of TPR Storytelling. This is consistent with the study of Monson (2017) who showed that students working in a group project received higher scores than those who worked individually. In like manner, Grimm (2004, p. 27) found that group learning conditions yielded better grades than did individual learning conditions, and even the range of the mean scores was approximately 15% higher than the individual scores. He also wrote that "Students' weekly scores were found to be higher after a week of collaborative instruction. Students were able to retain and reiterate more accurate information after working in small groups with one another."

Conclusion

The researchers used TPRS and Jigsaw IV to see if these methods improve students' vocabulary mastery. It is believed that this is the first such study done in Indonesia. From these results obtained, it was evident that both groups showed improvement in their post-test scores after the respective

treatments. Based on the statistical results, it was concluded that there was a significant increase in the post-test scores.

Therefore, it was concluded that the null hypothesis must be rejected. Students who were taught using Jigsaw IV demonstrated higher vocabulary mastery achievement than those who were taught TPRS. So, it is concluded that Jigsaw IV was better than TPRS in enhancing vocabulary for these groups of primary students. In Jigsaw IV, students worked in groups and obtained higher results. This study's results showed that both groups' scores increased significantly, but Jigsaw IV led to a higher level of achievement.

Recommendations

Based on these findings, the researchers would like to make the following recommendations.

1. For teachers, these methods are recommended for use in teaching English, especially to elementary school students, because it has already been demonstrated that they help students' vocabulary mastery to increase.
2. For students, it is recommended to learn English vocabulary using the Jigsaw IV method because it enhances students' vocabulary mastery better than TPRS, although TPRS was also proven to increase vocabulary.
3. For future researchers, it is hoped that the results of this study can be used as a reference source for future studies in different levels and contexts.
4. For school curriculum design, to consider including these two techniques in the curriculum as one of the techniques to aid in vocabulary learning for foreign languages.

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Artificial Intelligence and Its Impacts on Employability

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Abstract

The purpose of this qualitative study was to explore the amount of artificial intelligence that was used in seven selected businesses in Thailand and its impacts on employability. In-depth interviews were conducted with each participant that lasted between 30 to 45 minutes. The use of AI varied across the various businesses from as high as 40% to 0%. Thailand is slower than some other nations in switching to AI, but that will change in a few years' time as some business were reported to be in the process of AI development. A few other businesses were less enthusiastic in AI adoption because their businesses are still highly reliant on humans. The high costs of embracing AI and translating software programs into the Thai language made others reluctant to make the shift. Current job displacements have been low, but the numbers are expected to run to high levels in five to 10 years once AI is widely employed. The younger generation of employees were more accepting and less resistant to AI, while the opposite was true of the older generations. Many participants also mentioned the necessity of upskilling to survive and maintain future employability.

Keywords: *AI, Artificial Intelligence, employment, future employability, Thailand*

Introduction

The advancement and integration of artificial intelligence (AI) in cognitive areas has threatened human employment significantly (Thomas, 2018). Starting slow, AI had been advancing rapidly these past few years, overcoming many obstacles, and has proved to be more capable and more intelligent than humans in some areas (Bolton et al., 2018; Dickson, 2017; Noyes, 2016). Although organizations have reported higher efficiencies through AI (Crosman, 2017; Hawser, 2019), these AI disruptions come at a high cost, replacing humans (Tyagi, 2017). There is a predicted disappearance of up to five million human jobs by 2021 (Noyes, 2016). The algorithms used in AI have already invaded the skilled professional sector with software programs replacing "loan officers, attorneys, and sports and business journalists" (Brown, 2016). Currently labeled as the "industry 4.0" or the fourth industrial revolution, the impacts of AI, robotics, and big data (Garwood, 2018; Hawser, 2019; Morikawa, 2017) are definitely tremendous and unequal to prior revolutions, bringing along with it new changes in the future world of work (Garwood, 2018; Hawser, 2019). History shows that "many significant innovations in the past have been associated with a transition period of temporary job loss, followed by recovery, then business transformation and AI will likely follow this route" (Doupnik, 2018, p. 12). The purpose of this study was to explore the amount of AI usage in seven selected businesses in Thailand and the effect of AI changes on employability. The results of this study would be an excellent addition to the scant amount of literature available on the practice of AI in Thailand. This is especially so as Thailand is currently in its early stages of employing AI.

Literature Review

Artificial Intelligence (AI)

Artificial Intelligence (AI), also known as "machine intelligence," began around 2010 (Rotman, 2017), and is assuming a growing role (Lee, 2017) with companies expressing increasing needs for AI services (Bolton et al., 2018). Human and artificial intelligence, when combined together, complement each other (Dickson, 2017; Doupnik, 2018; Garwood, 2018), and improve organizational efficiency (Bolton et al., 2018). Aside from performing more than humans, AI is also capable of performing things humans are incapable of (Garwood, 2018). The tremendous investments in AI-related technologies are mind-blogging with more than $1.5 billion already spent by financial firms and up to a predicted annual amount of $2.8 billion being invested by 2021 (Crosman, 2017). With the vast usage of AI in

many areas, its impacts will no longer be contained within an organization, but humans will find AI as part of their daily lives (Herold, 2017; Thomas, 2018). It has been predicted that "artificial intelligence will do more good than harm" for not only individuals but also the economy and society (Lee, 2017; Lev-ram, 2017, p. 28) and its usage will double the annual economic growth in developed countries by 2035 (Ketter, 2017).

Russian President Vladimir Putin stated that "Whoever becomes the leader in this sphere (AI) will become the ruler of this world." The competition amongst countries has begun with the United States, the United Kingdom, and Germany, while China, Japan, Singapore, South Korea, and Taiwan are funding AI research together in order to compete (Buaubol et al., 2018, p. 7). Singapore is the Asia Pacific leader in overall AI readiness as it is most progressive in its approaches to AI, followed by Hong Kong and India, while Thailand ranks first in consumer readiness. The adoption of AI varies across the region and governments are urged to drive AI readiness in their countries ("Singapore Ranks #1", 2019). With this being the case, Thailand needs to undergo major transformations by reforming its educational system, providing a better social welfare system, preparing the government sector for the transformation and, most importantly, developing an improved development model (Buaubol et al., 2018).

In comparison with other countries, Thai companies are relatively late in their switch to AI and are expected to face challenging times ahead in meeting new customers' lifestyle changes with the internet shopping explosion (Nguyen, 2018). Thailand's Board of Investment has demonstrated its support for AI investments by offering more attractive and higher investment incentives to targeted industries to increase production efficiency with the hopes of gaining competitive advantage. This is a potential driver in future economic growth (PR Newswire, 2019). The Thai automotive sector has experienced an AI disruption in the form of autonomous vehicles, rendering previous manufacturing processes obsolete and auto companies might have to consolidate or face failure (Petcharit et al., 2020). There are significant AI opportunities in the Thai agricultural sector in the form of self-driving farm vehicles and in farming processes such as sorting and grading its products (PR Newswire, 2019). AI also plays an integral role in the social issue in Thailand as demonstrated by the "AI for Road Safety" project, a joint collaboration of PTT Global Chemical Public Company Limited (GC), Frontis, and Microsoft to reduce Thailand's road accidents (Thongnab, 2018). Mass customization will dictate future production that requires Thai factories to be adaptable and driven by AI. Moreover, both AI and robotics technology would be essential for expansion purposes (PR Newswire, 2019). Thailand is still in its infancy stage in AI-based trading (Nguyen, 2019) and Siam Commercial Bank (SCB), the current leader in technology, is striving to compete successfully both domestically and regionally by developing and updating its technology infrastructure (Nguyen, 2018). It soon will be rolling out its robo-adviser service developed by its AI unit (Nguyen, 2018). In its attempts to lure new while retaining current customers, its subsidiary, SCB Assessment Management Co., will use AI to help customers identify investments (Nguyen, 2019).

The Usefulness of AI

Artificial Intelligence has been shown to be extremely useful and it has in some cases endowed humans with superpowers in getting tasks done faster (Boulton, 2018). Humans can refocus on things they are good at and are freed from tasks they might not enjoy or are not specialize in (Noyes, 2016). Moreover, cost savings gained from AI, due to the elimination of routine (repetitive) jobs, will be used to retrain staff in areas not covered by AI and in order to provide better customer service (Doupnik, 2018). Systems have been designed to provide improvement in the detection of fraudulent transactions and messages (Lee, 2017), while the finance sector has been experiencing huge gains in efficiency with AI's abilities in handwriting and image recognition, as well as robotic process automation (Crosman, 2017). AI has been successful in removing bias in the recruiting process and is more precise in matching applicants with recruitment needs ("HR Meets AI," 2017). It has eased the long-time problem experienced due to shortages of medical physicians and healthcare personnel by making healthcare more accessible to more people, particularly in developed countries. With AI

technology, more people can be trained to work alongside AI to provide the type of healthcare that is limited currently by the availability of highly trained physicians (Andra, 2017; Dickson, 2017; Hawser, 2019).

Employment. AI's ability to outperform and replace routine work done by humans (Jesuthasan, 2017; Lee, 2019) is causing a tremendous disruption in employment (Dickson, 2017; Thomas, 2018). This will result in the disruption of the livelihood of millions of people, and destroy jobs (Lee, 2017; Noyes, 2016; Rotman, 2017). This will cause large job displacements of both white and blue color workers in a decade's time (Hawser, 2019; Lee, 2019). The good news is that not all jobs will be threatened and replaced by AI (Lee, 2019). With AI taking over jobs gradually, and eventually becoming widespread, this becomes a societal problem that needs to be addressed (Crosman, 2017). It is predicted to further increase the existing income inequality (Rotman, 2017). While some jobs will decline in significance, others would disappear, some might grow in importance, others might change, while some will be created (Garwood, 2018; Hawser, 2019). In a study conducted in the United Kingdom back in 2016, up to 42% believed that their jobs would be replaced by robots by 2066. About 19% of the younger generation (18 to 24-year-old) are constantly worried about this take-over, while the rest (45 to 54-year-old) had no worries about it (Saran, 2017). Millennials find AI invasion a big threat to their careers, but they have been reported to be optimistic in their abilities to adapt (Canada Newswire, 2019). It is comforting to know that not all jobs will be completely automated, and most job losses are not the result of machines replacing humans, but of "humans using machines to replace other humans" (Andra, 2017, p. 40).

Many fear mass unemployment and the potential social disorder that accompanies the displacement of humans with AI (Crosman, 2017; Hawser, 2019). Those most disadvantaged by automation are the less educated employees but the advancement and AI invasion in the workplace will also displace highly educated professions (Atkinson, 2017; Rotman, 2017). The hardest hit will be the unskilled job category (Grose, 2017; Saran, 2017) and entry-level jobs in fast-food restaurants will be hit hard as robots take over jobs (e.g., CaliBurger Flippy; Crosman, 2017). Many highly-trained professional jobs such as in medicine, law, and IT, would be greatly affected by 2022 ("How AI Powered Robots," 2017). Some professions, such as CEOs and doctors, will find that the nature of their work will change as AI frees them to work on more important, productive, and interesting tasks, while AI could help them to fulfill more mundane tasks (Atkinson, 2017). The finance sector will be hit hard, Wall Street included, as expert systems gradually take over humans in performing error-free and more effective processing jobs, securities trading, sales, loans, insurance claims, and analytical jobs ("AI? It's Not Sci-Fi Anymore," 2017; Atkinson, 2017; Crosman, 2017). The banking industry has been greatly impacted, where massive transformations due to automation and AI have resulted in cutbacks and replacements in the back office (Hadley, 2017; Hawser, 2019). This has also been true in other industries, such as in recruitment (Hadley, 2017). As for the accounting field, entry-jobs are at risk, and the Big Four firms are looking with for employees who have analytical, computer programming, and coding skills (Zhang et al., 2018). The new innovation of driverless vehicles will be a big disruption that, in the future, would replace cab, bus, and truck drivers, and those in this business will find themselves without a job (Andra, 2017; Atkinson, 2017; Grose, 2017; Ketter, 2017; Noyes, 2016). Other high-skilled industries are not free from this disruption, such as law and healthcare as AI is capable of doing a better job in providing diagnostics in many instances (Hadley, 2017). As for those in the middle, such as paralegals, cashiers, and telemarketers, there is a possibility that their jobs may disappear along with pilots and lawyers (Grose, 2017).

Jobs that would be safe from AI include those demanding creativity, strong social interaction, novelty, complex and strategic jobs, compassion, and those involving fine and specific motor skills (Lee, 2019; White, 2016). Top, well-paid professions that are immune to the perils of AI take-over include "engineers, scientists, CEOs, creative types and people with the tech savvy to work with thinking machines" (Grose, 2017, p. 31). Other safer jobs include clergy, choreographers, kindergarten and elementary school teachers, and mental health care employees (White, 2016).

Although there are long-term benefits attached with AI innovations, the short-term downside effects are employee layoffs (Grose, 2017). This job take-over will not be limited to just developed economies (Hawser, 2019), but it will be a global phenomenon with many jobs losses due to the introduction of AI (Andra, 2017; Nott, 2018). According to the study by Gartner experts, 2.3 million jobs will be created by 2020, while 1.8 million will be wiped out as a result of AI (Doupnik, 2018). It had also been predicted that up to 230,000 people in the capital markets will be affected worldwide by AI technology by the year 2025 (Crosman, 2017).

New Job Creation

Past history clearly indicates that previous disruptions have resulted in the creation of new kinds of jobs and opportunities. Although AI will displace jobs, ultimately the fears associated with this take-over are unnecessary ("Robots Will Create More Jobs," 2017), as there will be a creation of a new range of job opportunities (Daugherty & Wilson, 2018; Dickson, 2017; Doupnik, 2018; Hawser, 2019; Ketter, 2017; Rotman, 2017) that combine human creativity and innovation (Daugherty & Wilson, 2018), resulting in greater efficiency (Rotman, 2017). The number of new jobs created as a result of AI will be greater than the number of eradicated jobs. It has been predicted that more than two million jobs will be created by 2025 (Robots Will Create More Jobs," 2017). Jobs will not be completely taken over by robots and there will be a greater demand for tech talent (Dickson, 2017). An entirely new job market will be created by smart machines (Brown, 2016) and new jobs and careers would be created to replace the ones that have evaporated (Grose, 2017). As AI eliminates jobs, AI-related jobs will surface in the areas of AI implementation and maintenance, such as AI supporting value-added resellers and consultants (Crosman, 2017). It had been reported that the number of new jobs created as a result of AI will be greater than the number of eradicated jobs ("Robots Will Create More Jobs," 2017). However, there is very little optimism in the new jobs that will emerge (Andra, 2017). Others, such as Grose (2017), have predicted that the number of job creation would be less than the ones crushed in the next 10 years.

Objectives and Research Questions

Thailand is lagging behind other countries in the field of AI and the amount of literature available on this topic is minimal. With this in mind, the objective of this paper was to explore the current extent of AI usage in seven different Thai businesses and how that would change in years to come, with a focus on its impacts on employability. The results of the study would also be a contribution to the scant literature on AI in Thailand.

Four research questions guided this study:

1. How much is AI currently used and how much has it taken over jobs in the selected organizations?
2. Who has been affected by AI, and how do selected employees feel towards these changes?
3. What is the amount of resistance to the introduction of AI in the selected organizations?
4. What is the future of AI in the selected organizations, five to 10 years from now?

Methodology

The research methodology employed for this research study was a qualitative and exploratory one that relied on a convenience sampling method. As this study was relatively new and exploratory, the most appropriate methodology selected for the study was the narrative analysis employing in-depth interviews. Seven different businesses were involved in this study and a participant from each of these businesses engaged in a 30–45-minute interview at their offices or over a business meal. Each of these participants was in a management position in their respective organization. The interview protocol included four parts (total of 14 open-ended questions): Part 1: Demographics (4 questions); Part 2: AI Usage in the Organization and the Readiness for Change (5 questions); Part 3: The Feelings towards AI (3 questions); and Part 4: AI in Five to 10 Years (2 questions).

Results

Demographics

A total of seven persons participated in this qualitative study (Table 1) and they represented the top-tier in each of their respective businesses in Thailand: Airlines, Auditing & Consulting, Banking, Finance & Securities, Higher Education, Insurance, and Textbook Publishing,

Table 1. Demographics

No.	Industry	Number of Employees		Position	Gender	Age Range	Degree
		Local	Worldwide				
1	Airline	22,000	-	Captain	Male	51–55	Bachelor
2	Auditing & Consulting	2,000	276,005	Director	Female	36–40	Bachelor
3	Banking	20,000	-	AVP - Computer services	Male	41–45	Master
4	Finance	550	27,175	Chief Information Officer	Male	41–45	Master
5	Higher Education	12,000	-	Professor	Female	51–55	Doctorate
6	Insurance	350	40,000	Senior Executive VP	Male	56–60	Master
7	Textbook Publishing	12	5,000	Assistant Sales Manager	Female	41–45	Bachelor

Theme 1: Current AI Usage

The amount of AI usage varied across the various businesses. The participating textbook publishing business was an international organization that had reported the highest AI usage level in this study. With reference to her organization, the participant mentioned that AI was expected to have a larger impact on operations in other countries than in Thailand. AI had been used in developing products to meet the digital trend, such as the customer database system and the marketing platform that provided updated information to better facilitate productive work. The Banking participant reported an extremely low 10% AI usage, as it was still in the process of developing AI banking services for future launching. As for the Auditing and Consulting business, the participant said that:

> We are still in the early stages of AI and there is still a lot of research that still needs to be done in the accounting field such as Accounting Standards. Complex problems, how they are analyzed and interpreted, and the principles used are also entered into the computer system. A lot of research, both external and internal are currently done to feed data into the computer. We currently have a search engine, but it would be much more developed in the future when AI completely kicks in and takes over.

The Airline business reported an AI usage of 30% in its flight operations and the marketing database. The insurance business that participated in the study reported no AI usage as people were still significant in the insurance business in driving sales. Only 20% was used in the participating Finance & Securities business. In fact, AI was hardly used internally as it had outsourced its tasks to vendors who specialize in AI cyber security monitoring. The Higher Education participant, who represented the public university, stated that there was no current AI usage as “the university is very traditional and although the amount of automation has increased, the amount of AI has not yet been employed. Moreover, AI is expensive, and the university does not have the funds to support that.”

