HUMAN BEHAVIOR, DEVELOPMENT and SOCIETY

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 is a key aim, especially when these may have practical applications within the Southeast Asian region. The application of theoretical considerations to organizations, fields, and communities 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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Current and Past Issues

From the Editor

This is the last issue of *Human Behavior, Development and Society (HBDS)* for 2024. The journal is an international, open-access, interdisciplinary peer-reviewed journal published three times a year by Asia-Pacific International University (AIU). *HBDS* publishes findings and discussions regarding most aspects of human behavior, development, and society. The journal's scope is to advance knowledge through the use of classical methods of investigation and to foster the examination of cross-cultural issues that increase mutual understanding among diverse social groups within the international community, with a particular emphasis on Southeast Asia. All articles in the journal are indexed by the Thai-Journal Citation Index Centre (TCI), ASEAN Citation Index (ACI), and EBSCO database.

This issue of *HBDS* contains 12 articles, ten of which were written by researchers external to the university, and two that were authored by AIU researchers. We are delighted to see reports and findings from various disciplines including education, entrepreneurship, finance, health, human resources, journalism, linguistics, marketing, and society. Most articles in this issue reflect studies conducted in Asian contexts including China, Malaysia, Myanmar, Philippines, and Thailand, with one article from Puerto Rico included in this issue as well. We hope that this issue of *HBDS* will contribute to the development of society and serve as a source of information for various academic fields and research projects.

There will be several improvements to the *HBDS* in 2025; we will keep you updated as changes occur. We would like to invite readers to publish your valuable papers with us. More information may be found on our website, *https://www.tci-thaijo.org/index.php/hbds*. We also appreciate comments or suggestions from you to help us improve the journal. Finally, we appreciate the hard work of authors, reviewers, editorial board members, executive board members, and journal staff members who have contributed to making this achievement a reality.

Assistant Professor Dr. Damrong Satayavaksakoon, Editor

Human Behavior, Development and Society

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Chance vs. *Chants*: Not Every Final /s/ Is Created Equal

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Abstract

This study was designed to determine if there is a difference between English Language Learner (ELL) production of /s/ in words such as *prince* and *prints*, as it appeared that ELLs were pronouncing "prince" for the former, but "print" for the latter. Study subjects completed a dictation task using a paragraph with many words ending in /s/. The results were that final /s/ in words such as *prince* was produced in 94.1% of the required contexts, while /s/ in words like *prints* was produced in 64.9% of the required contexts. The structural difference between pairs such as *prince* and *prints* is that *prince* has no internal morphological structure, while *prints* consists of *print + s*. The different production rates for final /s/ suggest that ELLs are processing the words differently, and are apparently unconsciously aware of the morphological difference between pairs such *prince* and *prints*. Contrary to expectations, this morphological awareness leads to incorrect responses. The discussion shows that issues such as salience, sonority, and L1 transfer cannot account for the data obtained in the study. In the paper suggestions are presented for raising morphological awareness to a more conscious level, thereby potentially aiding acquisition.

Keywords: *Final /s/, sonority, salience, syllable, morphological awareness*

Introduction

English language learners (ELLs) frequently have difficulty producing a word-final /s/. Reasons for the difficulty have been attributed to issues such as lack of salience of final /s/, L1[1] transfer, and syllable complexity. I teach Basic English courses to university students in Puerto Rico. I have seen that in words in which the final /s/ is non-morphemic and intrinsic to the word, as in *chance* [t͡ʃæns] and *prince* [prIns], my students typically produce final /s/ with no problem. But in words in which final /s/ is morphemic, as in *chants* [[t͡ʃæns] and *prints* [prIns], whether as nouns or verbs, they frequently produce *chant* [t͡ʃænt] and *print* [prInt]. Since the final /s/ is equally phonetically salient in pairs such as *chance* and *chants*, it follows that the frequent failure of ELLs to produce morphemic final /s/ on verbs and nouns results from grammatical processing issues rather than from transfer and/or phonetic salience considerations.

The literature review will show that morphological awareness is usually seen as a positive. The data in the present study, however, appears to indicate that though the subjects showed morphological awareness, the awareness had a negative effect on their production of final /s/. The study thus indicated that morphological awareness, contrary to what is commonly reported, is not always beneficial.

The purpose of the study was to answer two research questions.

Research Question 1: Does the morphemic/non-morphemic status of /s/ correlate with final /s/ production?

Research Question 2: What does the answer to Question 1 suggest about how ELLs are processing the two types of final /s/?

Literature Review

Referring to benchmark studies as well as recent work, the literature review covers second language acquisition of grammar morphemes (focusing on production of final /s/ inflections), the reliability of dictation as a measure of L2 competence, salience, whether or not final /s/ always sounds the same, segmental sonority, syllable structure, L1 transfer, and morphological awareness.

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[1] L1 is a person's first language, and L2 is a second language.

Final /s/ Production and the Acquisition of Grammar Morphemes

Roger Brown's "A First Language" (1973), parts of which began appearing in 1971, is a benchmark work on acquisition of grammar morphemes. He studied first language acquisition of English and reported that grammar morphemes are typically acquired in a particular order. Brown found that the final /s/ morpheme at issue in the present study is acquired at various points in the sequence depending on its function. As a plural marker, it is acquired fairly early (fourth of the fourteen), followed soon after (sixth) by the acquisition of /s/ as a marker of possession, and then later (eleventh), /s/ as a marker of third-person singular appears (Brown, 1973, p. 274).