Theme 2: The Victims of AI

Some departments in the Textbook Publishing business had been discontinued in some countries and the functions were centrally operated in a specific country in a region. Aside from that, the

number of persons needed to perform in a department had also been reduced, such as a reduction from 10 to four editors for the entire region. Other departments, such as the IT and inventory, had been outsourced to more efficient third parties. Everyone was affected, with some departments having been eliminated. The number of employees had been reduced due to restructuring. As for the Banking business, as of the interview date, the adoption of less than 1% of technology had caused a closure of approximately 8% of its total branches, with the shift to conducting online financial transactions. The main future victims of AI would be those working in stand-alone branches, as they will gradually close down and employees would be laid off. The ones with job security would be those employees working in shopping malls. Although AI has not had an impact on employment in Auditing and Consulting, it had been predicted that the headcount would reduce greatly, and new graduate hires would decrease by 66% in five to eight years from now. Many would be affected, particularly those who are engaged in routine work and paper-based jobs. Despite the 30% AI usage in Airlines, the participant said that "AI cannot take over humans as humans are the main component. AI is used in the management of the airline system as the data can be used in predictions to increase to its optimal performance, but AI cannot think." Non-skilled employees would be most affected as they would eventually lose their jobs to AI. AI had not taken over jobs in Finance and Securities and the participant stated that "AI and robots will not replace people." No parties have been affected yet as AI had not entered into the company. In the field of Higher Education, the participant said that AI had not taken over any jobs. In fact, it was suggested that there would be no terminations, as it was a public educational system that had a no termination policy. There would just be no more hiring as there had been a big decrease in student enrolment and a reduced government budget.

As AI gradually phases in, new graduates will have a more difficult time getting a job, particularly if they do not have unique or special skills. Many existing jobs will be affected and disappear altogether such as accounting, administrative staff, finance, front office jobs, unskilled jobs, and routine jobs. Employees will just have to try to adapt to technology all the time to maintain their employability. Those who do not embrace technology will have to leave, particularly the older ones.

Theme 3: Current Employees' Feelings towards AI

Many participants stated that the general employees' feelings to AI were dependent largely on the generation and past experiences with AI. The new generation was reported to have positive feelings towards AI, as they see them as tools that would be there to help them in getting their jobs done. Aside from that, the younger generation with the tendency to job hop, feel that their jobs are only temporary and do not mind the AI revolution. What they value is not the position or occupation as they have a more entrepreneurial spirit and could resort to selling things on the internet if things did not work out for them in the workplace. This coincides with the literature that states that despite the AI threat, Millennials were confident in their ability to adapt (Canada Newswire, 2019). Those who have the most to lose and have the greatest fears are the older generation, as they felt that "AI was bothersome" and had feelings of insecurity as the "tools and trends would take over their jobs." Those who are open to AI see it as a valuable tool to help them work better and those with positive experiences towards AI view it in a more positive manner, while those who have had bad prior AI experiences would be more likely to oppose its usage, become fearful, be closed to the AI idea, and resist by not adapting.

The fear in the Banking business was strong as they "were afraid of the future because AI was fast approaching and when it arrives, it would mean that staff would no longer be needed. Everyone is expecting to be laid off but with a good severance package." The unskilled and those who do not develop their skills to cope with new technology would be the ones who would be directly affected by AI. Although some employees had expressed their concerns about AI, Participant 6 (Insurance business) mentioned that it "would be necessary to communicate that AI is impacting the entire world and so, employees would also have to adapt and get along with it." Employees who had been impacted by automation have expressed their fears when it had been first introduced because they did not understand and felt threatened as AI had taken over some job. They were also said to be "still adjusting

to robotic process automation which as the pre-requisite to AI introduction in the future" (Participant 4, Finance and Securities business).

Theme 4: Readiness to Change and AI Preparedness

The readiness to change and AI preparedness were at different levels. Organizations that were expecting the changes that would come with AI had higher levels of readiness to change while others took it rather badly. The banking employees were expecting a big transformation to happen and so they were accepting of it and everyone was reported to be eagerly waiting for the big severance pay package. Airline employees had to adapt to AI as the airlines is part of the Star Alliance and adapting to AI usage was mandatory to remain competitive and aligned with other Star Alliance airlines. The younger generation had adapted well, while the older generations, who were not as tech savvy, had a more difficult time. Finance and Securities employees would be equipped with the necessary know-how to transition when AI invades the workplace in the future, as professionals and consultants would be engaged to conduct the necessary training sessions. They are currently gradually adapting to the robotic automation and the next step forward would be the introduction of AI. As it is the norm, employees who encounter difficulties of adapting would leave and this was true in the Textbook Publishing business. A small percentage (3%), who could not accept the change, left the firm even though the organization had prepared them for the change by creating the awareness for change, and made efforts directed at changing the employees' mindset by providing training sessions during a very reasonable transition timeframe of three years. Moreover, incentives were also used to reward employee performance that aligned with organizational goals.

Theme 5: Resistance to Change

As Banking employees were extremely accepting of change because of the impending large severance package, there was basically no reported resistance to change. Participant 2 (Auditing and Consulting) stated that "as the firm is an international and global one, all its branches have to comply once the direction comes from the parent firm. There would be no resistance but only resignations." The amount of resistance in Airlines was more evident with high resistance coming from two groups: Unskilled and older employees. The older employees would not adapt to new requirements and, as they normally held senior positions, and were said to be "powerful and nothing much could be done, and they couldn't be terminated either." When organizations handle change well, the amount of resistance will be low. The Textbook Publisher was headed in the right direction as:

> The resistance was minimized by conducting training sessions and seminars to create awareness and change the mindset of its employees. Moreover, those sessions provided an opportunity for the management to listen to employees' problems, and they tried to solve, answer, and clarify them. Those who could not accept the changes merely left the organization, while the silent resisters; usually the seniors, would just stick to their own ways of doing things (Participant 7).

Theme 6: AI in Five to Ten Years

The anticipated usage of AI in the next five to 10 years is detailed in Table 2 (please see following page). The table records the generalized reflections of the interviewees.

Discussion

Theme 1: Current AI Usage and Theme 6: AI in Five to Ten Years

The current AI usage in the seven participating businesses in Thailand was at relatively low levels. The textbook publishing business topped the list, while both the Banking and Auditing and Consulting businesses are currently developing AI for future usage. AI could be an outsourced service, as illustrated in the case of the Finance and Securities business, where external experts in the field were employed instead of developing AI from within the business. This was very different when compared to developed countries, where AI plays a tremendous part in the finance industry (Crosman, 2017).

However, that could be because AI is still in its early stages in the Finance and Securities business in Thailand, as stated by Participant 4 (Finance & Securities). A future shift is expected towards the consulting business with AI backing in years to come, which will then be aligned with the literature ("AI? It's not Sci-Fi Anymore," 2017; Atkinson, 2017; Crosman, 2017). The nature of businesses also had an impact on AI employment, as reflected in the Insurance and Higher Education businesses. Conducting insurance sales is not an AI specialty, while no funding and traditionalism in the public Higher Education organization would be hindrances to embracing AI.

Table 2. Prediction of AI Usage in the Next 10 Years

Business	AI in Five to 10 Years
1. Airlines	The increase in AI usage would result in a decreased demand for people but this increased collaboration of humans and technology will increase productivity.
2. Auditing and Consulting	The technical team will be replaced by AI, approximately 50% of the tax and legal advisory team will disappear, and 30% of the auditing jobs will disappear.
3. Banking	All stand-alone branches will be closed and only mall-branches will be open for loans and wealth-management departments. It is expected that 50% will lose their jobs (front office), while back-office staff will be able to retain their jobs.
4. Finance and Securities	There would be a move toward the consulting business with AI working behind the scenes, and humans on the front-line, consulting customers with AI- to support consultations.
5. Higher Education	AI will not completely take over jobs, as the public university system has a very conservative HR system that disallows AI from removing current jobs. Moreover, there may be laws to protect the organization from AI.
6. Insurance	The "push strategy" is used in this business and people are needed to create a need to purchase insurance through personal contacts, which AI cannot accomplish. AI can handle certain operations but that would be limited as many operations need to be handled by humans, such as handling insurance claims which requires intuition in decision making. AI software are usually in English. The programs would not only need to be translated into Thai, but other cultural factors would need to be factored in.
7. Textbook Publishing	Big downsizing in worldwide offices will occur with the elimination of offices in some countries, particularly those that use English. The surviving offices will be those that use their own native tongue in everyday business operations.

Things would be very different once AI is in place five to 10 years from now. Downsizing and restructuring would be evident (Lee, 2017), requiring revised business strategies needing continuous adjustments ("How AI Powered Robots," 2017). Human and technology collaborations would increase, resulting in higher productivity at the expense of massive layoffs, lowered recruitment, and huge social problems in the next two to three decades (Brown, 2016). It was also clearly evident in the study that, although some jobs would disappear, new jobs would be created, and there would be shifts in businesses (Garwood, 2018; Hawser, 2019). Language is an important determinant of the future as countries using English will find themselves using more AI due to AI software availability in English. Non-English speaking countries will be a little slower in catching up. As stated by a participant, AI is costly, and therefore, not necessarily embraced by every single business.

Theme 2: The Victims of AI

The entry of AI in the Textbook business had caused a huge job displacement (Hawser, 2019; Lee, 2019) through a tremendous restructuring of the organization and it is ahead of other businesses in

this manner, with other businesses following suit once AI kicks into full utilization in the years to come. Many employees are currently still unaffected as AI had not invaded the workplace, but a few have found themselves laid off, thus creating a wave of what the others would potentially experience in the near future. Those holding jobs that can be automated or taken over by AI stand to lose the most, and this includes not only the unskilled but professionals as well, which aligns with the literature (Atkinson, 2017; Rotman, 2017). The massive potential layoff in the banking industry anticipated in Thailand is similar to the large layoffs in the banking industry experienced elsewhere (Hadley, 2017; Hawser, 2019). The potential banking victims of AI, who know that they would be laid off with a huge compensation package, are fully prepared and do not show resistance towards this impending change. Others were more optimistic, viewing the collaboration of humans and technology in achieving higher productivity levels that creates synergy (Andra, 2017). There is an assurance that terminations would never happen in some sectors, as in the case of the Higher Education business (public), since there are regulations against terminations and potential future laws issued to protect jobs. This ostensibly provides them with a safety net and is similarly to the literature on Japanese jobs, particularly semi-skilled or unskilled, that are relatively safe under Japan's protectionism policy that places an emphasis on full-employment. Its factories may be fully automated, but this has no toll on human employability, unlike the West, where humans are gradually replaced by AI (Simons, 2017). France also has taken the lead in protecting workers who have been laid off as a result of AI as it considers passing a legislation that would grant them consultant and compensation rights. To help slow down the pace of social disruption caused by AI, some have proposed that taxes be imposed on AI usage (Barrow & Olaye, 2017). The threat of AI in the Airlines business, however, is minimal as "AI cannot take over humans as humans are the main component" in the airline business (Participant 1). This is a good example of a service industry that is still highly reliant on humans to function, but this might not hold true in years to come if AI finds a way into the airline industry. Labor demand will decrease and the recruitment of new employees, particularly future university graduates would be at much lower levels once AI is in place (Participants 1 and 2). There will be winners, losers, and higher levels of job turbulence in the upcoming years (Grose, 2017).

Themes 3 to 5: Current Employees' Feelings towards AI; Readiness to Change and AI Preparedness; and Resistance to Change

One's generation, tech savviness, and experiences with AI were the main determinants of how an employee would feel towards AI. The younger generations, Gen Yers and Gen Zers, who are more technologically prone and are more exposed to AI, have a much more positive and enthusiastic perspective of AI as they see AI as a tool, rather than a threat. Gen Xers, on the other hand, depending on where they stand, will determine how they feel and view AI. Those who are open-minded, flexible, adaptive, and try to upgrade themselves and bear a positive attitude towards AI, will fare well. On the other hand, older generation, the Baby Boomers have the most difficult time as they may view AI as being "bothersome," with the fear that their jobs would be replaced by AI, and therefore, their feelings would be much more negative. This was in contrast with the literature that stated that the younger generation were more worried compared to the older generation (Saran, 2017).

The readiness and AI preparedness are very much aligned with the attitude of the employees as well as the organization's significant role in bringing about the transition and empowerment (Lee, 2017). One way to combat this AI takeover and keep their jobs is to embrace it by learning how to use it as a tool, and work alongside it to improve their performances to survive (AI? It's not Sci-Fi Anymore, 2017). Organizations that communicate well and provide training sessions contribute to increase the levels of employee readiness to change and prepared them better for working with AI. Employees need retraining and assistance to cope with drastic changes brought in by AI (Boulton, 2018; Ketter, 2017; Lee, 2017). Not everyone is accepting of AI, and these employees are the ones who would leave the organization.

Resistance to change is normal and at varies at different levels in any organization. Creating the awareness through education and effective communication are essential in reducing this resistance

(Palmer et al., 2017). A good example was the case of the banking business. The employees were aware of the upcoming change and they were accepting of it because the management had communicated effectively the change that was to come and informed them of the large severance package that they were to receive as a result of it. The result was no resistance but only waiting for that day to arrive. The textbook publisher also handled the change extremely well, and the result was either resignations or silent resisters who were usually the seniors. Other businesses would not be as fortunate as they may have to comply with whatever orders come from the headquarters that would apply to all its worldwide branches and it would be a matter of either comply or leave. As in the case of the airline business, that is locally owned, the resistance displayed by the unskilled would probably be ignored, but the resistance from the powerful senior management would come in the form of silent resisters who may get away without adhering to the new requirements. This is an indication that resistance to change is also affected by one's position and authority in an organization, as well as when one works for a branch office that does not have a say when the orders come from the headquarters.

Conclusions

It was interesting study that each business reported different angles and approaches to AI and the changes impacting employability, thus adding invaluable insights to this study. For instance, being locally owned or foreign owned had different percussions, and one that was operated under the government, and an organization that had powerful senior resisters at the hierarchy were indications that AI and its impacts would definitely not be linear. There were a few similarities, but also interesting differences that had been outlined in the results of the study. The results of the study align with the literature that stated that Thailand is much slower in switching to AI (Nguyen, 2018). Although the amount of AI usage was still minimal in the seven businesses in this study, this is bound to change in the future. AI is and will continue to bring about a tremendous revolution in the industry and business (Andra, 2017). As AI is not cheap and the documentation needs to be translated into the Thai language, which might not be economically beneficial, the amount of AI that will be employed in Thailand would vary across different types of businesses and display different timelines within the country. This means that the impact on unemployment would also be highly dependent on this. Organizations need to be proactive to support employees through the transition and to keep them to in pace with this new dynamic emergent revolution (Thomas, 2018).

The government and businesses need to work together in coming up with a contingency plan for future scenarios, both predictable and unpredictable (Hadley, 2017), as these AI-induced changes would have a tremendous impact on society (Brown, 2016). To maintain one's employability for the upcoming future, it is necessary to upskill in order to survive the transitory phase of the adoption of AI (Jahn, 2017, as cited in Nicholas & Sacco, 2018) and be able to cope with the disruptions that come with it (Grose, 2017). Although AI will affect some jobs, "they won't kill off businesses or industries" (Barrow & Olaye, 2017, p. 20). A 2017 survey reported that AI will take over jobs in the next five years in Asia-Pacific while 6.6 million employees will find their jobs redundant in the six largest ASEAN Countries of Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam, by the year 2028 as a result of robotic automation and AI adoption (Hawser, 2019). This increases the risk of further unemployment in these developing countries, while other arguments were for new technological product and service innovations that could lead to more employment (Tyagi, 2017).

Limitations and Recommendations for Further Study

The main limitation of this study was the inability to cover more businesses. Recommendations for further research would be to replicate this study in one specific industry involving more competitive businesses, and then replicating it again in about five years.

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Effects of a Health Education Program on Eye Care Behaviors of Selected Students in Saraburi Province Who Wear Contact Lenses

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Abstract

This quasi-experimental research aimed to study the effects of a Health Education Program on eye care behavior of 30 students who wear contact lenses and were selected by using purposive sampling. The educational program consisted of education, guidance, and support to create an environment that promoted self-care. Data were collected using a questionnaire for eye health care behavior, and analyzed by a *t*-test. The research found that students' eye care behavior improved after being exposed to the educational program ($t = -8.15$, $p < .05$). Therefore, instruction concerning proper eye care and performing continuous follow-up helped to enhance proper eye care behavior. This especially included seeking prompt assistance from an ophthalmologist when eye abnormalities were experienced, removing contact lenses before showering or swimming, using the hands to gently rub and clean the lenses, reading or writing in a well-lit place with materials about 300 mm away from the eyes, and eating foods that were high in vitamin A or carotene to nourish the eyes. These behaviors helped to prevent eye problems associated with wearing contact lenses.

Keywords: *Health education, eye care behaviors, contact lenses*

Introduction

At present, many individuals experience eye problems such as short-sightedness (myopia), long-sightedness (hyperopia), or astigmatism. These problems result in the reduction of vision efficiency as well as cause obstacles in life. Medical developments can be implemented to solve such eye problems; methods include wearing glasses or contact lenses, and lens replacement surgery.

Contact lenses were created to solve visual problems that would help wearers improve their visual acuity. Some benefits of contact lenses include correcting eye disorders such as myopia, hyperopia, astigmatism, elderly vision (presbyopia), myopic control orthokeratology, and aphakia, as well as treating eye diseases. Nowadays, in addition to having contact lenses that are used to correct eye problems, fashion contact lenses are also used for beauty purposes (Supiyaphun & Jongkajornpong, 2018).

Contact lenses are widely used throughout the world. According to a survey done in the United States from a group of people over the age of 18, there were 40.9 million individuals using contact lenses (Cope et al., 2015). Since the invention of contact lenses, their popularity and usage–particularly amongst teenagers in Thailand–has grown significantly. They use them to enhance beauty rather than for solving visual problems. In addition, they are influenced by foreign actors from Korea, Japan, and other places who make the trend of wearing contact lenses more popular. Contact lenses have become very popular among teenagers and adults. Using contact lenses gives more flexibility than using glasses. They can give a wide-angle image view, and are also inexpensive. However, there are disadvantages related to maintaining cleanliness, ease of wearing, and product durability. Recent studies have shown that people who wear contact lenses have a moderate level of knowledge, especially on the advisability of using contact lenses beyond the appropriate time, but they lack awareness of the need for regular eye examinations (Homsombat, 2015).

Literature Review

In Thailand, wearing contact lens is popular among both high school and university students. This represents a developing trend, for in the past, contact lenses were worn only by university students,

especially in Bangkok. The literature indicates that the age of teenagers who wear contact lenses is decreasing. Pavasupee (2016) collected data from high school and university contact lenses wearers. The average age of starting to wear contact lenses was 16.8 years old, while the youngest was 13, and the oldest was 20 years old.

Wearing contact lenses will be a rising trend in the future. Correct instruction on how to use contact lenses safely, and complications arising from wearing such lenses, is not always taught (Pavasupree, 2016). There are risks of infection if the wearer has the wrong method of maintaining cleanliness or storing lenses. Pavasupree's (2016) survey found that more than 99% of contact lenses wearers practiced unhygienic behaviors that made them vulnerable to infection, and exposed them to other risks in using contact lenses. One in three contact lenses wearers reported having red-eyes or painful experiences that caused them to visit the doctor. Moreover, many people may be at risk from severe eye infections on account of wearing bad contact lenses and using improper care behaviors (Cope et al., 2015). The study of Pavasupee's (2016) cross-sectional study examined care and usage practices, as well as complications arising among teenage students (*N* = 140) who wore contact lenses. It was found that 76.4% of students had complications after wearing contact lenses; the majority of these were burning eyes (45.9%), dry eyes (32.7%), itchy eyes (13.1%), and corneal ulcers (1.9%). Eye health care issues have been studied elsewhere, too. In the United States, it was found that problems occurring among teenagers were that they did not go to see the doctor for regular eye examinations after wearing contact lenses, they slept while still wearing contact lenses, and they even wore contact lenses while swimming. These behaviors caused conjunctivitis and eye pain until treated by an ophthalmologist (Cope et al., 2017).

Results reported from the Department of Ophthalmology, Faculty of Medicine Ramathibodi Hospital, Mahidol University, among 435 patients indicated that 18.6% of those who received treatment were contact lens wearers. Of these, 34% of users wore contact lens incorrectly, and 67% did not remove their lenses while sleeping at night. In addition, contact lens users were more prone to having corneal infections that may spread and lead to corneal replacement surgery (Food and Drug Administration, 2011).

It is evident from review of the literature that wearing contact lenses may solve vision problems, or it may contribute to beauty. But incorrect or inappropriate usage may be harmful to users, leading to cornea infections, conjunctivitis, and other problems that may be severe to the point of going blind. Likewise, many contact lens wearers are teenagers. The research team saw the importance of promoting proper eye care behavior among school-age contact lens wearers. So a Health Education Program was created using the Orem Self-Care Theory framework to encourage contact lenses wearers to practice better self-care behaviors.

Orem's Self-Care Theory (2001) is a widely accepted theory in nursing science. It states that each individual has the potential to act deliberately to fulfil a goal, along with the ability to learn about themselves, to plan and record self-care activities, and to foster a relevant environment that cannot be separated from social interactions. Nursing is a health aid consisting of purposeful and deliberate action to help people who are unable to take care of themselves in order to maintain life and a healthy state, and to cure disease or help patients adapt to the effects of disease. Orem's Self-Care Theory is a grand-level nursing theory that has an important concept to be applied in this research. It is a theory that leads to the creation of a nursing model referred to as the relationship between the patients and the nature of nursing. The nursing system involves delivering services that change according to the ability and the needs of the patient's self-care. It has an educational component (Orem, 2001).

This study was created under the concept of an Educative Support Nursing System. The steps adopted in this study were guiding, supporting, managing the environment, and teaching in order to give knowledge. Then people who use contact lenses will able to take care of their eyes properly. Clients with health problems or people at risk of developing impaired health conditions are unable to modify their behavior and their lifestyle patterns. Therefore, nurses must assist in solving their shortcomings by means of guidance, teaching, support, and encouraging patients to maintain good health, well-being, and the quality of life (Wongsri & Chintapanyakun, 2018). This concept can be

applied through health education programs. Such programs involve a learning experience that has been appropriately designed to encourage individuals to change their health behaviors voluntarily, to increase their ability to control disease-causing factors, to live healthy lifestyles and to make independent decisions in order to improve their health and the environment.

Objective, Hypothesis, and Conceptual Framework

Objective

To compare the eye care behaviors of students who wear contact lenses before and after receiving the Eye Care Health Education Program.

Hypothesis

The eye care behavior of students who wear contact lenses was better after receiving the Eye Care Health Education Program than before receiving the program.

Conceptual Framework

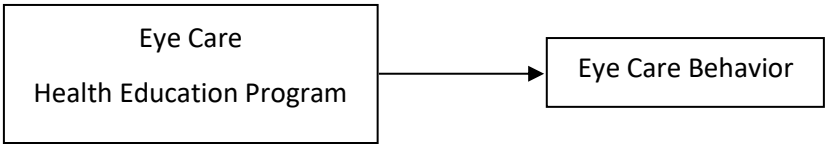

Figure 1. Conceptual Framework of Eye Care Health Education Program

An Eye Care Health Education Program was created as a support and education system based on Orem's Self-Care Theory (Orem, 2001) and related research. The program was as follows:

1. Guiding the sample group by building relationships with them. Communicating and guiding them together regarding how to take care of their eyes.
2. Supporting them physically and mentally by encouraging students to have confidence in caring for their own eye health without causing complications. Demonstration and reverse demonstration for students so they could be confident in performing eye care, and using various contact lenses accessories properly.
3. Preparing suitable eye care accessories for properly wearing contact lenses, and suggesting appropriate places for storing them.
4. Teaching by providing information followed by discussion, and providing illustrations through videos about choosing contact lenses, caring for and cleaning contact lenses, eye care complications from using contact lenses, and how to conduct oneself when wearing contact lenses.
5. Demonstration and reverse demonstration for the correct usage of the contact lenses and cleaning the accessories that are needed to use contact lenses.

Methodology

Design

This study used a quasi-experimental approach to investigate the effects of receiving a structured eye health care education program on the eye health care behaviors of students after using contact lenses. A one-group pre-test–post-test research design was used.

Population and Sampling

The variables studied included:

1. The population were high school students in Saraburi Province who wore contact lenses.
2. The sample group came from Muak Lek Witthaya High School students who wore contact lenses (*N* = 30).
3. The sample group was selected by purposive sampling with the following features:

Inclusion Criteria

1. Aged between 15–18 years.
2. Use of contact lenses for visual acuity and/or cosmetic purposes at least once per week.
3. Obtained consent to participate in the research project, from both the sample group and their parents.
4. No hearing problems.
5. Had a personal mobile phone.

Exclusion Criteria

1. Undergoing treatment for eye disorders.
2. Intellectual disability.

Research Tools

The research tool for collecting data was based on an eye health care behavioral questionnaire developed by Sitthajarn (2009). This questionnaire was named 'The eye health care behavior of students using contact lenses in Bangkok.' It was created in harmony with Rosenstock's health beliefs, along with those of Backer and Maiman, together with information gleaned from the literature review. It consisted of 20 questions. Respondents' answers were recorded on a five-level scale: practice regularly, practice frequently, practice moderately, practice once in a while, and never practice. Each question received a score of 1–5, and the total scores were between 20–100 points. An overall high score meant that the eye care behavior was good.

The questionnaire was examined for content validity, content coverage, and the appropriate usage of language. These assessments were completed by three experts: two by nursing instructors, and one by an ophthalmic nursing specialist. Then the Content Validity Index of the revised questionnaire was calculated, and it was 1.0.

A reliability test was completed on the questionnaire after it had been verified by the reviewers, and it was modified to suit the content and language of the students chosen. The results from this were used to analyze the questionnaire's reliability by using Cronbach's Alpha Coefficient formula (Cronbach's Alpha Coefficient = .73).

Data Collection

In this research, data was collected from 30 students who use contact lenses and were studying at high school level in the Muaklek Wittaya High School. With the coordination of the school, the researchers requested permission to use the location from the school director, and requested signed consent from the parents of the students in the sample group.

Step 1

The research team surveyed the names of students who wore contact lenses. Then using purposive sampling, they selected students who met the sample group criteria. From the list.

Step 2

The research team visited the sample group, asked for personal information, and evaluated eye health care behaviors using the eye health care behavior questionnaire before the experiment (pre-test).

Step 3

The research team conducted an eye examination and assessed the appropriate use of contact lens accessories, such as lens container and lens cleaner solution in the sample group. They also made some adjustments so that accessories were appropriate, and gave the right contact lens accessories for individual use.

The health education proper eye care topics for contact lens wearers included knowledge about contact lenses, types of lenses used, contact lens accessories, correct usage of contact lenses, proper hand washing, proper behavior while wearing contact lenses, wearing time, keeping the accessories

clean, using the correct solution, maintaining cleanliness in personal hygiene, potential complications, observation of abnormalities after using contact lenses, and general eye care. The teaching was done in groups.

Demonstration and reverse demonstration of eye care–together with the practice of looking after the accessories and storing contact lenses–was done for each individual. Assessments of self-efficacy and attitude of eye care readiness were completed. In addition, detecting problems and practicing the solutions to these problems was also undertaken.

Eye care manuals were given out to the sample group so that they could review their eye health at home.

Step 4

The eye health care practice of individuals was followed by inquiring and advising clients via the phone once a week for 60 days, for a total of eight times. Each time, the researchers looked for problems and solutions for each individual so that they would be able to practice eye health care properly. The sample group continued to practice this for 90 days.

Step 5

After receiving the health education program for a period of 90 days, the research team met with a sample group to assess their eye care behavior by conducting the eye care behavior questionnaire (post-test).

Data Analysis

Descriptive statistics were used to analyze the personal data of the sample group. These included frequency distribution and percentage, along with calculation of the mean and standard deviation of the sample group's eye health care behavior scores before and after the experiment. Then, the mean scores of eye health care behavior before and after the experiment were compared with a paired *t*-test statistic at the statistically significant level of .05.

Results

The demographic data gathered are shown in Table 1. The majority in the sample group were females (93.3%). Two-thirds were in grade 12. Most of these were wearing contact lenses more than eight hours per day. The types of contact lenses used were optical and fashion lenses (36.7% each). Almost half of the survey group used contact lenses mainly for correcting eye disorders.

Table 1. Demographic Data of the Sample Group

Characteristic		Number of Students	Percentage
Gender	Male	2	6.7
	Female	28	93.3
Grade Level	Grade 10	5	16.7
	Grade 11	5	16.7
	Grade 12	20	66.6
Duration Wearing	1–2 hours/day	3	10.0
Contact Lenses per Day	3–4 hours/day	2	6.7
	4–5 hours/day	5	16.7
	6–7 hours/day	6	20.0
	8 hours/day	3	10.0
	> 8 hours/day	11	36.6
Type of Contact Lenses	Optical lenses	11	36.7
	Color lenses	11	36.7
	Both	8	26.6
Reason of Using Contact	Eye sight problem	14	46.7
Lenses	Good looking	9	30.0
	Both	7	23.3

Characteristic		Number of Students	Percentage
Frequency of Using Contact Lenses	1–2 days/week	4	13.3
	3–4 days/week	3	10.0
	5–6 days/week	6	20.0
	Every day	7	23.3
	Uncertain	10	33.3
Experience Using Contact Lenses	< 1 year	13	43.3
	1 year	8	27.0
	2 years	4	13.3
	3 years	4	13.3
	4 years	1	3.3
Experience Facing Eye Problems	Not experienced	28	93.3
	Experienced	2	6.7
Type of Eye Problems	Corneal ulcer	1	3.3
	Conjunctivitis	1	3.3

The frequency of wearing contact lenses was uncertain among a third of the group. Most of the students (43.3%) in the sample group had a time frame of using contact lenses less than a year. Most students (93.3%) never experienced any occurrence of abnormalities from wearing contact lenses. Only two students experienced problems, and these were caused by eye infections leading to corneal ulcers.

From Table 2 it is observed that the average eye care behavior of students who wore contact lenses after the experiment improved ($p < .05$) as a consequence of following the Health Education Program of eye care.

Table 2. Comparison of Eye Care Behavior Regarding Before and After the Experiment

Comparison	Mean	*SD*	*t*- value
Before the experiment	85.33	7.01	-8.15*
After the experiment	91.10	7.98	

*$p < .05$

The behavior of each student is shown graphically in Figure 1. The majority of students showed better eye care behavior scores at the completion of the experiment than at its commencement.

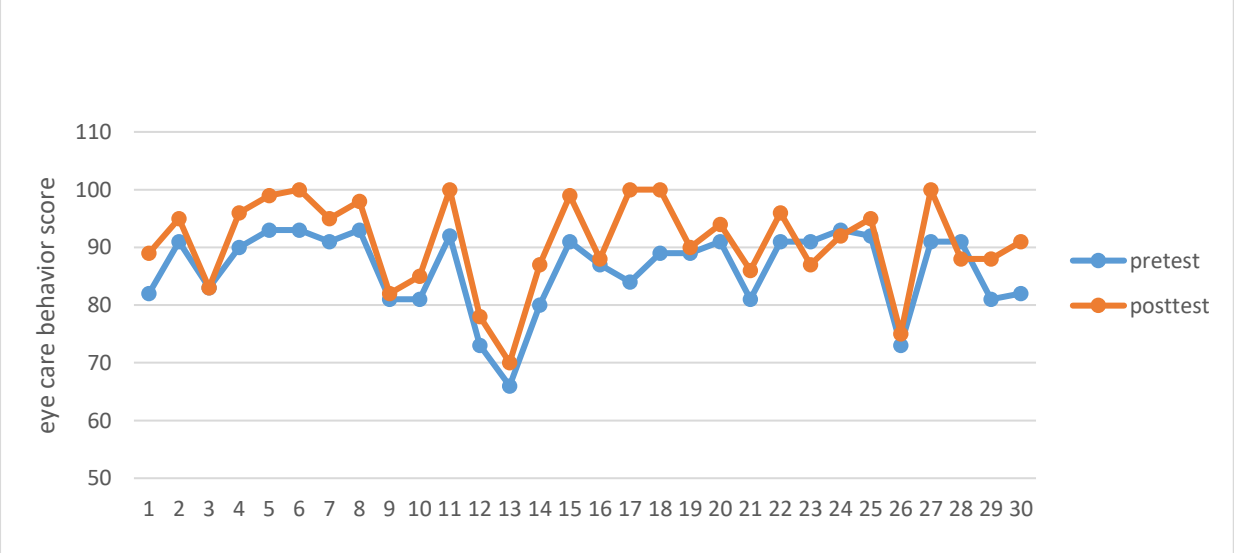

Figure 1. Comparison of Pre-test and Post-test Eye Care Behavior Scores for Individual Students

Discussion

The eye care behavior of students who wore contact lenses and received a Health Education Program improved after they undertook the program, which was as hypothesized. Their behavior scores were at a very good level. The behaviors displayed were: Seeking prompt evaluation by an ophthalmologist when there were abnormalities with the eyes, removing the contact lens before showering, removing the contact lenses before swimming, using the hands to gently rub and clean the lenses, reading or writing in a well-lit place (about 300 mm away from the eyes), and eating foods that were high in vitamin A or carotene to nourish the eyes. The results of this experiment were consistent with Tepsuriyanont and Chaichanawirote's study (2017), in which they found that factors affecting corneal inflammation were knowledge about preventive measures, attitudes about preventive behavior, recognition of corneal inflammatory preventive behavior, having and accessing resources related to the prevention of corneal inflammation, having social support in the prevention of corneal inflammation, and adopting preventive behavior following corneal inflammation.

The eye care Health Education Program also included acquiring systematic knowledge about contact lenses, specifics of eye care while using contact lenses, the prevention of complications, the exchange of opinions, attitudes, preparation, and evaluation of accessories suitability, and following up the results for continuing health care. Having the correct eye care behaviors will help to reduce complications that can occur to the eyes caused by wearing contact lenses. For example, the removal of contact lenses while swimming can help to reduce eye inflammation, because wearing contact lenses while swimming increases the occurrence of *Acanthamoeba* keratitis due to the coagulation of contact lenses' silicone hydrogel with *Acanthamoeba*, an organism which is present in the pool. However, if an individual is looking for clarity of vision while swimming, then wearing disposable contact lenses is a solution. After every use of contact lenses, they must be cleaned by gently rubbing the contact lenses, because wearing contact lenses will cause the proteins, fats, and bacteria to stick to them. If the lenses are not gently rubbed by hand, these substances will remain and accumulate, causing inflammation and infection of the cornea.

Wearing contact lenses for a long time and wearing them while sleeping are important factors in the development corneal infection. Bacteria keratitis occurs due to the prolonged contact of lenses with the eyes, causing corneal anoxia without any symptoms, which causes corneal ulcers and subsequent infections. Therefore, the duration of wearing contact lenses should not be longer than eight hours. Changing contact lenses at specified intervals is important in reducing accumulation of residues and germs (Pavasupree, 2016).

This research focused on providing health education about the severity of eye diseases, the benefits of performing eye care, and the risk of experiencing eye complications to achieve awareness and the practice of correct eye care behavior. Delivering health education was found to help those who used contact lenses to have appropriate knowledge to practice correct preventive principles, to recognize when their behavior was not practiced correctly, to control occurrence of eye complications themselves, and observe the abnormalities of complications.

This type of result was in accordance with the study of Khamvicha and colleagues (2014) who developed self-care behavior protocols for people with high blood pressure. Their scheme provided knowledge and encouraged exchanging knowledge among groups. This resulted in a perceived self-care ability to control and prevent disease at a higher level, and was also consistent with other studies on health education in patients with other diseases. For example, Trakulldist and Ronnahongsa (2016) studied the benefits of health education services for diabetic patients at Uttaradit Hospital, Thailand. They found that benefits flowed from health education services provided by nurses and an interdisciplinary team. These services were in the form of behavioral development through learning activities using various techniques, whether in counseling, motivating people individually and in groups, helping clients to learn from others when faced with illness, and adjusting their lifestyles and health management.

Papomma (2016) also studied the benefits of health education on acquisition of knowledge and the attitudes and practices of diabetic patients in the community towards reducing blood sugar levels.

It was found that providing health education at the primary health services level had a direct impact on client practices, but knowledge and attitudes were not related. It follows that health education programs should be developed suitable for the context of each area, and those who provide health education must be people with true knowledge.

Conclusions and Implications

The wearing of contact lenses is very common today. While they offer benefits, incorrect health care practices may cause many complications. For example, the occurrence of infection in the eye, conjunctivitis, ulcers in the eyes, and eye pain may result in decreased vision and require time to cure, hence wasting medical resources. Therefore, those who wear contact lenses must have knowledge and self-care ability leading to correct and continuous eye care behavior. In the current study, it was found that the sample group cooperated well and participated in health education learning activities, trying to follow through according to the advice given. This excellent result may have been because the sample group gained knowledge from the Health Education Program, actively exchanged knowledge with the researchers, and were motivated to see the benefits of practical learning, thus causing them to be confident in taking care of themselves. The concept of nursing is to promote, prevent, treat, and restore. Therefore, nurses play an important role in promoting knowledge so that contact lens wearers can practice using accessories and look after their eyes correctly. They also have a role in preventing complications among contact lens wearers by following up and monitoring potential hazards.

This study can be used as a guideline for promoting the health of people who wear contact lenses. The role of nurses is not just within the hospital, but they also have an important role in proactive health promotion by providing knowledge to prevent the occurrence of disease in normal and at-risk people. They help to prevent the occurrence of complications from existing diseases, and to prevent relapse from illnesses for people in the community. The school environment is a place where proactive health promotion is relevant, but there is still a need for cooperation of individuals in the community. Cooperative parties might include parents, other individuals, and the teachers in the school in order to change health behaviors, to reduce risk factors and unhealthy impacts, and to encourage correct health behavior. This study showed that a health education program in eye care improved healthy eye care behavior. Nurses could use this program as a model for health promotion in order to prevent complications from wearing contact lenses.

In Thailand, contact lenses are not widely worn in the country side, while in Bangkok, there are many users. Thus, public health organizations in Thailand do not have strict policies to promote heath for contact lens wearers. Correct instructions on how to use contact lenses safely is not general knowledge provided in schools or hospitals either. Users usually looked for information about contact lenses, such as how to wear and care for them, from the Internet or from retailers. Since some of them are not medical professionals, they may give incorrect information. For this reason, nurses or medical professionals can apply a health education program to promote health among contact lens users. This is especially relevant for public health nurses, who give health promotion information to persons in the community and to students in schools. Moreover, a campaign is needed to encourage users to buy contact lenses from hospitals, medication clinics, or drug stores in order to get the right information.