Inspired by Brown's work, researchers began studies of Second Language Acquisition (SLA) morpheme acquisition order, the most influential being publications by Dulay and Burt (1972, 1974a, 1974b). They studied the child SLA of eleven grammar morphemes and found that acquisition of plural /s/ occurs early, and was followed much later by /s/ as a possessive marker, and then /s/ as a marker of third-person singular (Dulay & Burt, 1974b).

Claims for a typical order for the acquisition of grammar morphemes in the second-language acquisition of English have been repeatedly challenged (e.g., Hakuta, 1974; Anderson, 1977; Bley-Vroman, 1983). But these findings have been supported by many researchers, among them Larsen-Freeman (1976) and Pica (1983), and are now generally accepted and even taken as given. O'Grady et al. (2018, p. 75) remarked, for example, "it is well known that verbal -s is mastered late in the course of first language acquisition and second language learning."

Qi (2022) reported on a study of third-person singular /s/ in the writing of ESL students in China. She listed 15 studies from 1994 onwards on the difficulties that second language learners have with inflectional morphemes, adding that most studies have focused on speech while her study focused on writing. She reported, in results like those of the present study, that her participants produced third-person singular /s/ in 50% of the required contexts.

In a study of the pronunciation of the *-ed* and /s/ morphemes in the English of Nigerian high school students, Aliyu (2017) indicated that his subjects showed low correct production rates for the given phonemes. In addition to specific attention to form, he advocated more practice in English in general, underscoring that production/comprehension of such morphemes is more of a processing issue than a phonological/phonetic one.

Aliyu (2017) reported on the production of the *-ed* and /s/ morphemes by Nigerian students learning English, along with Nguyen and Newton (2022), in their study of Vietnamese speakers learning English in Vietnam. Processing issues appeared to be a cause of student difficulty with production of such morphemes.

Salience

Some researchers focus on the concept of salience to account for aspects of second-language acquisition. They generally see salience as a composite construct, based on components such as acoustic salience, semantic complexity, and frequency. For example, the study of Gass et al. (2018) consisted mainly of papers exploring how a multi-faceted conception of salience functions in the acquisition of a second language.

Fukuta and Yamashita (2023, p. 430) pointed out that work on salience and acquisition relies on circular reasoning. They wrote, "The researchers … regarded various features that past research found to influence L2 acquisition as components of salience. Therefore, if these components are used for the purpose of identifying factors influencing learning and knowledge, the argument becomes circular." Fukuta and Yamashita provided a non-circular conception of salience: a grammatical form is less salient to the degree that it is redundant. Since, for example, third-person /s/ is redundant, as it is required by the context and provides no new information, it would be less salient than a non-redundant plural /s/.

An issue with their conception of salience is that, as seen in the morpheme order studies, possessive /s/, a non-redundant form, is acquired right before late-acquired verbal /s/ (Dulay & Burt, 1974b). The redundancy/salience connection cannot explain why possessive /s/ is acquired so late.

In one paper Gass et al. (2018) questioned the role of salience. O'Grady et al. (2018) refer to a study in which inflectional markers such as final /s/ are clearly heard/perceived by infants, suggesting that such morphemes are not as inaudible as is sometimes thought. They also comment that the inclusion in the concept of salience of a "broad range of non-acoustic effects," as in the other papers in the volume, complicates a picture that can be readily explained by a more unified process-based approach (p. 63).

O'Grady et al. (2018) considered two processing routines at play in the use of verbal /s/. The first is word order and the second is subject-verb agreement. They commented that in 95% of the sentences in the Switchboard corpus [a collection of about 2,400 telephone conversations involving all areas of the United States (Godfrey & Holliman, 1993), the subject comes before the verb, and pointed out that sentences using present tense, third-person singular form a subset of the 95%. That is, all of the 95% use Subject-Verb-Object (SVO), but only some of the 95% also use present tense, third-person singular (O'Grady et al., 2018). The difference in frequencies of SVO vs. present tense, third-person singular is important because processing-based accounts hold that more frequent routines are more thoroughly entrenched (i.e. learned) than less frequent routines.

O'Grady et al. (2018) thus find it unsurprising that ELLs will get word-order correct but fail to inflect third person singular verbs. They comment that in English, the SVO word-order routine is more entrenched than the agreement routine, and that the word order routine usually expresses the intended idea, whether or not there is subject-verb agreement. ELLs can thus fail to have verb and subject agree but succeed in expressing what they are trying to say. VanPatten's (1996, 2004) Input Processing Theory supports the approach advocated by O'Grady et al (2018). Part of the theory involves the primacy of meaning principle, which holds that learner's process input for meaning before processing it for form (2004). VanPatten (2004, p. 8) formulated a sub-principle to the primacy of meaning principle as follows: "Learners process content words in the input before anything else." Thus, when ELLs omit morphemic /s/, they are arguably focusing on meaning rather than on form.

Does the Final /s/ Always Sound the Same?

Plag et al. (2017) conducted a study of final /s/ duration in the spontaneous speech of adult native speakers of English. They found that non-morphemic /s/ has a longer duration than morphemic /s/. They noted that an earlier study by Walsh and Parker (1983) reported the opposite result. Plag et al. attributed the contradictory findings to different data collection methods. Walsh and Parker's (1983, p. 202) subjects read the target forms in short sentences such as "I ran two laps today" and "My insurance is going to lapse today." Plag et al. (2017, para 42) cited research showing that when such data collection methods are used, subjects "tend to read at a regular pace when asked to read word lists or words in short carrier phrases." In such speech, speakers tend to pronounce carefully, unlike spontaneous speech, which, as is well known, is subject to deletion and many other effects.