Limitations and Recommendations

This study was conducted on adolescents who were studying in high school in a rural community. The value of using contact lenses was not very extensively understood and the population size was limited. Contact lenses and their accessories, including eye care equipment and research resources, were also limited. Therefore, it would be advantageous to investigate a wider population dealing with a broader age range of adolescents and including adolescents in urban areas.

Suggestions for further research are several: Apply the technology for providing health care knowledge for Thai teenagers including studying the sufficiency of resources for the eye care after using contact lenses; develop a health promotion model for using contact lenses by supporting and

encouraging teenagers' parents; and involve school educational personnel in participating in multidisciplinary health programs.

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The Influence of Corporate Social Responsibility on Brand Trustworthiness, Perceived Brand Quality, Brand Attitude and Purchase Intentions: The Case of a Leading Vietnamese Sausage Manufacturer

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Abstract

The influence of corporate social responsibility practices on customer perception of brand quality, trustworthiness, attitude and purchase intentions were examined among Vietnamese consumers of processed meat (sausages). Responses (*N* = 595) were collected in Ho Chi Minh City through a convenience sampling technique. Structural equation modeling was used for hypotheses testing. The findings revealed that intention to purchase sausages was influenced by corporate practices across the domains of environment, community, and food safety. However, social practices did not influence brand trustworthiness, and environmental and social practices did not affect perceived brand quality. The management of food manufacturing companies should pay more attention to corporate practices related to food safety and environmental concerns in order to build up positive brand trustworthiness and brand attitude, which could help improve company sales. Corporate social responsibility marketers may monitor return-on-marketing investment by measuring customers' brand perceptions in order to launch cost-effective programs.

Keywords: *Social responsibility, trustworthiness, quality, safety*

Introduction

Quality is one of the key factors that contributes to customers' satisfaction and sale revenue (Garvin, 1984), particularly product quality and the quality management system (Elshaer, 2016). In the food industry, several other product characteristics are directly related to customers' food purchasing intentions beyond quality, such as food safety, cleanliness, and nutrition (Nawi & Nasir, 2014; Niraj & Sanjeev, 2015; Norshamliza & Peter, 2015). Customers also have health and environmental concerns, so food safety and eco-friendliness are emerging as selection criteria in food purchases (Kianpour, Jusoh, & Asghari, 2014). Brand is strongly important for buying decisions made by customers (Aaker, 1996; Osselaer & Alba, 2000; Khan et al., 2016), and corporate social responsibility (CSR) also has an effect on consumer attitudes and purchase intentions (Magnusson et al., 2015).

Limited studies have focused on the relationship between brand and CSR-related activities, specifically in the food industry, and its influence on customer purchase intentions. In the food supply chain, CSR practices could be used as a method to create a corporate image of societal responsibility in various fields such as animal welfare, biotechnology, environmental concerns, fair trade practices, occupational health and safety, and labor and human rights (Maloni, 2006). By doing so, corporations are actually sustaining their businesses by practicing CSR and satisfying consumers at the same time. Prior studies in the food industry context have examined dimensions of CSR, including the environment, human responsibility and product responsibility (Anselmsson & Johansson, 2007; Ha, 2016; Morgan, 2016).

This study was undertaken to shed light on the influence of CSR practices on customer purchase intentions. Aspects considered include food safety, brand trustworthiness, perceived brand quality, and brand attitude.

Literature Review

Corporate social marketing (CSM) was defined to cover CSR practices that use firm resources to support social welfare (Andreasen & Drumwright, 2001). A CSM program focuses more on imagery-related associations than product-related information. It can enhance brand equity, including brand awareness, image, credibility, feeling, community, and engagement (Hoeffler, 2002). The CSM may favor establishment of a positive brand image in customers that inspires them to become kind, generous, and do good things. Customers may make certain judgements and experience various feelings linked to the brand.

Several studies illustrate the influence of environmental CSR on consumer perceptions, purchase intentions, and satisfaction. Researchers have also found positive relationships between environmental CSR (a "green" corporate image, such as pollution prevention, energy conservation, and sustainable development) and perceived brand quality, brand preference, and customers' satisfaction (Liu et al., 2014). Recently, eco-friendliness was suggested for inclusion in product quality dimensions in addition to the 8-dimension definition of Garvin (1984). This is because a majority of respondents consider environmental friendliness as a basic quality requirement (Kianpour et al., 2014).

Customers' food safety perception is called *risk perception*, and it impacts customer consideration in choosing food brands. Thus, quality and safety perception are linked to food choice (Grunert, 2005).

Brand image and brand attitude play important roles on customer engagement, and generate brand trust and brand love (Han et al., 2019). Perceived quality and brand image have a direct impact on trust, and trust is significantly associated with brand value. Customers develop trust in a brand based on their evaluations of its trustworthiness (Chiang, & Jang, 2006). Further, brand attitude and customers' purchasing intentions may be related positively to their attitudes and evaluation of corporations' CSR practices (Lee, & Qu, 2010).

Hypothesis Generation

Based on the literature cited above on CSR, the following hypotheses were generated and placed in a conceptual framework (Figure 1).

H_1: Environmental CSR (ENV) positively influences brand trustworthiness (BTS).
H_2: Environmental CSR (ENV) positively influences perceived brand quality (PBQ).
H_3: Social CSR (COM) positively influences brand trustworthiness (BTS).
H_4: Social CSR (COM) positively influences perceived brand quality (PBQ).
H_5: Food-safety CSR (FST) positively influences brand trustworthiness (BTS).
H_6: Food-safety CSR (FST) positively influences perceived brand quality (PBQ).

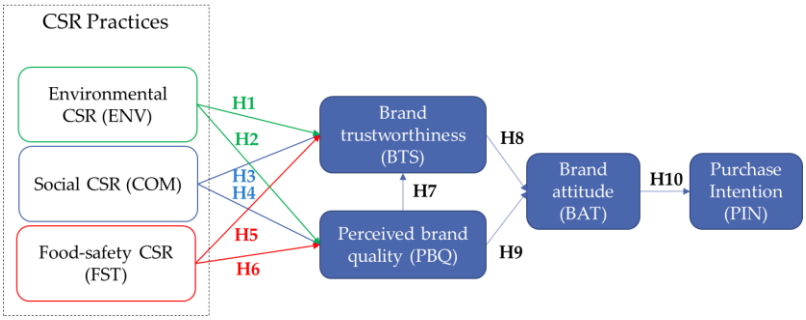

Figure 1. Conceptual Framework

In the area of food safety, customers' choice of a food brand was considered an important factor. Hence, hypothesis H_7 was generated to understand more about brand trustworthiness and how it is influenced by perceived brand quality. Brand image and brand attitude may also play important roles in customer engagement and generate brand trust and brand loyalty. To further understand the roles of perceived brand quality and brand trustworthiness in explaining customer brand attitude,

hypotheses H_8 and H_9 were generated. Finally, the influence of a customer brand attitude was included in hypothesis H_{10}.

H_7: Perceived brand quality (PBQ) positively influences brand trustworthiness (BTS).
H_8: Brand trustworthiness (BTS) positively influences customer brand attitude (BAT).
H_9: Perceived brand quality (PBQ) positively influences customer brand attitude (BAT).
H_{10}: Customer brand attitude (BAT) positively influences customer purchase intentions (PIN).

Methodology

This study was initiated to fill the knowledge gap regarding influence of CSR practices (community support, environmental protection, and food safety) on levels of brand trustworthiness, perceived brand quality, brand attitude, and purchase intentions specifically relating to a leading sausage manufacturer in Ho Chi Minh City, Vietnam. The definition of terms utilized in the study are detailed in Table 1.

Table 1. Definitions and Operational Definitions

Variables	Definition (from Previous Studies)	Operational Definition (for This Study)
1. Environmental CSR (ENV)	Demonstration of responsible environmental care practices in supply chains, e.g., managing waste to protect water, soil, and air from pollution, and consuming energy responsibly (Maloni, & Brown, 2006).	Company X operates responsibly in their production system to protect the environment from harmful and wasteful usages.
2. Social CSR (COM)	Activities that provide support for the local community, e.g., social activities; support government and NGOs and caring for future generations (Maloni, & Brown, 2006).	Company X acts for society's benefits and contributes their resources to support the well-being of the society.
3. Food safety CSR (FST)	Activities/practices that ensure product safety, food security, protect consumers from diseases and food risks, and promote a healthy lifestyle (Maloni, & Brown, 2006).	Company X takes responsibility for their products, minimizes potential risks and ensures food safety was maintained from start to finish.
3.1. Product responsibility (FPR)	The activities/practices related to product safety, R&D, responsible declarations and labelling (Anselmsson, & Johansson, 2007)	Company X acts responsibly to ensure the products' safety and for accurate information on the packaging.
3.2. Quality of Food Risk Management (FRM)	Activities/practices related to protection of public health by controlling risks as effectively as possible via selection/implementation of suitable measures (Van Kleef et al., 2007)	Company X have adequate resources to manage food risks and make their products safe to eat.
3.3. Traceability (FTR)	Information necessary to describe production history of a food supply chain from the grower to the consumer (Gellynck & Verbeke, 2001)	Company X tracks product information related to ensure contributing factors can be identified in case of food incidents.
4. Brand trustworthiness (BTS)	Confidence a consumer places in a firm as to whether its actions would be in consumer's interest (Lassar et al., 1995)	Company X operates its business with honesty and consideration of consumers' interest.
5. Perceived brand quality (PBQ)	Consumer's judgement about product's overall excellence or superiority (Zeithaml, 1988)	Consumers perceive products of X's brands have a superior level of quality
6. Brand attitude (BAT)	Function of associated attributes and benefits that are salient for the brand (Keller, 1993)	Overall feeling of consumers toward benefits of products under X's brands.
7. Purchase intention (PIN)	Likelihood that buyer intends to purchase the product (Grewal et al., 1998)	Intention of consumers to buy X's products

CSR practices adopted were company actions, programs, or policies toward society as responsible business operators. The sausage industry is a segment of the food industry that includes all

stakeholders in the supply chain, such as livestock, manufacturers, retailers, and consumers. Sausage manufacturers produce and supply all types of sausages to Vietnamese consumers, including sterilized, pasteurized, fresh, and smoked sausages.

Exploratory research was used in the study. Customer purchase intentions was the dependent variable, and three dimensions of CSR practices (i.e., environmental, social, and food safety), brand trustworthiness, perceived brand quality, and brand awareness were used as independent variables. Scaled items for all variables were subjected to Item Objective Congruence (IOC) testing and refined according to an expert's suggestions. For the environmental and social dimensions of CSR, scale items were adapted from the work of Liu et al. (2014), while the food safety dimension was adapted from several sources (Anselmsson, 2007; Van Kleef et al., 2007; Singh, 2008; Gellynck & Verbeke, 2001). For Brand Trustworthiness (BTS), scale items were based on Lassar et al. (1995). Scale items for Perceived Brand Quality (PBQ) were adapted from Aaker (1996). Brand Attitude (BAT) and Purchase Intentions (PIN) were based on Spears and Singh (2004) and Grewal et al. (1998), respectively. The scale items for all constructs were measured using a five-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*).

A draft questionnaire was developed from previous studies and modified according to results of IOC testing. For the pilot study, the modified questionnaire was translated from English to Vietnamese using a back-translation technique, and 32 respondents were surveyed in Ho Chi Minh City. Instrument reliability was evaluated through Cronbach's Alpha (CA) with a cutoff point of .70 (Hair et al., 2006). Cronbach's Alpha from the pilot test ranged from .83 to .95, showing high internal consistency. Exploratory Factor Analysis was used in a preliminary analysis to identify problematic cross-loading items.

Based on the results of the pilot study, the questionnaire was refined for the main data collection in Ho Chi Minh City, which is the largest city in Vietnam in terms of both population and economic growth. Per capita Gross Domestic Product of the nation at the time of the survey was US$2,385, while Ho Chi Minh City returned a value of US$5,538 (Deloitte, 2018).

In total, 620 questionnaires were distributed to customers who bought sausage products from Company X from January to March 2019 using a convenience sampling technique. The questionnaires were handed to shoppers passing through sausage display areas in convenience stores and supermarkets. After screening incomplete and invalid responses, 595 responses were used for further statistical analysis (96% response rate).

Results

Female and male respondents accounted for 83.4% (*n* = 496) and 15.5% (*n* = 92), respectively. People buying sausages at least once a week (daily and weekly) accounted for around 50% of respondents. Most respondents (73%) lived in five districts of Ho Chi Minh City, including No. 12 district, No. 6 district, Tan-Phu, Binh-Tan, and Tan-Binh. The average skewness and kurtosis of all measuring items was -1.09 and 0.71, respectively, which means that the data was normally distributed (cut-point +/-2.0; George, 2016).

In Table 2, Confirmatory Factor Analysis (CFA) results showed that all fix indexes matched the model fit criteria referred to by previous researchers. Three sets of CFAs were run as follows: (1) ENV, COM, FST; (2) BTS, PBQ, BAT; and (3) PIN. In the CFA results, all composite reliability results were higher than the threshold (CR > .70), ranging from .886 to .979. The average variances extracted were also higher than the cut-off value (AVE > .50), which confirmed both scale validity and convergent validity (Bagozzi, 1980; Fornell, & Larcker, 1981). The comparative fit index for each CFA was higher than the cut-off value (CFI > .95), and the standardized root mean square residual exceeded the requirement (SRMR < .08) (Hooper et al., 2007). Acceptable fit indices rely on the combination strategy of Hu and Bentler (1999), where CFI > .95 and SRMR < .08.

Table 2. Results of Reliability Analysis, Confirmatory Factor Analysis (CFA)

Reliability Test		CFA			
Criteria	**CA (> .7)**	**CFI > .95; SRMR < .08**	**CR > .7**	**AVE > .5**	**MSV < AVE**
ENV	.907		.886	.722	1.038
COM	.910		.911	.719	1.038
FST	.978	CFI = .952; SRMR = .029			
FPR	.955	GFI = .873; CMIN/*DF* = 5.543	.979	.782	0.632
FRM	.960				
FTR	.926				
BTS	.930		.931	.770	0.857
PBQ	.936	CFI = .979; SRMR = .017 GFI = .949; CMIN/*DF* = 4.796	.923	.800	0.904
BAT	.953		.948	.819	0.904
PIN	.949	CFI =1.00; SRMR = .004 GFI = .998; CMIN/*DF* = 1.494	-	-	-
MODEL	-	CFI = .951; SRMR = .025 GFI = .854; CMIN/*DF* = 3.665	-	-	-

Note: CA: Cronbach's Alpha; CFI: Comparative fit index; GFI: Goodness of fit index; SRMR: Standardized Root Mean Square Residual; CMIN/DF: Minimum Discrepancy; CR: composite reliability; AVE: average variance extracted; MSV: maximum shared variance.

In Figure 2, path analysis was conducted by using Structural Equation Modeling to test the hypotheses with a 95% confidence level ($p < .05$), whereby modification indices and fitness indices were used as references. Correlations among the three variables were identified: ENV and COM ($\beta = .526$, $p < .01$), ENV and FST ($\beta = .476$, $p < .01$), COM and FST ($\beta = .468$, $p < .01$).

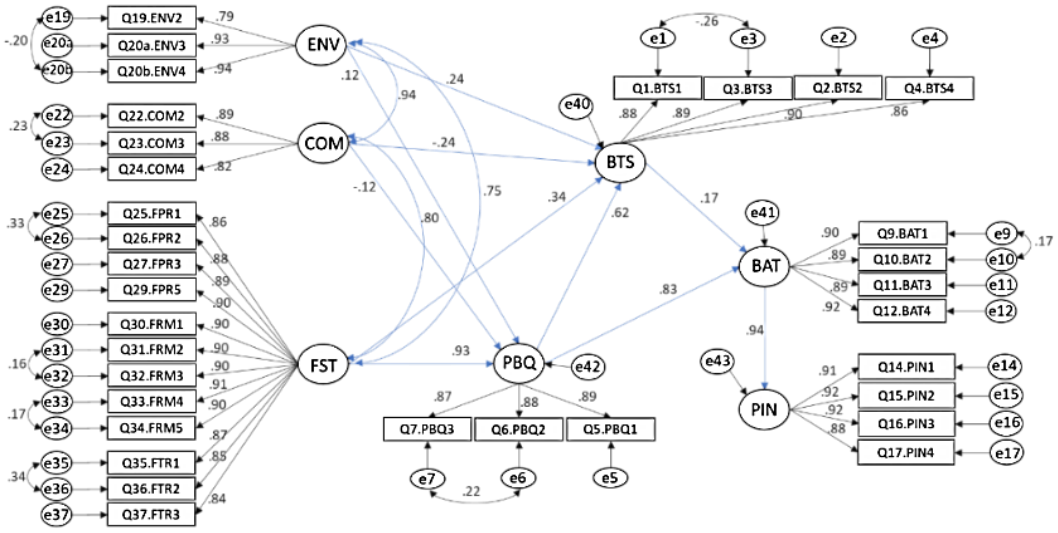

Figure 2. Summary of Structural Equation Modeling and Fit Indices

Note: CFI = .951; SRMR = .025; GFI = .854; CMIN/*DF* =3.665; ENV and COM: $\beta = .526$, $p < .01$; ENV and FST: $\beta = .476$, $p < .01$; COM and FST: $\beta = .468$, $p < .01$

A summary of hypothesis testing results is shown in Table 3. The data showed that perceived brand quality was significantly influenced by CSR practices related to food safety (H_6), but not by CSR practices related to environmental and social factors (H_2, H_4). Brand trustworthiness was positively influenced by CSR practices related to the environment and food safety, as was perceived brand quality (H_1, H_5, H_7), but it was negatively influenced by CSR practices related to social issues (H_3).

Perceived brand quality and brand trustworthiness exerted positive impacts on brand attitude (H_8, H_9), and in turn brand attitude positively affected customer purchase intentions (H_{10}).

Table 3. Hypotheses Testing Results

Hypotheses	Structural Path	Path Estimates	Standard Error	Significance Level	Conclusion
H_1: Environmental CSR (ENV) positively influences brand trustworthiness (BTS).	ENV → BTS	0.235	0.085	.006**	Supported
H_2: ENV positively influences perceived brand quality (PBQ).	ENV → PBQ	0.115	0.085	.176	Rejected
H_3: Social CSR (COM) positively influences brand trustworthiness.	COM → BTS	-0.255	0.105	.016†	Rejected
H_4: COM positively influences perceived brand quality.	COM → PBQ	-0.129	0.105	.219	Rejected
H_5: Food-safety CSR (FST) positively influences brand trustworthiness.	FST → BTS	0.317	0.073	**	Supported
H_6: FST positively influences perceived brand quality.	FST → PBQ	0.855	0.042	**	Supported
H_7: Perceived brand quality positively influences brand trustworthiness.	PBQ → BTS	0.621	0.074	**	Supported
H_8: Brand trustworthiness positively influences customer brand attitude.	BTS → BAT	0.169	0.069	.015†	Supported
H_9: Perceived brand quality positively influences customer brand attitude.	PBQ → BAT	0.848	0.074	**	Supported
H_{10}: Consumers' brand attitude positively influences their purchase intentions.	BAT → PIN	1.039	0.032	**	Supported

Note: (*) $p < .05$, (†), $.01 < p < .05$, (**) $p < .01$

Discussion

The detailed results showed that perceived brand quality was significantly influenced by CSR practices related to food safety (H_6), but not by CSR practices related to environment and social issues (H_2, H_4). This phenomenon is consistent with previous research in Vietnam, as urban consumers may have primary concerns regarding product responsibility related to health and food safety (Ha, 2016). In a study by Morgan (2016), health and safety were rated the highest, and environmental issues as the second highest in CSR practices in fast-food restaurants in the United States. Concerns with environmental and social issues affecting quality may develop over time in Vietnam.

Brand trustworthiness was positively influenced by CSR practices related to the environment and food safety, as well as perceived brand quality (H_1, H_5, H_7), but was negatively influenced by CSR practices related to social dimensions (H_3). The explainable reason could be that customers of Company X were exposed to negative company information that made them skeptical toward CSR practices. Historically (2013), Company X increased egg pricing from VND23,500 up to VND30,000 or VND35,000 without any explainable reason given to the media (newspaper and authorities) on account of the stable market supply at that moment (Hanh, 2013; Hung 2013). This explanation, based

the findings of Bögel (2016), would have significantly decreased consumer trust in the company's CSR activities if consumers had known. Consumer skepticism about a company's CSR activities tends to be higher if they learn about these activities through an external source (Bögel, 2016).

Perceived brand quality and brand trustworthiness exerted positive impacts on brand attitude (H_8, H_9), and in turn brand attitude positively affected customers' purchase intentions (H_{10}). These results aligned with a previous study by Han et al. (2019), who found a relationship between brand trustworthiness and brand attitude.

Theoretical Contribution

This study extended the existing literature by investigating the influence of three dimensions of CSR (namely environmental, social, and food safety), in the context of the food industry, on perceived brand trustworthiness, brand quality, and brand awareness, which lead to customers' purchase intentions. Comprehensive measurement was developed relating to the food safety dimension of CSR practices by including product responsibility, food risk management and food traceability from previous studies (Anselmsson, & Drumwright, 2007; Forsman-Hugg et al., 2013; Ha, 2016; Hartmann, 2011).

Managerial Implications

Management could apply these research findings to develop a comprehensive Corporate Social Marketing program that could improve customers' brand attitude, and increase purchase intentions to sustain competitive advantages over other competitors. Specifically, the management of food manufacturing companies may pay more attention to CSR practices related to food safety and environmental concerns aligned with international standards for food safety management systems such as ISO 22000:2018 or FSSC 22000 (food safety system certification), as well as environmental management systems (ISO 14001:2015). Investing in appropriate CSR practices may build up positive brand trustworthiness, perceived brand quality, and improved brand attitude. These could in turn help increase company sales. CSR Marketers may monitor return-on-marketing investment by measuring customers' brand perceptions (i.e., brand trustworthiness, perceived brand quality, brand attitude) in order to launch cost-effective CSR programs.

For practitioners, managers can implement CSR programs as tools to improve trust and perceived brand quality, and ultimately to gain more sales. Food producers/exporters may need to put greater emphasis on food safety CSR programs. However, all three aspects should be implemented at the same time because they are correlated and support one another. In this study, CSR practices related to social (community support) were not significant, but may cause a reverse effect on customers' brand trustworthiness. The study was not designed to figure out the underlying reason, but it is suggested that management carefully plan a CSR program, especially for companies with prior negative reputations. One suggested solution for such situations was that companies should increase positive CSR awareness by external media reports, certificates, or labelling to improve trustworthiness. CSR information needs to be easily available on packaging or at the point of sale (Bögel, 2016).

Limitations and Recommendations

First, this study was conducted in Vietnam, an emerging developing economy, specifically in Ho Chi Minh City, the biggest economic zone, with triple citizens' purchasing power compared to the rest of the nation. It could not represent all markets in Vietnam. Second, the study focused on one product category (sausages). Consequently, the results might have limitations to explain consumer behavior in other industries. Future research may extend to other economies and/or industries to increase generalizability.

Conclusion

In this study, relationships between customers' perception of CSR practices and motivation to purchase products were investigated. Specifically, the influence of three dimensions of CSR practices (i.e., environmental, social, food safety) on customers' perception were measured. Their perceptions of brand trustworthiness, perceived brand quality, and brand attitude also were examined in relation to purchasing intention of sausages manufactured by a Vietnamese company. The data showed that practices incorporating respect for the environment and food safety were important to Vietnamese customers and subsequently could increase their intentions to purchase sausage products. The findings could help managers develop a CSR Marketing campaign to increase sales.

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Development of English Grammar and Writing Skills Based on Participation in a Peer-assisted Learning Center

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Abstract

In an effort to address undergraduate students' insufficient English writing skills in Thailand, this study incorporated a peer-assisted learning (PAL) center to develop their English grammar and writing skills. This mixed-method (both quantitative and qualitative), quasi-experimental study was done at an international college in Thailand, where the control and experimental groups consisted of 36 and 30 research participants respectively. An additional 30 participants functioned as student-peer mentors (SPMs), providing peer feedback to those students in the experimental group. From the research findings, it was concluded that integrating a PAL center as part of an English course's curriculum can significantly improve student writing skills. However, the participants' English grammar skills did not improve. With universities incorporating more and more academic projects or other courses of actions in order to augment student skills in various areas, PAL centers could be utilized to develop student writing skills. The research implications for this study provide a framework on how further studies might be built.

Keywords: *Peer-assisted learning, English grammar development, writing efficiency*

Introduction

Writing is a complicated talent to hone for both those learning English as their mother tongue, as well as for English as a Second Language (ESL) learners (Nuruzzaman et al., 2018). Educators are presently confronted with how to best teach undergraduate students to write productively (Schicker, 2018), because writing in English language studies is a key element in education (Sevcikova, 2018). Nowhere is this more evident than in Thailand. Recently the Ministry of Education passed regulations stipulating that in order for a student to receive their undergraduate degree, they must first achieve a B1 (intermediate) Common European Framework (CEFR) English level. Since passing this provision, various educators in Thailand have questioning how this task can be achieved on a broad spectrum.

One of the seven key elements in writing is grammar skills; this is a key element that makes writing so complicated (Nuruzzaman et al., 2018). Educators should teach English grammar in a manner that allows people to convey information orally or in writing, and in terms of how receivers can be anticipated to decipher the expressed information (Al-Mekhlafi & Nagaratnam, 2011). To investigate this belief, a study was conducted by Collins and Norris (2017). They found that student writing skills improved after even a short amount of instruction on grammar skills was imparted. Hence, teachers should pay attention to grammar in education (Farangi et al., 2017). It is a vital element that aids in the development of the four fundamental English language usage skills: speaking, reading, listening, and writing (Rakhmawati & Nirmalawati, 2017).

It is not an easy task to comprehend why educators do not inculcate these much required academic writing skills to their students (Hinkel, 2001). Perhaps a fundamental reason is that teachers cannot simultaneously perform all the necessary roles demanded of them. Thus, student peer-mentors (SPMs) stationed inside a peer-assisted learning (PAL) center can help supplement the material their underclassmen are taught in their English classes by giving them advice on how to improve their grammar and writing skills. SPMs are qualified in a particular area, and they can aid students in their academic development (Pinion & Hinsel, 2019). Moreover, feedback given to peers by peers can be a fundamental aspect of writing pedagogy (Kunwongse, 2013). Maheady (1998) has asserted that PAL scenarios are the most suitable option as a substitute to self-study. Further, as Oliverio (2015) has indicated, the fundamental subject matter of Dewey's Experience and Education

is alive and well today. The communal aspect of a PAL scenario satisfies this, as it advocates genuine language acquisition, people skills, and creates meaningful relationships with fellow students. These factors are all vital to the augmentation of the productive exchange of information and/or ideas (Foot & Howe, 1998).

Prior studies dealing with PAL, which entails students learning from their peers, have focused primarily in areas dealing with medical and dental students (e.g., Bennett et al., 2018; Roberts et al., 2018), rather than ESL students. In terms of PAL, the literature is insufficient when dealing with ESL classroom environments. Thus, there is an incomplete view on how PAL can cultivate either English grammar or writing skills. An influential factor in this study was Rensing et al.'s (2016) study wherein a board game-based PAL study was utilized that encompassed a 6-step process: (a) idea generation, (b) drafting, (c) reading, (d) editing, (e) best copy, and (f) evaluating. The present study did not utilize board games; however, it was centrally based on this 6-step process. As already established, ample PAL research completed in fields associated with medical and dental students has already been done. However, PAL entails a seamless relationship between formal and informal learning environments, and there is incomplete data on PAL when integrating it with ESL learning.

The purpose of this study was to answer the following research questions:

1. Did the English academic writing skills of participants (dependent variable) of a PAL center (independent variable) develop significantly more than those of participants in the control group?
2. Did the English grammar skills of participants (dependent variable) of a PAL center (independent variable) develop significantly more than those of participants in the control group?
3. How did participants and SPMs respond to the PAL center (based on results of the participant focus group)?

More specifically, this research had three objectives:

1. To examine whether student involvement in a PAL center could help develop academic writing skills of undergraduate students in an international college in Thailand.
2. To examine whether student involvement in a PAL center could help develop the English grammar skills of undergraduate students in an international college in Thailand.
3. To analyze the response of the participants and SPMs to the PAL center where the 10-week study took place.

Knowledge produced from this study potentially should enable teachers to successfully establish a PAL center at their schools and integrate it into their ESL learning environment.

The remainder of this article is arranged as follows: First, a conceptual framework is established supporting the participants' involvement in the PAL center. Next, the methodology utilized to gauge the hypothesized effects of study is explained. The findings of the study are then given, followed by a conclusion and directions for future research.

Review of Literature

Theoretical Framework

The theoretical framework for this study is based on the two key elements listed below:

Collaborative Learning Theory

Being a by-product of behaviorism and modern cognitive psychology (Wang, 2011), the formulation of Collaborative Learning Theory (CLT) had very prominent psychologists involved in its establishment, such as Vygotsky, Piaget and John Dewey (Alzahrani, 2016). CLT permits learners to be dynamic and to formulate and decipher their own information acquisition process (Usta & Ayas, 2018). It encourages students to combine information they have with newly acquired information by means of inquiring, scrutinizing, and deciphering (Çimer & Coskun, 2018).

Peer Feedback

Peer feedback (PF) allows students to better comprehend and adapt their written compositions (Saeed et al., 2018), as PF is "a learning strategy in which learners work together and comment on one another's work or performance and provide feedback on strengths, weaknesses, and suggestions for improvement" (Loan, 2017, p. 253). In short, PF is yet another resource available to educators for their students to utilize in both formal and informal settings.

Previous PAL Studies

As previously mentioned, there has been ample research done in the area of medical and dental fields that has produced fruitful results (e.g., Bennett et al., 2018; Roberts et al., 2018). According to a study involving medical students, Usman & Jamil (2019) concluded that PAL schemes can be beneficial for both students and SPMs. For students, 65–75% of them found that the PAL scheme was more advantageous than typical classroom learning, whereas 62% of the SPMs believed that their mentoring responsibilities were positive. Furthermore, 70–80% of the SPMS came to the conclusion that, as a result of mentoring students in the program, they had developed a belief in their teaching abilities.

Although limited, there have been a few studies in ESL that have produced interesting results. Puranik and colleagues (2017) came to the conclusion that improvements in English writing skills could be obtained by utilizing a PAL scheme. The group receiving the PAL treatment showed significantly improved English writing skills over the control group. In a separate study, Moebius (2015) came to the conclusion that a PAL center writing program could be beneficial in preparing students for college level writing.

PAL Benefits and Limitations

There are various benefits to a PAL (Bennett et al., 2018). According to Sevenhuysen et al. (2016), there is ample proof that PAL programs can develop knowledge, belief in oneself, and communication skills, although proactive planning, backing, and assistance is vital in order to reach these goals. In addition, Jellison and colleagues (2017) stated that PAL fosters the elements of collaboration, assistance and education—all elements that result in an environment of acceptance across various borders with constructive and enjoyable outcomes.

Conversely, PAL also can have some limitations. According to McMaster et al. (2006), PAL is not beneficial for everyone. Furthermore, as Bugaj et al. (2019) mentioned, there are size limitations in such an approach, due to the number of students who can be involved in a PAL at one time.

Methods

Participants

The study was conducted at an international college in Pathum Thani, Thailand. The participants were 66 first and second-year students enrolled in an intermediate English course with a Common European Framework of Reference for Languages (CEFR) level of B1 or equivalent. The study also included 30 SPMs registered in an advanced English course with a CEFR level of B2 or equivalent.

Procedures

After receiving ethical approval for this study, the researcher first held mandatory training for all the peer-mentors. As mentioned in the introduction section, this study utilized a quasi-experimental mixed methodology. In order to limit bias, the researcher was not the teacher of the participating students. Therefore, it was decided to make use of two already separated groups of students for the purposes of the study: 30 participants were placed in the experimental group, and 36 students were assigned as the control group. The two groups then completed a sample International English Language Testing System (IELTS) pre-test. The study content for the two groups of students was identical; the only difference was that the experimental group was tasked with attending a PAL center for a 10-week program. During the 10-week treatment stage, each participant was paired up with an

SPM, and for each session they went through the 6-step process outlined in the introduction section: (a) idea generation, (b) drafting, (c) reading, (d) editing, (e) best copy, and (f) evaluating. This process was repeated until the SPM believed the participant's writing was at a satisfactory level (CEFR B2 level). After the completion of the 10-week program, both groups were required to complete a sample IELTS post-test.

Finally, 13 participants were randomly selected (through a lottery system) to participate in a 2-hour focus group. Seven were students who came to the PAL center to receive help with their English grammar and writing skills, and six were SPMs. The difference in the number of students and SPMs in the focus group reflected the total distribution of the participants of the study: 66 students (an aggregate of the control and experimental groups) and 30 SPMs. The focus group questions were divided as follows: (a) analysis of the participants' feedback to the university's Seamless Language Center, (b) benefits of the PAL center, (c) disadvantages of the PAL center, (d) potential improvements that could affect the PAL center, and (e) analysis of the participants' recommendations for the PAL center. The participant focus group responses were video-recorded, and the information was transcribed later. These results were kept confidential, and only the researcher had access to them.

Research Instruments

The instruments used to collect data in this study consisted of the following items: (a) sample IELTS writing pre- and post-tests (Kaplan, 2016), (b) grammar pre- and post-tests (Hopkins & Cullen, 2006), and (c) a student focus group.

Results

Analysis of the Sample IELTS Writing Tests

All the participants of the study took a sample IELTS pre-test prior to the collection of any data. These tests were analyzed using the Statistical Package for Social Science (SPSS). The results revealed that both the IELTS pre-test (p = .079) and the grammar pre-test (p = .207) scores were not significantly different. This finding indicated that both the control and the experimental groups had comparable English grammar and writing skills at the study's outset.

After completion of the treatment and the 10-week study, all participants took a sample IELTS post-test. Subsequently, the quantitative data from the sample IELTS post-tests were analyzed using SPSS. The results are shown in Table 1. The control group showed a mean score lower than the experimental group; the difference was significant at the .01 level. This indicated that the experimental group's academic English writing skills were superior to those of the control group.

Table 1. Development of Participant Writing Skills

Group	*N*	Mean	Std. Deviation	*p*-value
1	36	5.78	1.22	.01
2	30	7.25	0.86	

Analysis of Grammar Tests

In a similar manner, all participants took a grammar post-test after the treatment was completed. The quantitative data from the grammar post-tests were then analyzed using SPSS. The results of the analysis are presented in Table 2. The mean score of the control group was close to, but lower than, that of the experimental group. However, analysis showed that the difference was not statistically different.

Table 2. The Development of Participant Grammar Skills

Group	*N*	Mean	Std. Deviation	*p*-value
1	33	38.91	7.05	.71
2	29	39.62	8.01	

Focus Group

Five questions were posed to members of the focus group. Their responses are presented under the headings highlighted in the Methods section.

Feedback on Appropriateness

After careful analysis of the participant feedback regarding the PAL center, three main points were raised by study participants: (a) helpfulness of the SPMs, (b) new experiences, and (c) felt improvement or gained knowledge.

Of the participants in the focus group, 92% stated that the SPMs were helpful. In the case of this study, the mentors were certainly qualified people, but they were also senior students who had developed advanced English language skills and had already successfully passed the required English courses in which the participants were enrolled. In terms of the SPMs being helpful, the dominant theme brought up by the focus group pertained to the element of collaborative learning. A few students stated that working one-on-one with their SPM was a refreshing experience, one in which they could always learn something new, and through which they could develop skills such as accurate pronunciation.

The second topic discussed by 54% of the focus group participants pertained to the ability to engage in new academic experiences on campus. Participants conveyed their feelings of pleasure in shared learning in the context of an enjoyable environment. All of these factors are basic elements of CLT—being able to synthesize one's existing knowledge with the awareness that it is newly attained in order to gain a better understanding of a particular topic. Another participant asserted that the ability to practice English grammar and writing skills were the benefits received from attending the PAL center. Finally, a few students were complementary about the creation of a socio-cultural experience in a favorable environment which resulted in the ability to develop new friendships both with SPMs and with classmates.

The final topic that was discussed by 38% of focus group participants was the acquisition of knowledge or self-improvement. A few participants stated that they felt their English grammar and pronunciation had improved, and this cognition was in line with the study's theoretical framework, which was based on the belief that peer feedback is a vital element. Another student claimed an exponential overall improvement in English skills. While the present study focused only on grammar and writing, it is understandable that other areas of English abilities could be augmented via interactions between participants and the SPMs because of the efficacy of PF. Lastly, a few other participants felt their writing skills had developed and, as stated earlier, experimental group participants were able to improve their academic English writing skills significantly more than those in the control group.

Benefits of the PAL Center

A substantial 46% of the focus group claimed that working collaboratively with their SPM or working in a social constructivist environment with their classmates at the center helped to better their pronunciation, writing, or grammar skills. A significant 31% of the focus group believed that PF provided a great advantage to them, which is in line with Kunwongse's (2013) assertion. As also stated earlier, 15% of the focus group claimed an increased awareness of deficiencies in their overall English skills. Finally, a focus group SPM claimed that being a mentor also aided in the development of their English skills. SPMs who were able to realize their own English deficiencies were able to improve them through the act of mentoring under-classmen.

Disadvantages of the PAL Center

Not all feedback regarding the SPMs was positive. A couple of participants, while acknowledging the benefits of the study, were critical of some SPMs. The main complaint was that some participants were more proficient in English than some SPMs. Another area of dissatisfaction related to the lack of motivation of a few SPMs. Instead of a particular SPM approaching a participant, the participant had to approach the SPM. Another participant claimed that the assigned SPM corrected mistakes, but was unable to explain the rationale when asked for more information about the error.