Dictation

"Dictation is one of the few exercises consistently employed throughout the history of language teaching" (Kelly, 1969, p. 94). In spite of its long history, dictation has not always had the support of language teachers. Stansfield (1985), in a paper on the history of dictation, quotes Gouin (1892 pp. 331-332), an influential language teacher of the late 19th century: "This deplorable exercise is severely interdicted …. During the time that [the student] scribbles and blots under dictation, he could assimilate and read it over twenty times. Therefore we have no more … dictation." Stansfield then quotes, in contrast, Joynes (1899, p. xxviii), who writes, "[Dictation's] value includes not spelling only … but all that belongs to grammar, phrase or sentence."

Dictation fell out of fashion during the audio-lingual era. Lado (1961, p. 34), a principal audio-lingual proponent, writes that since everything came prepackaged, there was no analysis for students to do, and therefore, dictation "appears to measure very little of language."

Since Lado's era, researchers have studied dictation and shown its value as a learning tool and as a measure of proficiency. Oller (1971) reported on data gathered during an effort to evaluate and

revise the English as a Second Language Placement Exam for the University of California at Los Angeles. The test involved vocabulary, writing, phonological discrimination, grammatical acceptability, and dictation. Oller (1971, p. 254) reported that dictation scores "correlated more highly with the other parts of the test than did any other part." In other words, student dictation scores were a reliable indicator of their language ability. Oller reported on studies from 1958 through 1967, all of which confirmed the reliability of dictation as an indicator of proficiency in a language.

Lai (2022) reported on her study of the value of dictation. The participants, Japanese university students learning English in Japan, took a pre-test and then completed a weekly dictation task during the thirteen-week testing period. One task, on alternate weeks, involved a cloze dictation task and lasted about fifteen minutes. On weeks with no cloze task, the participants watched a two-minute video of someone speaking and typed what was said. At the end of the study, participants took a post-test. The results of the post-test were significantly better than on the pretest. Lai's study thus supported dictation as a teaching technique and as a reliable measure of competence.

Sonority and the Syllable

Researchers have frequently seen a role for sonority in the L2 acquisition of syllable structure. Linguists have long acknowledged that some segments are more sonorous than others. Many sonority hierarchies have been proposed, with the basic factor affecting sonority being openness of the vocal tract: the more open, the more sonorous. The hierarchy proposed by Clements (1992, p. 65), and presented in (1), is a typical formulation.

1. Clements' Sonority Scale—The suggested hierarchical sequence was: Vowel > glide > liquid > nasal > obstruent.

In Clements' hierarchy, vowels are more sonorous than glides, which are more sonorous than liquids, and so on. Most hierarchies, many quite detailed, proposed by researchers show basic similarity to that by Clements. Some (Parker, 2011) claimed that the sonority hierarchy operates in all languages, while others have proposed (Noellieste, 2019) that a language can have its own hierarchy. Armstrong (2006) presented a critique of the sonority tradition.

Regarding how sonority is said to function, Elizabeth Selkirk's 1984 paper continues to be cited. After proposing a detailed hierarchy in basic agreement with that of Clements, she suggested the Sonority Sequencing Generalization (SSG), presented in (2).

2. The Sonority Sequencing Generalization (Selkirk, 1984, p. 116)
In any syllable, there is a segment constituting a sonority peak that is preceded and/or followed by a sequence of segments with progressively decreasing sonority values.

According to the Sonority Sequencing Generalization (SSG), the sonority levels in a syllable slope up to the nucleus. A syllable may consist of up to three parts. A *Stop*, for example consists of an onset (st), a nucleus (o) and a coda (p). A group of consonants, as occurs in the onset of *stop*, is called a cluster that then slopes down through the coda. Selkirk's formulation has been alluded to by many. Noellieste (2019), for example, used it in her account of a Bavarian dialect of German.

Zampini (2008) reviewed a number of studies and reported that sonority issues frequently fail to account for acquisition of L2 syllable structure and that transfer from the L1 must be considered. She cited a study of the acquisition of English onsets by native Spanish speakers showing that more complex onsets ("complex" in that they did not conform to the SSG) were learned before less complex onsets (p. 234).

Trung Le and Boonmoh (2020) studied the pronunciation of four coda cluster types by Thai speakers learning English. The cluster types they studied were stop-stop, fricative-stop, nasal-stop, and liquid-stop. They expected that the SSG would govern the results and that sequences, in violation of the SSG (the stop-stop clusters), would be the most difficult for their subjects. Instead, they found that "Sonority may not play an important role in explaining how Thai students produce different clusters" (Trung Le & Boonmoh, 2020, p. 22). They concluded that the influence from the L1 was the more important factor, as the modifications the subjects most often made to English coda clusters reflected Thai coda constraints.

Syllable Codas

Blevins (1995) reported on syllable structure. Regarding Spanish and English, the languages primarily at issue in the present study, she indicated that Spanish syllables can end either in a V(owel) or V(owel) C(onsonant), and that English syllables show V, VC, VCC, and VCCC endings.

Syllable Codas and Transfer From the L1

There appears to be no always-true statement about the effect of transfer on L2 acquisition other than "sometimes it is a factor." For example, in a review of studies on the effect of the L1 on acquisition of English codas, Hansen (2001, p. 339) stated the finding, "L1 transfer is a predominate factor in [English L2] acquisition." Then, in her own study of Mandarin speakers learning English, she found a very limited role for transfer. On the other hand, as indicated previously, Trung Le and Boonmoh (2020) found an important role for transfer. More recently, Fradsham (2022) studied French and English speakers learning Russian syllable codas. She reported that both groups produced Russian codas that were allowed in their respective L1s, but had difficulty with codas not allowed in the L1.

Morphological Awareness

Morphological awareness refers to knowing, consciously or unconsciously, whether a particular word has internal structure. For example, if an ELL sees *Lars* and produces /larz/ but sees *cars* and produces /kar/, the different pronunciations suggest that the individual may be unconsciously aware that *Lars* and *cars* have different internal structures.

Researchers have published many studies relating to increasing ELL vocabulary through raising morphological awareness. Al-Haydan (2020), for example, reported that when his subjects improved in morphological awareness, their reading comprehension improved as well. Similarly, Yamashita and Kusunagi (2024) reported that the better their subjects understood morphology, the higher their reading comprehension score. This approach, as in Varatharajoo et al. (2015), frequently involves getting students to recognize and understand the functions of derivational morphemes such as *-ness* and *re-*, thereby increasing their L2 vocabulary. Morphological awareness is thus generally seen as a positive.

No researcher has reported a correlation between morphological awareness and performance in the L2 such that morphological awareness was positively associated with errors in production.

Methodology

I constructed a paragraph containing pairs such as *prince*/*prints* and other words ending in /s/. The task of participants was to reproduce the paragraph via a dictation task. The data were collected from course work of students in three of my classes.

The participants were Puerto Rican university students. Two of the classes were Basic English courses at the University of Puerto Rico, one of which was a first-year course. The other was a conversational course for students who had completed the first-year course, and was aimed at developing student ability to carry out simple conversations. The two courses were for students at a rather low level of English proficiency. The third group of students studied at a private university in an English course that was not designed for any particular level of English ability. Impressionistically, it appeared that the English of most students in the course was slightly below the students in the other two courses.

All who did the task were included in the study, except for two who produced perfect dictation and one whose work was illegible. The perfectly done work was not included because the method of the study was to use student errors to detect tendencies. Perfect work shows no such tendency.

The data were drawn from participant production of the following paragraph in which the eleven non-morphemic /s/ forms are <u>underlined</u> and the 10 morphemic forms are **bolded**:

> The <u>Oasis</u> Mall parking **lots** … were filled with **cars** on the day after <u>Thanksgiving</u>. Frank, Pete, and my older brother <u>Lars</u> … went to the Mall too. They went <u>because</u> **Frank's** dream … was to go to the <u>Prince</u> concert … and he wanted to buy the **singer's** recent **CDs** … so he would know all the **songs**. You can

imagine my <u>surprise</u> … when I learned that the <u>police</u> arrested Frank. After they took <u>his</u> **fingerprints**, however, they let him go. It <u>was</u> a <u>case</u> of mistaken identity. Frank **looks** just like a guy   who **tries** to spread <u>disease</u> by sneezing in public **places**.

The paragraph was read slowly with careful pronunciation, with pauses at periods and at the gaps in the paragraph above. After each pause, I repeated what had just been read, paused again, and continued. Upon finishing the paragraph, I read it slowly without pausing. Students took the time needed to finish.

The reading had two occurrences of *was*: One in the third sentence, and one in the sixth. To avoid skewing the findings in favor of a "yes" answer to Research Question One, data for only one of the two *was* occurrences were included. To avoid cherry-picking, I included the data for the second *was*, as it showed a lower rate of production (96.3%) than the first *was* (98.2%).

The focus of the study was on the production of final /s/. If a participant produced an /s/ in the coda of the syllable in question, the answer was marked correct, no matter the spelling of the word. When the expected response was *lots* (see the first sentence of the reading), but the participant wrote *lost*, I marked the answer correct. This approach helped avoid skewing the data in favor of a positive answer for the first research question. Skipped words were not included in the dictation data. For example, in one group of sixteen students, fourteen attempted *Lars* (see the second sentence of the reading) and two omitted the word. Eight of the fourteen correctly indicated final /s/, for a ratio of 8/14 = 57.1% correct.

Findings

In replicating the paragraph, participants produced non-morphemic /s/ in 94.1% of the required contexts, while the production rate for contexts requiring morphemic /s/ was 64.9%.

The totals for morphemic and non-morphemic /s/ appear in Table 1. There was little difference among the three groups, justifying lumping the results together as done throughout the paper.

Table 1 *Totals for Morphemic and Non-Morphemic Final /s/*

Morphological Feature	Correct	Attempts	Percent Correct
Non-morphemic	532	565	94.1
Morphemic	322	496	64.9

Table 2 presents the results broken down by group, and shows that there is little difference in the results of the three groups.

Table 2 *Totals for Morphemic and Non-Morphemic /s/ by Group*

Group Source	Non-Morphemic Final /s/	Morphemic Final /s/	Morphemic and Non-Morphemic Final /s/
Private University	156/168	86/145	242/313
	92.8%	59.3%	77.3%
First-year course at University of Puerto Rico	210/217	128/194	338/412
	96.7%	65.9%	82.0%
Second-year course at University of Puerto Rico	164/175	110/161	276/339
	93.7%	68.3%	81.4%

As evident in Table 2, the results for the three groups differ only slightly from each other, justifying lumping the results together as is done throughout the paper.