Another reported disadvantage indicated by a few focus group members was the atmosphere of the PAL center. Since some participants had created socio-cultural bonds, they apparently decided to ignore scheduled times to come to the PAL center, and would arrive with their friends. Although this experience may have created a bond for the participants, it created a problem for the SPMs, as one SPM would often have to simultaneously handle five or six participants alone.

Improvements Sought by Participants

All the focus group members wanted a few of the SPMs to improve. [This deficiency could result from the fact that mentoring at the PAL center was a requirement for the English reading and writing course in which the upper-classmen were enrolled at the time.] In short, the focus group believed that SPMs should have been uniformly energetic and friendly.

Participant Recommendations for the Seamless Language Center

All the students were clear in asserting that they would recommend the PAL center to their fellow classmates. There were two main reasons attributed to their recommendation of the PAL center to their friends: 92% of the focus group members claimed that the PAL center was beneficial to the development of their English language skills, whether reading, writing, listening, or speaking; and 23% believed the PAL center to be an excellent place to develop friendships outside of the classroom, thus creating socio-cultural relationships.

Discussion

In response to the research questions posed, this study found that academic English writing skills can be improved significantly through utilization of a PAL center. This finding is congruent with studies indicating that a PAL center writing program can be beneficial for underperforming students (Aprizawati & Satria, 2016). Peer feedback can be used as a fundamental aspect of writing improvement. A number of benefits can be gained by using this approach. These include improved abilities to revise work, development of abilities to focus on a global level in writing as against a more restricted level, provided a greater awareness of the need to write to a specific audience, and boosted confidence (Kunwongse, 2013). The addition of a peer feedback module to teacher feedback has been shown, in a Taiwanese study, to improve student performance not only in content, but also in organization, grammar, and style (Tai et al., 2015).

The PAL center used in this study integrated the formal classroom language learning environment with an informal language learning environment. Overall, this framework was shown to be beneficial in the development of the academic English writing skills of participating students. Although the methodology was successful, the participant focus group promoted the idea of using more technology in the PAL center at the conclusion of the study.

The betterment of grammar skills was included in the agenda for this study on the basis that grammar is an integral aspect of the writing process. The study's results suggested that the experimental group's grammar skills developed more than those of the control group; however, this improvement was not statistically significant. According to the public version of the official IELTS rubric (British Council, n.d.), grammar is a part of the assessment, but so are three additional factors: task achievement, coherence and cohesion, and lexical resources. Given this information, perhaps all four components should be analyzed in future PAL writing studies. This would involve using a different experimental format.

Other benefits might also be anticipated. It is almost inevitable that English pronunciation skills could develop in a PAL center as the participants and the SPMs are required to work collaboratively to develop an essay outline. Participating in a PAL environment allowed students to be more reflective with regard to their English language skills, and made them reassess specific areas of improvement. Last but not least, by working in a social constructivist environment within a PAL center, the participants forged socio-cultural bonds and developed friendships with their SPMs, as predicted by Kunwongse (2013). In arranging the mentoring schedule, the researcher made every effort to create a one-on-one plan between participants and SPMs. However, toward the end of the study, a lot of

participants ignored their schedules and took to arriving as a group at the PAL center after their classes had ended. This behavior signaled that the semi-synchronization of formal and informal learning environments augmented the ability of students to develop peer relationships.

The reactions recorded by the learning participants and the SPMs to the PAL center were positive overall. Nevertheless, the parity of desired qualities in all SPMs is a common factor that needs the most attention. Prior to collecting data, the researcher conducted a training program for all the SPMs to clarify their duties, expectations, and the roles they should play in the mentoring of under-classmen. In addition, it was also evident that some SPMs did not possess the English abilities needed to mentor participants with an intermediate level of English proficiency, even though they had successfully completed all the necessary English courses.

Recommendations

The participant focus group results made it amply clear that more attention must be focused on the actual training of SPMs. Moreover, it is highly recommended that all SPMs in future studies should be required to take an English proficiency test to ensure a CEFR score of B2 or higher. Finally, instead of the researcher working directly with 30 SPMs, it is highly advisable to institute a student management team to oversee the day-to-day operations of the PAL center. In this scenario, the researcher would work directly with the student management team, the student management team would work directly with the SPMs, and the SPMs would work directly with the study participants.

It may be worthwhile for future studies to assimilate technology into the mix to create a foundation of connectivity between the two (formal and informal) learning environments. A truly seamless language learning experience can be envisioned in such a scenario. Seamless learning is an emerging, yet promising, field that entails the development of knowledge within the aggregate of four distinct elements: environment, time, technology, and a communal atmosphere (Looi et al., 2019). Fundamentally, a seamless learning environment should integrate formal and informal language learning environments, and provide a smooth transition between the two (Wong & Looi, 2019). Wong and Looi (2019) propose ten characteristics for utilizing technology in such unified learning methodologies to facilitate a harmonious transition within a mobile seamless learning framework. According to these scholars, the learning environment must: (a) consist of both formal and informal learning, (b) embrace personalized and social learning, (c) be able to be utilized across time, (d) be able to be utilized across locations, (e) be capable of providing ubiquitous knowledge access, (f) utilize both physical and digital worlds, (g) offer a combined use of multiple device types, (h) allow for the continuous switching between multiple learning tasks, (i) allow knowledge synthesis for better understanding, and (j) be able to accommodate multiple pedagogical or learning activity models. If adopted, such a framework would allow educators better access to track the progress of the writing skills of their students, and teachers could then take proactive steps to achieve further enhancement of their students' skills.

Limitations of the Study

The findings of the study were based on the utilization of a PAL center at an international college in Thailand, and certain limitations must be acknowledged. First, the facilities within the PAL center were limited in size. Thus, the physical space itself restricted the number of students that could be allowed to be accommodated at the center. Second, the absence of a student management team for the PAL center made the day-to-day operations of the center somewhat problematic. Lastly, only 66 students participated in this study, and only 30 participants utilized the PAL center.

Conclusion

An increasing number of educational institutions across the world are looking for ways to curtail costs even as they raise their academic standards. Thus, educators are always searching for innovative techniques, strategies, methods, and approaches that are suitable to the needs of their students. Such innovative means are highly desired in Thailand, where higher educational institutions face declining

enrolment rates because birth rates are declining and many students choose to study abroad. To cut costs, therefore, many universities are reconsidering blended learning, flipped classrooms, and other such innovative options. The findings of this study underscore the benefits of establishing a PAL center at educational institutions. Thus, they also provide another distinct path through which higher educational institutions can align formal and informal language learning environments, and facilitate a seamless transition between the two contexts.

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Support and Operational Factors Affecting the Success of Community Enterprises

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Abstract

Community enterprises are a community economic development model that aims to raise income levels and the quality of life in communities. Their operations focus on strengthening communities, making them more economically self-reliant, using local wisdom and raw materials, and emphasizing cooperation more than competition. The research aimed to investigate the support and operational factors affecting the success of community enterprises by studying a sample of 257 community enterprises in the Upper Northern Region of Thailand. Information was collected using a questionnaire and analyzed using descriptive statistics and structural equation modeling analysis. The results showed that the proposed model and empirical data were coherent and appropriate. The effect of the variables in the proposed model was as follows: 1) community enterprises' support factors had a direct effect on their success, with a path coefficient of .51 and an indirect effect on their success, with a path coefficient of .29; 2) community enterprises' operational factors had a direct effect on their success, with a path coefficient of .40. These results may be used to clarify key factors that affect the success of community enterprises and provide guidelines for improving the success of community enterprises.

Keywords: *Support factors, operational factors, community enterprise success*

Introduction

Community enterprises are community businesses that create products and services that are made by a group of local people. They conduct business by managing the community's capital so as to effectively and sustainably generate income and improve the self-reliance of families and communities (Department of Agricultural Extension, 2005). Their products or services are created by using community assets (such as knowledge of traditional wisdom, skills, culture, and nature). Their activities emphasize cooperation more than competition. They are economic activities that emphasize local relationships, which provide a sustainable base for both personal and community economic development (Donkwa, 2012).

Information from The Secretariat of the House of Representatives (2018) showed that there are more than 80,000 registered community enterprises in Thailand. Of this number, nearly 60% or 50,000 entities are still in operation, but more than 30,000, or 40%, are in the process of registration revocation or cancellation (Department of Agricultural Extension, 2018). This indicates that they are not as successful as they should be, or encounter problems to the point of having to revoke their registration. If community enterprises are to succeed, it requires the cooperation and modern operational management of people in communities.

From the study of Tantrabundit (2008), the approach to successful community enterprise development must start from building a strong foundation in entrepreneurship for such businesses. They must establish a strong structure before creating other parts, adjust thinking processes and attitudes toward entrepreneurship, develop management processes with a focus on marketing and finance, and receive ongoing support from various agencies. Kenaphoom (2015) studied guidelines for the development of effective community enterprises, and found that certain operational aspects were necessary as follows: 1) develop production capacity and raise product quality standards to national and international levels, 2) expand channels for product distribution, 3) expand network development for promotion of product distribution, 4) strengthen management capacity, 5) provide financial and personnel support for community enterprises development, 6) establish integrated collaboration with

relevant agencies to systematically promote and support community enterprises, 7) develop a strong community enterprises network, and 8) create cooperation between the public and private sectors to help community enterprises become healthy and self-reliant.

The study of Sangayotin (2017) also found that success factors for community enterprise operations consist of the following aspects: 1) leadership of community leaders, 2) unity in group participation, 3) sound management systems, 4) community funding, 5) government support, 6) manufacturing skills and innovation, 7) external support that is consistent with community needs (network construction), 8) leaders with knowledge and abilities, 9) support for particular markets, 10) income-expense accounting with transparency, 11) sound communication systems, 12) product quality and attractiveness that meets consumer needs, 13) availability of equipment and tools, 14) use of local resources and wisdom, and 15) compliance with environmental rules and regulations.

Past studies have demonstrated various vital factors affecting the success of community enterprises. However, that knowledge cannot drive community enterprises to be as successful as they should be. Therefore, more knowledge must be discovered about key factors related to the successful development of community enterprises. Thus, this research investigated the support and operational factors affecting the success of community enterprises by studying with a sample of community enterprises in the Upper Northern Region of Thailand. The results not only clarified important factors that affect the success of community enterprises but also provide guidelines for improving sustainable economic development and construction of strong communities.

Literature Review

Success of Community Enterprises

The success of community enterprises can be gauged through the ability to allocate excess profits to support community activities. Community enterprises with good results and profits from which expenses have already been deducted may authorize their operating committee to divide some profits to support community activities without requiring repayment. Activities that are subsidized consist of activities in four areas were 1) imparting education, 2) imparting assistance, 3) building public utilities, and 4) saving natural resources (Danthanin, 1998; Donkwa, 2012). These were defined as observable variables so as to measure the success of community enterprises in this study as follows:

1. Imparting Education (IED)—educational support to youth in the school system by providing textbooks, lunch meals, sports equipment, and support for study visits and development of youth and villagers.
2. Imparting Assistance (IAS)—impart assistance to young women and men who leave after completing their compulsory education and need funds to start their careers. For the elderly, contribute aid in the form of grants for medical care, as well as assist the disabled in the form of activities support that is appropriate for them.
3. Building Public Utilities (BPU)—build public utilities without using the national budget, but use budgets provided by the Village Development Fund and community enterprises, such as to build village plumbing infrastructure and small concrete roads, and to dredge ponds.
4. Natural Resources Conservation (NRC)—furnish some funding to the community, schools, and outside agencies so as to encourage people in the community to participate in activities that help them appreciate the value of natural resources.

Support Factors of Community Enterprises

Community enterprise support factors are critical factors that allow local community enterprises to initiate and implement sustainable community economic activity (Tantrabundit, 2008). In a previous study, it was found that support factors had a direct effect on the success of community enterprises. These support factors were: 1) human resource development, 2) community organization development, 3) economic infrastructure development, and 4) physical infrastructure development (Kamonthornthai, 2018; Kenapoom, 2015). These four factors were assigned as observable variables for the measurement of support for community enterprises in this study. The variables are:

1. Human Resource Development (HRD)—developing three groups of people, namely: 1) community leaders in the area of knowledge in analyzing the necessity of production, processing, and trade; and ability to contact with external parties; mobilizing people, capital, and administration; and managing production, privatization, and using capital effectively. 2) villagers to be interested in community enterprise activities by developing villagers to have knowledge and ability in the production and processing techniques. 3) relevant officials to have in-depth knowledge of ideology and techniques to stimulate and integrate community enterprises.

2. Community Organization Development (COD)—creating groups and activities that operate with leaders, villagers, and related people working together. Working together in this way is the heart of community enterprises and in line with Thai culture and economic constraints. Rural people support each other, even though they have relatively little capital and equipment.

3. Economic Infrastructure Development (EID)—fundraising from villagers who are interested in production and processing. These funds will be used reasonably, securely, and not fraudulently, which is different from the careless use of government and private funds because villagers do not consider it their own money. Funds may be obtained from savings activities, fundraising, establishing village banks, and providing venture capital for community enterprises.

4. Physical Infrastructure Development (PID)—developing and improving community infrastructure to facilitate operation of community enterprise activities, such as developing electricity and road systems in the community. This includes managing water resources and water supply systems for consumption and production. During the dry season or when there is insufficient rainfall, many villagers find it difficult to obtain adequate water for consumption. Young people in the community who are physically strong will migrate to find work outside the area, which affects the villagers and leads to discontinuous economic activities.

Operational Factors of Community Enterprises

The operational factors that occur in community enterprises include 1) production, 2) consumption, 3) product processing, and 4) sales activities. When the support factors are furnished, these processes can proceed concretely and effectively. Four features were assigned as observable variables so as to measure community enterprises' operational factors in this study as follows (Sangayotin, 2017; Techavanit, 2018):

1. Production (PDC)—managing production costs by using technology or innovation in production, production grouping, and joint learning for production management in terms of product quantity and quality control.

2. Consumption (CSP)—managing group members' consumption expenditures so that they don't exceed the revenue available. This is done by retaining some products for consumption, and some to spend on purchasing additional products for consumption as necessary. Therefore, they must control expenses so that consumption costs do not exceed their existing income.

3. Product Processing (PRP)—grouping product processing using non-complex methods with support from government officials.

4. Sales (SAL)—retail and wholesale product distribution through distributors, and products at a sales price that is aligned with the market price, or having the power to determine the price.

Research Methodology

Conceptual Research Model

The proposed model was derived from a previous study on the conditions facilitating success in Small and Medium Enterprises and Community Enterprises within Thailand, namely: 1) a study of community economies by Donkwa (2012) in northeastern Thailand. The results showed that two key factors that contributed to successful community economies were their push factors and their processes. 2) A study by Techavanit (2018), who examined the antecedents of community enterprises' achievements in Thailand by using a mixed-method approach. The results showed that community enterprise achievements consisted of three key factors: sufficiency economy management,

competitive advantage, and servant leadership. Combining these previous studies (Donkwa, 2012; Techavanit, 2018) with a review of the relevant literature (such as Kenapoom, 2015; Sangayotin, 2017; Tantrabundit, 2008), three latent variables and three hypotheses were identified in the following conceptual research model (Figure 1):

1. Support Factors of Community Enterprises (SFCE) is a latent variable that consists of four observable variables, namely, 1) human resource development (HRD), 2) community organization development (COD), 3) economic infrastructure development (EID), and 4) physical infrastructure development (PID).

2. Operational Factors of Community Enterprises (OFCE) is a latent variable that consists of four observable variables, namely, 1) production (PDC), 2) consumption (CSP), 3) product processing (PRP), and 4) sales (SAL).

3. The Success of Community Enterprises (SUCE) is a latent variable that consists of four observable variables, namely, 1) imparting education (IDE), 2) imparting assistance (IAS), 3) building public utilities (BPU), and 4) natural resources conservation (NRC).

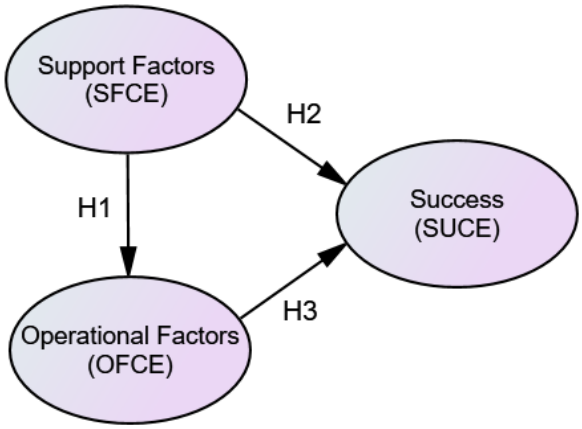

Figure 1. The Conceptual Research Model

Hypothesis 1: The support factors of community enterprises had a direct influence on the success of community enterprises.

Hypothesis 2: The support factors of community enterprises had a direct influence on the operational factors of community enterprises.

Hypothesis 3: The operational factors of community enterprises had a direct influence on the success of community enterprises.

Population and Sample Selection

The study used a quantitative methodology with the unit of analysis being the community enterprise. The population was 16,823 community enterprises in the Upper Northern Region of Thailand that are registered with The Community Enterprise Promotion Division, Department of Agricultural Extension (Department of Agricultural Extension, 2017). The sample size was determined based on Stevens' (1986) criteria, which indicates the sample size for linear structural relationship analysis. There should be at least twenty units per one observed variable . Twelve observed variables were involved, so a sample size of 240 or more was the recommended minimum ($N \geq 240$). The samples were selected from 8 provinces (Chiang Rai, Chiang Mai, Mae Hong Son, Lamphun, Lampang, Phayao, Phrae, and Nan) by a stratified sampling method, with samples in each province determined by population proportion, and selected by a simple sampling method.

Instrument and Data Collection Procedure

The instrument used in the study was a researcher-developed questionnaire, the content validity of which was examined by five experts. The index of item-objective congruence (IOC) for all questions in the questionnaire was higher than .60 (Hambleton, 1984). Then, the questionnaire was tested with thirty respondents who were not part of the sample to determine its reliability using Cronbach's alpha coefficient method (Cronbach, 1951). The reliability of the questionnaire was .85, and the reliability of the support factors, operational factors, and the success of community enterprises were .85, .87, and .90, respectively. Questionnaires were sent via mail to 400 informants who were managers or heads of community enterprises. The respondents were asked to place the completed questionnaires in sealed envelopes, which were then collected in person by the researchers. At the end of the collection period, 257 completed surveys were obtained for analysis, for a final response rate of 64.3%.