The paragraph used six pairs of words that had approximately phonetically identical endings. Data for the paired words appear in Tables 3 and 4. The totals for the individual pairs are shown in Table 3, and the overall totals for the paired words are given in Table 4.

Table 3 *Data for Word Pairs Ending With /s/*

Pairing Success	Oasis/ Places	Lars/Cars	Thanksgiving/ Frank's	Prince/Prints	Disease/CDs	Surprise/Tries
Correct	44 / 49	34 / 33	45 / 32	52 / 35	43 / 36	55 / 19
Attempts	46 / 51	42 / 51	53 / 52	53 / 44	46 / 55	55 / 51
Correct%	95.6 / 96.0	80.9 / 64.7	84.9 / 61.5	98.1 / 79.5	93.4 / 65.4	100 / 37.2

Table 4 *Totals for Paired Words*

Pairing Success	Non-Morphemic /s/	Morphemic /s/
Correct	273	204
Attempts	295	304
Correct%	92.5	67.1

As evident in Tables 3 and 4 regarding the paired words, non-morphemic /s/ was produced at a much higher rate than morphemic /s/. The data thus far indicated a consistent difference between production of final morphemic final /s/ and non-morphemic final /s/, participants produced non-morphemic final /s/ much more frequently than morphemic final /s/.

In Table 5, the words in the paragraph ending with morphemic /s/ appear grouped by coda complexity (Note: The rankings in the table reflect the view that SSG violations make a syllable more complex, and the view that the more consonants in a coda, the more complex it is). The codas in Group A use singleton codas. The Group B codas consist of two consonants and do not violate the Sonority Sequencing Generalization (SSG). The codas of *lots* and *looks* in Group C violate the SSG because in each case, the stop with which the coda begins is less sonorous than the following /s/. The coda of *Frank's*, Group D, uses a CCC coda that violates the SSG as the stop, /k/, is less sonorant than the /s/ that follows it.

Table 5 *Words Grouped According to Word-Final Coda Complexity*

| Pairing Success | Group A | Group B | Group C | Group D |
	tries, places, CDs	songs, prints, cars, singer's	lots, looks	Frank's
Correct	104	127	59	32
Attempts	157	196	91	52
Correct %	66.2	64.7	64.8	61.5

No consistent correlation is evident in Table 5 between word-final coda sonority-oriented complexity and production of final /s/. The codas in Group C, for example, violate the SSG but, contrary to sonority-based expectations, received correct responses at a slightly higher rate than the sonority-compliant CC codas in Group B. The sonority-violating CCC coda in Group D did receive the lowest correct response rate but, because the study did not include a SSG-compliant coda ending with /s/, it is not possible to attribute the lower correct production rate to sonority. Finally, the difference of only 4.7% between the highest correct response rate, 66.2%, and the lowest, 61.5%. This suggests that coda complexity, whether sonority-oriented or not, had little influence on correct production of morphemic final /s/.

A further issue addressed was whether production of the morphemic final /s/ was related to whether the /s/ indicated plural, third-person singular, or possession. The totals for correct final /s/ in plurals, third-person singular, and possessives are presented in Table 6.

Table 6 *Final /s/ on Plural Nouns, Third-Person Singular Verbs, and Possessive Nouns*

Identification Success	Plural /s/ lots, prints, places, cars, CDs, songs	Verbal /s/ looks, tries	Possessive /s/ Frank's, singer's
Correct	217	51	55
Attempts	288	103	105
Percent Correct	75.3	49.5	52.3

According to the morpheme order studies, of the three /s/ forms, plural /s/ is acquired first, followed much later by possessive /s/, which is acquired right before verbal /s/. A corresponding result for Table 5 would be higher scores on plural /s/, with much lower scores on possessive /s/ and still lower scores on verbal /s/. Table 6 shows the expected trends. Plurals show the highest correct response rate, followed by possessives, and then by verbal /s/. The data of Table 6, thus, suggest that the particular function of final /s/ correlates with correct production rates.

We now consider the /s/ in *Thanksgiving*. The word consists of *thanks* and *giving*. To an ELL, the first part of the word, *thanks,* could appear to be a plural form, and thus more likely to undergo /s/ deletion, as we saw with *finger**prints***. On the other hand, the *Thanksgiving* /s/ is non-morphemic, and thus supposedly less subject to deletion. One would expect, therefore, since /s/ in *Thanksgiving* could be seen to show non-morphemic and morphemic characteristics, that it would be omitted more often than non-morphemic /s/, but less often than morphemic /s/.

Data regarding production of the /s/ of *Thanksgiving* is given inTable 7. Column A indicates the the correct response rate for non-morphemic /s/, not including the Thanksgiving data. Column B indicates the Thanksgiving data, and Column C indicates the data from Table 1 for morphemic /s/.

Table 7 *Production Rates for Thanksgiving /s/ Compared with Other Data from the Study*

Identification Success	Column A	Column B	Column C
	Total non-morphemic /s/ not including *Thanksgiving*	*Non-morphemic /s/* of *Thanksgiving*	Total morphemic /s/
Correct	487	45	322
Attempts	512	53	496
Percent	95.1%	84.9%	64.9%

As seen in Table 7, the /s/ of *Thanksgiving* was, as expected, produced at a higher rate than morphemic /s/ data, and at a lower rate than non-morphemic /s/. Similar to what will be seen in the discussion of Table 7, the validity of the test paragraph was supported by the non-random relation between production rates for the Thanksgiving data and the other data.

So far we have considered the tendencies of study subjects as a whole. Now we will take a closer look at the data and at individuals within these groups.

No student did better on the morphemic /s/ than on the non-morphemic /s/, and in the three cases where students made only one error, the error was with morphemic /s/. The three words involved were *lots*, *Frank's*, and *looks*.

Based on the general reliability of dictation as a measure of linguistic ability, it could be predicted that students who correctly wrote all 11 non-morphemic tokens of final /s/ had higher ability in English and would do better on the morphemic /s/ than those not having all 11 correct. The relevant data is given in Table 8.

Table 8 *Morphemic /s/ Production Broken Down by Correct Responses to Non-Morphemic /s/*

Identification Success	Column A	Column B
	Morphemic /s/ production of subjects who responded correctly to all non-morphemic /s/	Morphemic /s/ production of subjects who did not respond correctly to all non-morphemic /s/
Correct morphemic /s/	134	188
Attempts	185	311
Percent	72.4%	60.4%

As seen in Table 8, the group perfectly producing non-morphemic /s/ did better on morphemic /s/ (Column A) than those who did not perfectly produce non-morphemic /s/ (Column B). Assuming the reliability of dictation, the data in Table 8 support the test paragraph's validity by confirming the prediction that those who did better on non-morphemic /s/ would do better on morphemic /s/.

Discussion

Answering the Research Questions and Teaching Final /s/

The answer to Research Question 1, "Does the morphemic/non-morphemic status of /s/ correlate with final /s/ production?" is, as has been repeatedly shown throughout the paper, an emphatic "Yes." The answer to Research Question Two, "What does the answer to Question One suggest about how ELL's are processing the two types of final /s/?" is that the differing production rates for morphemic and non-morphemic /s/ indicate an awareness of the morphemic/non-morphemic split.

It could be argued that the morphological awareness was unconscious when the task posed is considered. The subjects were being tested on how well they wrote down what they were hearing. It seems unlikely that they would knowingly omit anything from the texts that they were preparing.

While the findings indicate that morphological awareness correlated with lower percentages of correct responses, the papers discussed in the literature review show that conscious morphological awareness results in improved acquisition. It appears, therefore, that making students consciously aware of and able to explain the fact that words like *prince* consist of one morpheme, and that words like *prints* consist of two morphemes, would help improve learner production of morphemic /s/.

Final /s/ Production and the Acquisition of Grammar Morphemes

The data reported in the study support the acquisition sequence reported in earlier studies; plural /s/ is acquired first, followed much later by possessive /s/ and verbal /s/. Because plural /s/ is acquired relatively early and because any difficulties with possessive /s/ seem related to its relatively low frequency, our discussion focuses on verbal /s/. Verbal /s/ refers to the /s/ added to the verb when the subject is singular and in the third person, the tense is present tense, and the activity being referred to is habitual. In other words, four categories have to be specified before one can know if an /s/ on the verb is required. By contrast, to know whether to use the plural /s/ morpheme, one usually needs only to know if the subject is plural or singular, and to use possessive /s/, one needs only to know if there is a possessive relationship between items referred to in the sentence. Knowing when to use verbal /s/ obviously requires more processing then either plural or possessive /s/.

Transfer from Spanish

As indicated earlier, Spanish syllables end either V or VC, and English allows V, VC, VCC, and VCCC endings. A transfer-oriented expectation would be that participants in the present study would show a higher percentage of final /s/ in syllables ending VC than in syllables ending VCC and VCCC. The data in Table 5 do show that Group A, the only set of codas in the table with permissible Spanish VC endings, had the highest correct response rate. On the other hand, the correct response rate for impermissible CC codas (groups B and C) was within 1.5 percentage points of the correct response rate for the singleton codas. Similarly, the production rate of the CCC codas in Group D of Table 4 was the lowest of the four coda types, but was less than five percentage points below the rate for Group A. The slight differences in production rates of the Table 5 data suggest that transfer from Spanish had little or no effect.

Further evidence of the non-importance of transfer comes from the data of Table 3. The pairs *Lars/cars, Thanksgiving/Frank's and Prince/prints* violate Spanish coda conventions, yet the non-morphemic forms were produced at high rates. The *surprise/tries* pair is remarkable in that *tries* conforms with Spanish coda conventions but received the lowest production rate of any form in the study, while on the other hand, *surprise* was the only form produced correctly by all subjects.

Regarding Dictation

The different production rates for morphemic and non-morphemic /s/ indicate that participants were processing final /s/ in ways consistent with the function of the /s/, a factor especially evident in the *surprise/tries* pair of Table 3. That they were doing processing, and not just blindly repeating the input, supports the continued use of dictation as a teaching tool.

Additional Thoughts Regarding the Late Mastery of Verbal /S/

In many ESL textbooks, verbal /s/ is one of the first topics covered. Yet as seen in the literature, the data reported in the present study, and as known by every ESL practitioner, verbal /s/ is almost always acquired late. This difficulty is sometimes attributed to salience, the effects of the Sonority Sequence Generalization, and to transfer from the L1. While research has indicated that transfer from the L1 can sometimes be a factor, the present study showed no influence from the L1, and that attempts to "blame" salience and/or the SSG have not been successful.

A further argument against salience is the likelihood, as discussed in the "Does final /s/ always sound the same" section, that in the dictation, morphemic /s/ was given greater duration, and thus greater salience than non-morphemic /s/, yet was produced much less consistently.