Statistical Analysis

The data were analyzed by frequency, percentage, and Pearson's product-moment correlation using IBM SPSS 23. AMOS 23 software was used for structural equation modeling analysis (SEM) to determine the consistency of the proposed model with the empirical data. The goodness of model fit to the data was assessed using Chi-square (χ^2) statistics and fit indices as suggested by Kline (2005), with a Chi-square probability level (*p*-value) of more than 0.05. The value of the relative Chi-square (χ^2/df) is considered satisfactory when it is < 3 in large samples ($N > 200$), < 2.5 in medium-sized samples ($100 < N < 200$), and < 2 in small samples ($N < 100$) (Arbuckle & Wothke, 1999; Byrne, 2001). The value of the goodness of fit index (*GFI*), like multiple r-squared, theoretically ranges from 0 (poor fit) to 1 (perfect fit), and is considered satisfactory when > .90 (Kline, 2005; Schumacker & Lomax, 2004). A value for the root mean square error of approximation (RMSEA) of less than .05 would indicate a "close fit", and a value of .08 or less would indicate a "reasonable fit" (Brown & Cudek, 1992; Kline, 2005).

Research Results

Table 1. Descriptive Statistics of Respondents' General Data

General Data of Respondents	Descriptive Statistics
Gender	Male: 114 (44.4%) Female: 143 (55.6%)
Age	Less than 30 years: 2 (0.8%) 30–35 years: 4 (1.6%) 36–40 years: 10 (3.9%) 41–45 years: 51 (19.8%) 46–50 years: 134 (52.1%) More than 50 years: 56 (21.8%)
Educational Level	Below Bachelor degree: 143 (55.6%) Bachelor degree: 102 (39.7%) Master degree: 12 (4.7%)
Job Position	Manager of community enterprise: 56 (21.8%) Head of community enterprise: 189 (73.5%) Not-specified: 12 (4.7%)
Work Experience	Less than 5 years: 23 (8.9%) 5–10 years: 189 (73.5%) 11–15 years: 40 (15.6%) More than 15 years: 4 (1.6%) Not specified: 1 (0.4%)

* $N = 257$

An analysis of respondents' general data showed that most of them are female (55.6%), aged between 46–50 years (52.1%), with education below a bachelor's degree (55.6%), job positions as

heads of community enterprises (73.5%), and work experience of 5-10 years (73.5%). More detailed descriptive statistics regarding respondents' general data are reported in Table 1.

The general data analysis of community enterprises participants showed that the largest number of community enterprises was located in Chiang Mai (24.3%), their type of business was manufacturing (88.0%), their registered capital was less than 500,000 baht (59.9%), and their period of operation was 5-10 years (56.4%). Descriptive statistics regarding the general data of the community enterprises are reported in Table 2

Table 2. Descriptive Statistics of Community Enterprises' General Data

General Data of the Community Enterprises	Descriptive Statistics
Province	Chiang Rai: 48 (18.8%) Chiang Mai: 63 (24.3%) Mae Hong Son: 11 (0.0%) Lamphun: 18 (12.8%) Lampang: 33 (7.1%) Phayao: 26 (10.1.0%) Phrae: 29 (11.4%) Nan: 29 (11.2.0%)
Type of Business	Manufacturing: 226 (88.0%) Services: 31 (12.0%)
Registered Capital	Less than 500,000 Baht: 154 (59.9%) 500,000–1,000,000 Baht: 65 (25.3%) More than 1,000,000 Baht: 38 (14.8%)
Period of Operation	Less than 5 years: 89 (34.6%) 5–10 years: 145 (56.4%) 10–15 years: 23 (8.9%)

* N = 257

The support and operational factors of community enterprises were correlated with the success of community enterprises at a statistically significant level of .01. The correlation coefficients were as follows：support factors of community enterprises (r = .641(and operational factors of community enterprises (r = .488), as shown in Table 3.

Table 3. Relationship Analysis between Support Factors of Community Enterprises (SFCE), Operational Factors of Community Enterprises (OFCE), and Success of Community Enterprises (SUCE)

Variables	*M*	*SD*	OFCE	SUCE
Support Factors of Community Enterprises (SFCE)	3.96	0.48	.77**	.64**
Operational Factors of Community Enterprises (OFCE)	3.72	0.78	-	.49**
Success of Community Enterprises (SUCE)	4.01	0.46		-

**p < .01

Structural equation analysis conducted to examine the hypothesis model's fit with the empirical data showed that the proposed model was consistent with the empirical data after the model was adjusted with the fit statistics as shown in Figure 2 and Table 4. The Chi-square was significant (χ^2 = 17.807, df = 10, p = .058); the relative Chi-square (χ^2/df) was 1.78. The goodness of fit index (GFI) and the adjusted goodness of fit index were .993 and .949, respectively. The root mean square error of approximation (RMSEA) = .043.

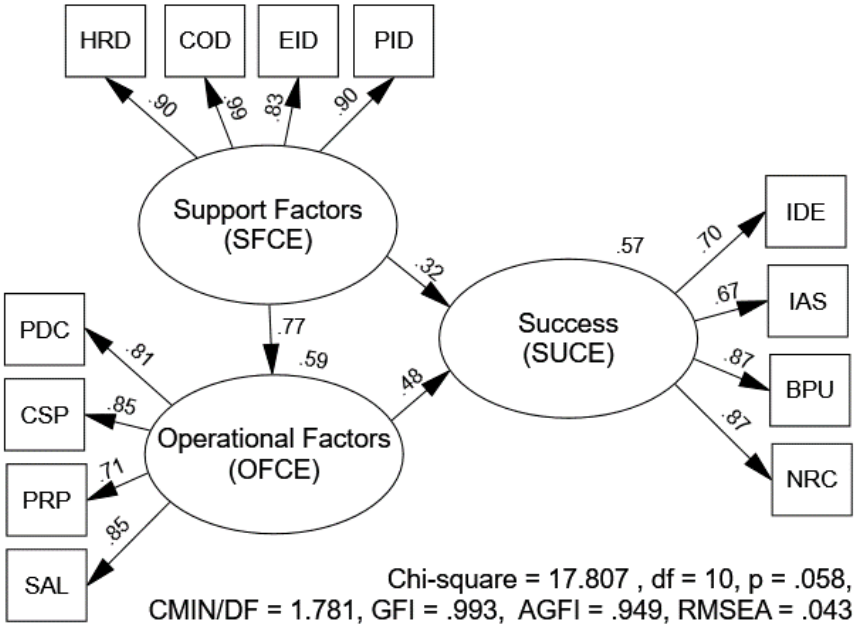

Figure 2. Fit of the Proposed Model to the Empirical Data

Table 4. Consistency Analysis of Proposed Model Compared to the Criteria

Evaluating the Data-Model Fit	Criteria	Statistical Results
1) Chi-square probability level :*p*	*p* > .05	.058
2) Relative Chi-square: χ^2/df	< 2	1.781
3) Goodness of Fit Index :GFI	> .90	.993
4) Root Mean Square Error of Approximation :RMSEA	< .08	.043

Figure 2 shows that the support factors (SFCE) and the operational factors of community enterprises (OFCE) had a direct effect on their success (SUCE). Path coefficients of .32 and .48, respectively, were obtained. The standardized factor loadings of the twelve observed variables that were components of the latent variables were as follows:

1. The support factors of community enterprises (SFCE) were composed of four observed variables that were HRD, COD, EID, and PID. They showed standardized loadings of .90, .99, .83, and .90, respectively.

2. The operational factors of community enterprises (OFCE) were composed of four observed variables that were PDC, CSP, PRP, and SAL. They showed standardized loadings of .81, .85, .71, and .85, respectively.

3. The success of community enterprises (SUCE) was composed of four observed variables that were IDE, IAS, BPU, and NRC. They showed standardized loadings of .70, .67, .87, and .87, respectively.

Data in Figure 2 indicates that the effect exerted by latent variables in the proposed model could be summarized as follows:

1. SFCE had a direct effect on OFCE, with a path coefficient of .77, and could predict 59% of OFCE (Squared Multiple Correlations: R^2 = .59)

2. SFCE had a direct effect on SUCE, with a path coefficient of .32 and had an indirect effect on SUCE through OFCE with a path coefficient of .37 (.77 x .48). Therefore, the total coefficient effect on SUCE was .69 (.32 + .37).

3. OFCE had a direct influence on SUCE with a path coefficient of .48.

The standardized factor loadings of the twelve observed variables were statistically significant at the .01 level, as shown in Table 5

Table 5. Standardized Factor Loadings of Twelve Observed Variables

Variables	Standardized Loadings	*SE*	*t*-value
Support Factors of Community Enterprises (SFCE)			
(1) Human resource development (HRD)	.90**	0.03	27.98
(2) Community organization development (COD)	.99**	0.02	37.05
(3) Economic infrastructure development (EID)	.83**	0.02	26.28
(4) Physical infrastructure development (PID)	.90**	scaling	
Operational Factors of Community Enterprises (OFCE)			
(1) Production (PDC)	.81**	0.06	12.68
(2) Consumption (CSP)	.85**	0.05	19.38
(3) Product processing (PRP)	.71**	0.03	26.24
(4) Sales (SAL)	.85**	scaling	
The Success of Community Enterprises (SUCE)			
(1) Imparting the education (IDE)	.70**	0.05	14.72
(2) Imparting the assistance (IAS)	.67**	0.04	12.01
(3) Building the public utilities (BPU)	.87**	0.05	15.47
(4) Natural resources conservation (NRC).	.87**	scaling	

**$p < .01$

Figure 2 data also showed that the predictive coefficient (Squared Multiple Correlations: R^2) of the success of community enterprises (SUCE) was .57. Therefore, it was concluded that the support factors of community enterprises (SFCE) and the operational factors of community enterprises (OFCE) could together predict 57% of the success of community enterprises (SUCE), with a statistically significant level of .01.

Table 6. Hypothesis Testing Results

Hypotheses	β	*SE*	*t*-value	Summarized
H1: SFCE → OFCE	.77**	0.07	15.05	Supported
H2: SFCE → SUCE	.32**	0.09	4.46	Supported
H3: OFCE → SUCE	.48**	0.07	5.34	Supported

**$p < .01$

Table 6 showed that the hypothesis testing results were as follows:

Hypothesis 1 (*H1*): The support factors of community enterprises (SFCE) affected the operational factors of community enterprises (OFCE), with a path coefficient of .77 at a statistically significant level of .01, which supported Hypothesis 1.

Hypothesis 2 (*H2*): The support factors of community enterprises (SFCE) affected the success of community enterprises (SUCE), with a path coefficient of .32 at a statistically significant level of .01, which supported Hypothesis 2.

Hypothesis 3 (*H3*): The operational factors of community enterprises (OFCE) affected the success of community enterprises (SUCE), with a path coefficient of .48 at a statistically significant level of .01, which supported Hypothesis 3.

Discussion

The proposed model was consistent with the empirical data, which indicated that the community enterprises' support factors and their operational factors affected their success, both directly and indirectly. This is because:

1. The four support factors are important elements that contribute to the development and smooth operation of community enterprises. As well as improving the operations, 1) human resource development allows people in the community to develop knowledge and ability regularly, which results in the determination to benefit the organization, commit to work, and dedicate their ability

and effort to accomplish the work willingly (Kamonthornthai, 2018); 2) community organization development allows people in the community to have a close relationship with the community organization, have confidence, and accept the goals and values of the organization. It is a link between ideas and cooperation between people to solve problems together within the community (Suresh, 2014; Yodsurang, 2017); 3) economic infrastructure development allows communities to have a self-reliant system of capital and financial management (Naulchuen, 2017); 4) physical infrastructure development allows communities to obtain important infrastructure for the operation and management of community enterprises (Donkwa, 2012).

2. The four operational factors (production, consumption, product processing, sales) are community business activities that must start with a community that is ready and has potential. Because initiative must come from the community itself, the parties are just the stimulus and supporters (Danthanin, 1998; Donkwa, 2012). Therefore, the activities of community enterprises, in production, consumption, product processing, and product distribution, must allow people in the community to participate in solving their basic economic problems by themselves.

These consist of 3 problems that are as follows: 1) What will be produced? (What)—is to let the people of the community think together about what products and how much should be produced. This problem is caused by the limited production resources of the community; therefore, they must choose to produce only the necessary products first. In addition, they must consider the number of products suitable for consumption and the exchange of community products, so that the rest of the resources can be used for other essential uses. 2) How will it be produced? (How)—is to let the people of the community consider together how to produce products, and what kind of production to use. It considers what kind of production technique and what production factors should be used, and in what proportions, so as to obtain the highest productivity or the lowest cost. This problem arises because, for each type of product, there are many production methods. Therefore, they must choose the most effective method. 3) Will it be produced for whom? (For Whom)—is to let the people of the community benefit by deciding together for whom the product should be produced and how much should be produced. The community must consider that once the products are produced, how will they be distributed? Should they determine who would benefit from that product and service? (Target Group) and how much will be appropriate (Sangayothin, 2017; Loiwatthanakul et al., 2016)

Conclusion and Suggestions

The results show that support and operational factors affected the success of community enterprises. If community enterprises aim to improve their success, they should develop support and operational factors that are consistent with the findings reported in this article as follows:

1. Develop personnel in three groups who are related to the operations of community enterprises, which are community leaders, villagers, and staff to have the knowledge and ability to analyze and techniques necessary for the operation of community enterprises–namely, production, consumption, product processing, and sales.

2. Develop community groups/organizations to organize group activities by having leaders, villagers, and related persons work together. This is the heart of how community enterprises may operate in a way that is consistent with residents' cultural and economic constraints.

3. Develop economic infrastructure, especially funding, that may be obtained from villagers interested in community enterprises, savings activities, village banks, or from external funding.

4. Develop physical infrastructure, especially infrastructure that is a factor in consumption and production, such as water, electricity, and roads in the community.

5. Develop the operations of community enterprises in terms of production, consumption, processing, and sales, such as 1) improving the quality of products and services that meet the needs of consumers, 2) developing production skills and capabilities, 3) using local resources and wisdom to achieve low production costs and to maximize the use of community resources, 4) creating a network of cooperation with business communities or external organizations, and 5) creating financial accounts that are transparent and verifiable.

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Being Intercultural: Examination of an Expatriate EFL Teacher's Experiences through Narrative Inquiry

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Abstract

In an era of globalization, the global mobility of language teachers has been a growing trend. An intercultural dimension, as an element of professional learning, has a crucial part in conceptualizing the identity learning of foreign language teachers. This paper, based on life history interview, presents a narrative study of an Australian English teacher working in Thailand. Premised on perspectives of post-structuralism and interculturality, this article aims to explore the construction of intercultural identity, how cultural identity is negotiated in the international setting, and how cultural issues are approached in the multicultural classroom. The findings illustrate the necessity of repositioning cultural identity and reconstructing pedagogical practice, which paves the way for becoming an interculturally competent teacher.

Keywords: *Expatriate teachers, intercultural identity, narrative inquiry*

Introduction

With the advent of neoliberal globalization, the English language teaching (ELT) industry has continued to prosper as English becomes "a way of securing economic advancement, elevated status and trans-national mobility" (Singh et al., 2002, pp. 53–54). Many teachers opt to relocate themselves to linguistically and culturally diverse regions. Consequently, an exponential growth in the number of foreign English teachers has been witnessed. There is a relative consensus that foreign language teachers play a crucial role in the intercultural dimension of language teaching (Bryam, 1997; Corbett, 2003), as many professionals, who expected to have "multilingual and interculturally savvy" (Sparrow, 2000, p. 750), could bring multifaceted insights to language learning.

Previous studies also recognize that when migrated to a new context, a teacher's identity undergoes a shift via interactions with significant others, whose beliefs and behaviors appear conflicting (Beauchamp & Thomas, 2009; Martel & Wang, 2015). The trajectory of foreign teacher socialization is, thus, far from a linear process. A great deal of challenges lie ahead, due to linguistic, gendered, sexual, and ethnic backgrounds, pose a barrier to the construction of legitimate teacher status (Pavlenko, 2003). However, a wide range of these issues, have been discovered to address the marginalization experienced by non-native English teachers, such as hiring and teaching practices in western contexts (Clark & Paran, 2007). Comparatively, cross-national experiences of native English teachers, who arguably possess cultural knowledge and norms towards the target language, have not been sufficiently researched in Asian settings.

This article provides an empirical narrative study that examines intercultural identity construction through a male Australian EFL teacher in a Thai university. In this paper, we employed life history interviews to elicit the participant's critical episodes throughout his years of teaching in Thailand. Drawing on perspectives of post-structuralist identity and interculturality, we delved into possible processes that were related to the development of intercultural identity, the negotiation with multiple identities, and its impact on cultural repositioning of teacher identity.

Language Teacher Identity

The past two decades has seen a growing interest in research on language teacher identity, with the purpose of understanding the nature of teaching and teacher development (Kramsch, 2014). A

major strand within this field has been devoted to the sociopolitical dimension of teaching, which highlights socially peripheral groups, such as nonnative English teachers (Golombek & Jordan, 2005; Jenkins, 2007; Kirkpatrick, 2008) and teachers of diverse genders, races, and sexuality (Motha, 2006; Pavlenko, 2003). This line of research, in the context of global situatedness rife with inequalities, reveals the increasing complexity of becoming and being a language teacher. In contrast, little attention has been paid to investigating (inter)cultural identity.

Borne out of studies on intercultural communication, intercultural identity makes its debut as a key construct for conceptualizing competent language teachers (Byram, 1997; Dogancay-Aktuna, 2005; Kramsch, 1993; Liddicoat & Scarino, 2013). Rationally, an intercultural approach is infiltrated into the EFL/ESL classroom. It requires language teachers to not only make adjustments in teaching practices, such as classroom activities and teaching contents (Loo et al., 2017), but also to improve their own intercultural sensitivity and competence (Byram, 1997). Equipped with intercultural knowledge, attitudes and skills, teachers can help learners develop intercultural communicative competence and prepare them for being intercultural speakers (Byram, 1997; Liddicoat & Scarino, 2013).

As an integral part in language teaching, the intercultural dimension is explicitly manifested in Morgan's (2004, p. 172) notion of "identity as pedagogy", where teachers' own cultural identity and intercultural experiences influence the way they approach culture-teaching practice, and vice versa (Lin et al., 2018; Menard-Warwick, 2008; Yang, 2017). For instance, Ruby, one of the participants in Menard-Warwick's study (2008), attributed her assumption embedded in cultural behavior to her intercultural marriage; Paloma, another participant in the same study, oriented her teaching towards the exploration of culture change according to her own transnational experiences. This pedagogy, however, may be restricted by teachers' lack of background knowledge (Harklau, 1999) and cultural disparities (Johnson, 2003). Harklau (1999), through the investigation into culture representation in writing class, found that experienced ESL instructors failed to explicitly cope with cultural appropriation and conflicts confronted by four female immigrant students. Similarly, in Johnson's (2003) self-reflection of being a mentor teacher, she was surprised to observe that her non-native student "Ali" paired his learners based on their religion for the sake of comfortability. Not only did this incident enabled the author to re-examine her own teaching philosophy about the significance of culture sharing among learners, but it also dawned on her that "it is a challenge for the mentor teacher to not lose sight of the whole person that is the student teacher, and to respect their values as equal to our own" (Johnson, 2003, p. 795).

Additionally, contextual factors such as institutional practice, classroom culture, and curriculum materials also play an integral part in teachers' intercultural growth. For example, some native English teachers in Canh's (2013) inquiry of professional identity construction felt isolated, as their workplace was unable to create an environment where effective collaboration among teachers was facilitated. As a result, this posed a challenge to expatriate teachers when it came to socialization into the local teacher community in Vietnam. The divide between the expatriate and the local is furthered widened because of the language barrier and cultural differences. Shifting our attention to Japan, Duff and Uchida (1997) provided us with a scenario that portrayed teachers' reconciliations with western-oriented cultural teaching materials. None of the participants in the study conformed to explicit approaches of teaching culture contents. Instead, attempts were made to engage learners via integrating current and localised themes into group discussions. Likewise, one participant from Stanley's (2013) study voiced how a localized teaching method was implemented in a typical Chinese university classroom, and how speaking a local language in class facilitates intercultural socialization in the course of interacting with local learners.

As far as Thailand is concerned, research into intercultural aspects of English language teaching has been focused on teachers' perceptions of intercultural communication competence (Cheewasukthaworn & Suwanarak, 2017), principles of teaching English as an international language (Kumaravadivelu, 2012), and implementation of intercultural education (Loo et al., 2019). Few studies have been conducted to probe how teachers' intercultural identity is negotiated and constructed in tertiary education. Thus, in this paper, we aim to explore how an expatriate teacher is blended into

the Thai multicultural setting, and how lived experiences have an impact on being an interculturally competent educator.

Theoretical Underpinnings

The design and implementation of our paper is premised in the ontological position of post-structuralist notions of identity and the analytical concept of interculturality. As for the former aspect, poststructuralist scholars tend to characterize identity as fluid, dynamic, and relational, which sharply contrasts with the humanist perspective of recognizing an essence as the core of individuals (Baxter, 2016; Dervin, 2012). One distinctive feature of poststructuralist identity lies in its subjection to a range of discursive practices, within or across which, individuals are shaped through actions and words (Baxter, 2016).

In the latter aspect, interculturality is commonly used as a synonym of intercultural (Jin, 2016). It could be described as an "open-ended, adaptive and transformative self-other orientation" (Kim, 2008, p. 364), involving individuals relating to themselves and others. But in this paper, we treat interculturality as an umbrella term that embraces a plethora of paradigms towards the positioning of culture and identity. It particularly focuses on the processual dimension of an encounter that involves interactants who possess different cultural backgrounds (Lavanchy et al., 2011). In this process, one's sensitivity, awareness and understanding will be acquired at the result of their identity negotiation (Dervin, 2011; Jin, 2016). Furthermore, the suffix '-ality' gives interculturality 'a more flexible, unstable and critical meaning' (Risager & Dervin, 2015, p. 10).

Anchored in post-structuralist identity with interculturality, we are allowed to approach one's cultural identity as being non-monolithic and open to change through interaction with diverse cultural subjects (Barker, 2004), but also blurs the "us and others" divide that contradicts with today's increasingly unified world (Tian & Lowe, 2013). To some extent, this is well exemplified by our participant who navigates from the homely Oceania to the unknown Southeast Asia, and may welcome possibilities for personal and professional transformation.

Methods

The exploration of the participant's intercultural identity construction was conducted through a narrative lens. Fundamentally speaking, the product of narrative research is 'a story or a collection of stories' (Murray, 2009, p. 46) which, in Bruner's (1986) view, are regarded as 'the most universal means of organizing and articulating experience' (p. 15). By storytelling, it allows us to search for fragmented debris and weave them together to make sense of our past lives. As Polkinghorne (1998) notes, 'we achieve our personal identities and self-concept through the use of narrative configuration (p. 150)'. It suggests that a narrative can help discover who you were / are, as well as come to understand the relationship between the past and the present. Therefore, a narrative lens is conducive to documenting our participant's changes and challenges in teaching, and in the process of being and becoming an intercultural subject.

Participant and Data Collection

The research participant, whose pseudonym was Oliver, is an Australian, male, in-service English teacher with a TEFL certificate. At the time of data collection, he was teaching in a private university. In order to capture the details of his intercultural experience, we adopted a life history interview to elicit Oliver's lived stories. As the name indicates, life history interview is essentially an in-depth, unstructured interview that documents people's lives or an aspect of them that has developed across the life course (Atkinson, 1998; Goodson & Sikes, 2001). Meanwhile, we are aware that the non-directive feature of unstructured interviews may lead to irrelevant data. Thus, we created open-ended questions and invited Oliver to tell his stories. Based on Goodson's (1992) sources of life history data, our investigated areas included Oliver's biographical information, educational journey, and career stages before and after Thailand, together with English language teaching. Follow-up questions were created to obtain a deeper understanding of his story. All the four interviews, whose range was about

60 minutes respectively, were audiotaped and transcribed verbatim. The interval of each interview depended on the convenience and availability of the participant.

Data Analysis

To explore Oliver's intercultural teaching experience, we adopted thematic narrative analysis (Riessmen, 2008) to look at his data. From the outset, we immersed ourselves in the transcripts to make initial sense of his story. While reading and re-reading it, we started to make notes of interesting points. Then we coded the narratives manually, using Huberman and Miles' (2002) open and axial coding processes. Yet, we also know that researcher bias in data inquiry would emerge (Creswell, 2012). Thus, Oliver's narratives were separately coded by the three authors, and then the three sets of codes were compared. In this way, a dozen unanimous open codes were generated, such as inspiration, sense of himself, and strategy, which were sorted into different broader themes. In what follows, aligned with our research purposes, we developed three storied episodes (*speak-up in class, being a sensitive teacher, and accent adaptation)* to trace Oliver's intercultural identity construction. A storyline, coupled with our interpretation, was accordingly plugged into each episode on the basis of our conceptual understanding towards interculturality.

Results

'Speak-up' in Class

Reflecting on his teaching experience, Oliver told us that his teaching style was '*try to get my students to talk as much as possible'*, though his teaching subject is mainly focused on English academic writing. As the story unfolded, we got to know that this teaching approach had a close relationship with his schooling. He said,

> In my education growing up, we're always encouraged to speak up in class. There's always an interaction. Students can speak in class. At first, I don't know if it's the same in all Asian countries. In my experience, some countries or cultures are more reluctant to speak up in class. So that's always been something that I try to do. Have students speak, answer, and produce. Just for anything, because I wanna know if they understand what is supposed to happen.

As seen in his narrative, speak-up could be traced back to his cultural grassroots. Raised in an environment that encourages speaking, Oliver thought that interactive communication exerted a subtle influence on his teaching philosophy, which was subconsciously deemed as part of his own cultural learning identity. Initially, Oliver was unaware of cultural diversity in his classes. With the accumulation of teaching experience, he realised that there was a difference in speaking participation among countries. However, faced with relatively silent learners, Oliver opted to hold on to his cultural identity, and employed a speak-up approach to get his students producing, which, in his view, demonstrated their understanding of learning materials. In the meantime, Oliver depicted the speak-up application as 'challenging' in his class. As he narrated,

> Sometimes it can be a bit challenging to get them to speak. Maybe they haven't spoken a lot previously of English. I know it also depends on individuals and depends on that individual's personality. In my class, I have mixed students like Vietnamese, Indian, Afghanistan (sic) and Thai. If I have particular weak students, if they need to produce work, I always get them to work in pairs. Also, I don't wanna put people on the spot. You don't wanna make people feel embarrassed. I just want them to try to do something. If somebody is shy, I won't make that person speak first.

From his narration, Oliver showed us how he adapted himself to his learners, according to his awareness of cultural influences on communication. Based on his experience, students' reluctance to speak can be attributed to personal identities and lack of English exposure. Having recognized these two factors, Oliver did not require his students to adjust right away, so as to fit the way he was culturally approached. Instead, he made the most of students' diverse cultural backgrounds and divided them into mixed pairs. In this way, it increased the opportunities for 'weak students' to

exchange their opinions in English. What Oliver attempted to do was to create an interculturally safe classroom atmosphere by being flexible and providing accommodations. As a result, his students might not 'feel embarrassed' about who they were while being challenged to speak up.

Being a 'Sensitive' Teacher

For Oliver, culture plays a role in language learning and teaching. As far as he could recall, his teacher at school used a variety of ways to engage students. Not only did this learning experience construct his concept of a 'cool' teacher, but it also enabled him to recognize the relationship between language and culture. Since Oliver embarked on a journey to teach English, he has been employing this method. As he put it,

> Back to high school, My French teacher was cool. She didn't talk much about grammar. She introduced us some local festivals. We watched French movies and sang French songs together. So I think culture always has something to do with language learning. It also influences the way I teach English at the moment.

However, Oliver told us that there were limitations in terms of broaching cultural issues in his English lessons. He explained,

> Some cultures are conservative, like students from Iran and Afghanistan, so I don't do issues such as same-sex marriage, politics, or religion. I don't wanna make people uncomfortable in class. I don't wanna create a debate among students. To some extent, I think a teacher needs to be sensitive.

From his explanation, we can see that Oliver crafted a frame of a culturally-sensitive teacher identity. His sense of cultural awareness directed him to appreciate different values and cultures among his students. On account of 'conservative' forces that existed, it made him think critically of the potential risks that could emerge through the inclusion of sensitive topics. In other words, realizing the diversity in his class, Oliver had to tackle culturally-related topics with caution, as a comfortable learning environment was what he desired to offer. In retrospect, he added that he sometimes did feel the need to include certain topics for inclusiveness, because he noticed some socially disadvantaged students, such as students from LGBT groups. But, all things considered, he failed to do so. He said,

> I had quite a few ladyboys in class, because in my university we have gender study. I never treat them differently because of their difference. I just try to treat them normally. Treat them the same, because I don't wanna bring their attention to the differences in class. I don't want them to feel self-conscious or something. That is why I didn't bring up relevant topics.

Through his narrative, Oliver showcased his understanding towards non-normative gendered students. Considering that this group of learners were socioculturally marginalized, he, as an embodied male teacher, consciously built a gender-friendly setting. Consequently, Oliver did not engage his class on the topics of gendered-related issues, for fear that it might accentuate their differences caused by 'self-conscious' (sic). As the plot progressed, we learnt that what Oliver actually did in class was deal with general topics like 'teenage pregnancy' or 'climate change.' In order to offer students arguments for an essay or reasons for an opinion, he produced Australian-based examples in a neutral stance, as he stated, "I just wanna give an example from Australia and logical sequence. I don't wanna say what is right or wrong."

Accent Adaptation

Being a native speaker, in Oliver's view, did not privilege him with being a good communicator. To his recollection, at the initial stage of his teaching career, he seemed to have encountered some linguistic issues. He reflected, "Before I became an English teacher, I nerve thought my accent could be problem in class."

As illustrated by his telling, gaining a foothold in language teacher education, Oliver enabled himself to discover what he was linguistically unaware of. It was unexpected to know that his own Australian accent, within the EFL classroom, posed a barrier to his classroom interaction. He further reminisced that it was sometimes a struggle for students to understand him. In particular, "when I spoke at normal speed." Later on, we were told that students' unfamiliarity with an Australian accent was the contributing factor to the cause of this issue. He elaborated,

> It doesn't mean my accent is bad or something. I think it's because some students like Thais are more familiar with American accent. Nowadays, it's easy for them to access American movies and TV shows. I think because of the spread of American English, it might influence the way they understand other accents.

Clearly, accent for Oliver functioned as a cultural marker, which had an impact on people's perceptions. His experiences revealed that Thai students, due to the prevalence of American English, were apt to understand an American accent. As Jindapitak (2015) noted, an Australian accent among Thai students was less favourable than American and British equivalents. However, this miscommunication between him and his students was not a self-denial of his own linguistic roots, but rather an avowal to appreciate cultural divergence brought by accents. Being aware of it, Oliver felt the need to make visible adaptations. He said,

> I definitely speak more clearly. I try to speak more slowly. I don't speak a strong Australian accent. If they still don't understand, I will repeat some words or write on the board. Although I teach lots of writing, as we get along, I try to help correct their pronunciation, stress, and how they should say words. For example, Thai speakers have some pronunciation challenges like the word 'computer'. I would spend a couple of minutes stressing it.

In his narration, Oliver presented himself as an accommodating role that showed his readiness to negotiate his linguistic identity. Reified in his clear articulation, slow utterance, and slight accent, this assigned identity could help improve his intelligibility in a multicultural classroom. Meanwhile, it appears that Oliver was conscious of students' pronunciation, though his writing class did not afford enough space to speaking. This awareness was likely to be attained via his own accent encounter, which enabled him to identify with his teaching pedagogy.

Discussion

Through three critical episodes of Oliver's teaching experiences in a culturally distinctive environment, we can see that classroom discourse parallels Kramsch's (1993) concept of 'a third place', where, we postulate, intercultural learning occurs as a co-constructed process that involves negotiating cultural issues with diverse others (Yang, 2017). Also, it denotes an in-between relationship that constantly deconstructs and reconstructs one's identity as the consequence of negotiated positioning. In this process, teachers as active agents are granted opportunities to not only reflect and rediscover what has been culturally formulated, but also embrace identity transformation for interculturally sustainable development. Individuals' intercultural awareness can be treated as the product of this complicated networking. In the case of Oliver, entering the discursive practice in classroom teaching, he attempted to enact self-possessed linguistic identity, presumably because he was devoid of intercultural experiences. With the passage of time, he learnt to perform a desirable identity. In a similar vein, his speak-up method embodied himself as a cultural messenger, which does not suggest that acculturation arises when cultural mobility comes in (Kim, 1992). Whereas this approach failed to resonate with his learners' backgrounds, it was this displacement that drove him to explore a pedagogic sense of becoming an intercultural teacher.

It is worth noting that accent also plays an integral part in one's intercultural socialization. With the spread of English across the globe, the custodians of this language are not merely confined to native speakers (Kirkpatrick, 2008). As a result, it poses a challenge to native English teachers' accents in EFL classrooms, which is evidenced in Oliver's narratives. Conventionally, when miscommunication occurs, it seems unquestionable to assume that non-native speakers are duty bearers (Jenkins, 2007).

Whereas there is some truth to it resulting from insufficient proficiency, we contend that the native speaker is not always the best manifestation of intelligibility. Among native-speaker varieties of English, there exist many diverse forms that are influenced by geographical factors and social stratification. In other words, not all native individuals have the same speech patterns such as GA (General American) and RP (Received Pronunciation). Moreover, these two reference accents, due to cultural imperialism, have been overemphasized as norms by EFL learners (Jenkins, 2007; Jindapitak, 2015; Kirkpatrick, 2008). Hence, this well exemplifies why Olive's Australian accent or pronunciation initially collides with learners' cognition. For the sake of teaching effectiveness, Oliver made a corresponding adjustment and constructed himself as an intelligible self in class.

In a multicultural classroom, how cultural issues are approached has been a subject of scholarly concern over the past decade. The traditional belief of associating cultural teaching with facts and folklores falls into the category of an essentialist perspective, which is problematized as uncritical (Crozet, 2017). From what Oliver recounted, we think that it is imperative for language educators to factor global issues into EFL classrooms. As Liddicoat and Scarino (2013) argue, language teachers bear the social responsibility for cultivating EFL learners to be world citizens. This global mindset equips students with the knowledge, values, attitudes and skills to live responsibly in an increasingly interdependent world. To a great degree, broaching the topic "teenage pregnancy" also corresponds to the intercultural perspective in teachers' classroom practice. Particularly, in a multicultural context, this ethical engagement contributes to an enhanced understanding of societal issues.

Nevertheless, within language teacher education, there is a rough agreement that cultural aspects of language teaching should be premised on critical intercultural perspectives (Liddicoat & Scarino, 2013). It implies that practitioners would take an overtly political stance to incorporate sensitive topics in language classroom such as gender, race, and sexuality (Crozet, 2017; Kramsch, 2014), but Oliver's narratives did not give expression to such a point of view. Does it mean that Oliver lacks intercultural sensitivity? In our view, intercultural sensitivity, as an integral part of language teaching, should be fostered in a way that language teachers appreciate and respect learners' social-cultural baggage (Doğançay-Aktuna, 2005). Otherwise, a lack of consideration of intercultural appropriateness in teaching contents would be an impediment to students' learning environment. In this sense, Oliver did have intercultural sensitivity that enabled him to skirt controversial issues for a successful class, as well as approach marginalized individuals in a normalizing way.

Implications

Pedagogically speaking, we think that there is a need for expatriate EFL teachers to shift their teaching approach from a native speaker model to a lingua franca approach (Kirkpatrick, 2008). This would be beneficial to both teachers and students. For one thing, it helps learners realise what linguistic feature of their speech could be a barrier to their intelligibility. While pursuing a native speaker model is to some extent a matter of learner's choice, from the perspective of foreign language acquisition, it is almost infeasible to accomplish this unattainable goal. Meanwhile, in today's world, much English communication occurs among non-native speakers. For another, the implementation of this approach could be of use to steer clear of the miscommunication between teachers and students in class. A great many opportunities are given to expatriate teachers who attempt to explore communicative strategies and cultural boundaries for intercultural adaptations.

Conclusion

This paper has explored how an expatriate language teacher developed his intercultural identity at workplace, particularly in a multicultural EFL classroom. Navigating his lived experience, the participant was able to re-examine his own cultural identity and reconstruct it in a global setting. While the process took on a non-smooth trajectory, it demonstrated that teachers' intercultural identity as a dynamic mechanism involves personal and discursive dimensions, in which ongoing negotiation is engendered by both changing contexts and subjects. Notably, there are a couple of limitations in the present study. First of all, the findings are just based on one single participant's story. What was found,

thus, would not be the full picture of expatriate teachers in Thailand, though narrative methodology does not place an emphasis on generalization. We believe that if more participants with different social backgrounds are involved, the findings will be more informative. Also, we acknowledge that the approach to probing the intercultural self is diversified. Future scholarship may explore this strand of research from a quantitative or mixed method lens. All in all, this inquiry hopes to provide insight into the intercultural dimension of being an expatriate teacher whose lived experiences will add to our understanding of this thriving community.

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1.4. Manuscripts should use Calibri font size 11.
1.5. Manuscripts should contain minimal formatting (bold and italics commands are acceptable).
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5.5 Further information can be gained by consulting. James Cook University, Singapore. (n.d.). Numbers in APA. See https://www.jcu.edu.sg/__data/assets/pdf_file/0009/680085/Numbers-in-APA.pdf; Guadagno, R. (2010). Writing up your results – Guidelines based on APA style. Retrieved from https://ich.vscht.cz/~svozil/lectures/vscht/2015_2016/sad/APA_style2.pdf

6. Recommended Verb Tenses for APA Style Articles (p. 118)

Paper Section	Recommended Tense	Example
Literature review (or whenever discussing other researchers' work)	Past Present perfect	Quinn (2020) presented Since then, many investigators have used
Method Description of procedure	Past Present perfect	Participants completed a survey Others have used similar methods
Reporting results	Past	Results were nonsignificant Scores increased Hypotheses were supported
Discuss implications of results	Present	The results indicate
Presentation of conclusions, limitations, future directions, etc.	Present	We conclude Limitations of the study are

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