The contribution of the present study includes the idea that the late mastery of verbal /s/ can be explained by combining the ideas of VanPatten (1996, 2004) and O'Grady (2018). VanPatten's somewhat general theory that ELLs pay more attention to content than to form explains the overall situation, while O'Grady's more specific theory that more frequent routines are more "entrenched" and mastered earlier than less frequent routines helps explain why verbal /s/ is mastered so late.

A further issue regarding the concept of entrenchment is that impressionistically, it appears that well-entrenched, frequent routines are more general than less frequent routines. The SVO word order, for example, is general, while each /s/ morpheme is more specific than SVO word order. Verbal /s/ is especially specific, as it, as indicated earlier, depends on particular settings of several categories.

Conclusion

Aliyu (2017) indicated that his subjects showed low correct production rates for the *-ed* and final /s/ phonemes he was studying. In addition to specific attention to form, he advocated more practice in English in general, underscoring the fact supported in the present study, that production/comprehension of such morphemes appears to be more of a processing issue than a phonological/phonetic one.

Similarly, a participant in the study by Nguyen and Newton (2022, p. 35), wrote (translated from Vietnamese by the study authors), "Everyone knows that verbs in the present tense with the third person singular need an 's,' but we pay more attention to the meaning of a sentence."

The present paper, based on classwork of Puerto Rican university students and referencing studies from all over the world, suggests that the acquisition of final /s/ poses the same set of difficulties to all L2 English learners. So, as implied in the remarks of the student in Vietnam, teachers need to be patient about the acquisition of morphemic /s/. But, on the other hand, since learners appear to be at least unconsciously aware of morphemes, raising the level of awareness by specific teaching about the morphemic difference between pairs such as *chance* and *chants*, teachers may able to speed up acquisition of the various uses of morphemic /s/.

Acknowledgments

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A Study of Employers' Satisfaction With Generation Z in Thai Workplaces

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Abstract

The newest generation of workers, Generation Z, differs in many ways from previous cohorts, and so its entry into job markets poses increasing management challenges for organizations. The objective of this qualitative phenomenology research study was to explore employers' challenges and satisfaction levels with Gen Z in the workplace. Conducted in Thailand, a total of 13 participants participated in in-depth structured interviews. The results showed that while there were challenges working with Gen Z, the majority of employers were satisfied with their performance in the workplace. Gen Z workers were described as being creative, fast, problem-solvers, self-learners, tech savvy, highly confident, flexible, adaptable to change, and bringing new and great ideas. Their challenges included low organizational commitment, reluctance to stay beyond normal working hours, impatience, lack of attention to detail, and lack of some social and basic office skills. This study provides a better understanding of Gen Z's mindset, and the input gained may help employers to respond more appropriately to changes in their current workforces. It may also be valuable in helping universities to better prepare students for the workplace.

Keywords: *Employers, Generation Z, satisfaction, workplace*

Introduction

Generation Z (Gen Z), now in their mid-twenties, is the most recent group of young professionals to enter the workforce, beginning in 2020 (Chicca & Shellenbarger, 2018). These employees of the future (McGregor, 2022) are "tech-savvy, purpose-driven, independent, entrepreneurial-spirited 'Zoomers'" (Ahmed, 2023, p. 59). Generation Z, who are also referred to by other names such as I Gen, eGen, iGeneration, Centennials, Gen Tech, Online Generation, and the Facebook generation, were born between 1997 and 2012 (Smeak, 2020). The lives of Gen Z have been greatly affected and shaped by major events such as times of economic recession, high unemployment, rapid Internet growth, and having access to mobile devices (Turner, 2015). They have turned out differently from other generations in their "expectations, education, work ethics, and behaviors due to cultural values and practices that changed over time" (Ngoc et al., 2022, p. 8). Thus, they need to be treated differently. With a unique perspective of the world, differences in their work behaviors, expectations, habits, abilities, values, and information processing skills are evident (Gerschenson et al., 2017). Gen Z presents both challenges and opportunities to organizations, but if they are "understood and leveraged, they have the potential to become some of the most productive professionals" (Ellwood, 2020, p. 160). Organizations that respond effectively will be able to attract them, retain talent, and remain competitive (Ngoc et al., 2022).

The aim of this study was to learn about both the challenges and satisfaction levels experienced by Gen Z employers in regard to their work performance. How Gen Z could improve their work habits was also investigated together with how universities could better prepare them for the workplace. The literature available on Gen Z is minimal, since they began to enter the workplace only four years ago. This study will hopefully add to the scant literature on Gen Z, particularly from employers' perspectives regarding their work performance. Employer recommendations about how organizations can help improve their workplace accomplishments, and how universities can better prepare them for workplaces will prove to be useful to Human Resource (HR) practitioners, academics, and organizations.

Literature Review

Most organizations are composed of multigenerational workforces, with each generation having its own distinct "attitudes, motivations, and priorities'' (Smeak, 2020, p. 22). The five current generations include the: (a) Silent Generation (1925 to 1945), (b) Baby Boomers (1946 to 1964), (c) Generation X (1965 to 1980), (d) Generation Y/Millennials (1981 to 1996), and (e) Generation Z (1997 to 2012). An emerging theory has identified "micro-generations" or "small segments of the generational cohort that finds itself within a generation" (Smeak, 2020, p. 24). Simply said, there are many different personality types within each generation (Taylor, 2015) affected by various factors such as upbringing, life experiences, values, and personalities (Smeak, 2020). The addition of a very different generation (Gen Z) to the workplace has brought about many new challenges aside from coping with currently changing working environments (Botezat et al., 2020). Although Gen Z has been negatively stereotyped as being less engaged at work, they have to be highly success-oriented (Barna Group, 2018) and to have positive attitudes (Schroth, 2019).

Generation Z

Gen Z have been highly impacted by their upbringing, thus creating a new generation of workers with "a specific set of behaviors at work and unique expectations, aspirations, and motivations from their jobs" (Botezat et al., 2020, p. 71). They work very differently from other previous generations (McGregor, 2022) as they have some unique characteristics that–though radically different–should not be ignored. Gen Z is said to be the most racially and ethnically diverse generation (Ellwood, 2020; Turner, 2015), and they are accepting of the diversity of others (Ellwood, 2020). They grew up with cellular technology and the Internet, spend their lives with smartphones (McGregor, 2022; Priporas et al., 2017; Smeak, 2020), and mainly communicate and connect with others through text messaging and social media rather than direct contact. However, they still value face-to-face communication (Kirchmayer & Fratričová, 2018), which helps to reduce their loneliness (Ellwood, 2020).

Their immense exposure to technology has earned them the nickname "digital natives," but extensive smart device usage has decreased their social interaction, which creates a need for social skills improvement (Priporas et al., 2017). Being tech savvy does not guarantee being capable of using software and technologies at work. Therefore, employers need to provide training and guidance so that they can be "digitally literate and professional in the workplace" (Ellwood, 2020, p. 18). As the real corporate world is not as digital or advanced as Gen Z may think, they need to be informed that their "peers may not be as tech savvy as they are" (Ellwood, 2020, p. 18). As independent self-learners, they prefer to Google for answers, watch Youtube videos, or learn from the Internet. They also prefer shorter online training courses, as they have the shortest attention span amongst the generations (Ellwood, 2020). Although they are self-learners, they still need company provided on-the-job training (Schroth, 2019) and professional development (Chillakuri, 2020; Nabahani & Riyanto, 2020). This enables them to apply newly acquired skills to assigned tasks (Cho et al., 2018), while increasing their skills and competencies, as well as making their jobs more meaningful (Nabahani & Riyanto, 2020).

Ahmed (2023, p. 59) warns that there are five discredited Gen Z stereotypes, and by understanding their passions and purposes, employers would be "one step ahead in creating the next generation's motivational workplace culture." These five corrected stereotypes include:

1. Gen Z is not selfish; their values act as a compass. If requests do not align with their values, they have no problem saying "no," and vice versa.
2. Gen Z is not lazy; many of them are actually "some of the hardest working, driven, and engaged workers'' Ahmed (2023, p. 59); they give their 100% when the requests and their values align.
3. Gen Z does not believe that they know everything.
4. Gen Z does not take orders well; they want to be provided with directions, solicit feedback for alignment, and be given space to be curious and creative in their approach, as there is no one definite approach in reaching a goal.
5. Gen Z won't achieve success; they have redefined success differently, and they want to "live a fulfilled life in harmony with their values and energetic impact" (Ahmed, 2023, pp. 59–61).

Unfortunately, Gen Z has been reported as the generation with the worst mental health, being lonely and depressed as a result of suffering from stress caused by "gun violence, political issues that affect their future, work, health concerns, finances and rising suicides" (Ellwood, 2020, p. 18). Gen Z focuses more on materiality than other generations (Niemczynowicz et al., 2023), with money as their motivating factor and also one of their greatest stressors. Placing a high value on education, they feel that it is the pathway that will lead them to good paying jobs, promotions, and job security (Botezat et al., 2020; Ellwood, 2020; Nabahani & Riyanto, 2020; Turner, 2015). They may be more financially responsible than their parents (Turner, 2015), but many lack work experience because they grew up in families with higher incomes than other generations. They were focused on their studies rather than having to work and support their families while they were still young (Schroth, 2019).

There are three distinct subgroups within Gen Z:

1. *Social Investors* who "value a work-life balance" and need flexibility, but still have expectations of their jobs, coworkers and superiors.
2. *Chill Worker Bees* who "desire a comfortable workplace environment" and want their basic needs to be met.
3. *Go Getters* who "prioritize advancing their career." This group are high energy achievers with a commanding presence who are passionate about their work (Leslie et al., 2021, p. 171).

One big concern is their mental health, with one out of three members of Gen Z suffering from anxiety, stress, and/or depression; they have been reported to encounter greater mental challenges than other generations. Moreover, they have rejected the concept of lifelong job commitment, with approximately 77% expressing a desire to someday leave their current jobs (Abdi, 2023).

Gen Z Workplace Preferences

Gen Z has placed a significantly higher focus on maintaining a good cultural fit with their jobs compared to previous generations. Being more ethical than other generations, they place a high priority on choosing to work for organizations that have high moral and ethical standards (Leslie et al., 2021; Mintel Group, 2019). Corporate Social Responsibility (CSR) is important to them, both as consumers and employees. As consumers, they are attracted to and purchase products if the quality and price meet their expectations, and they are attracted to employers who implement CSR programs (Ariker & Toksoy, 2017).

Gen Z can work both onsite or remotely (Barhate & Dirani, 2021; Dolot, 2018), with a preference for working remotely at times (McGregor, 2022; Ngoc et al., 2022). They also want to be given flextime and autonomy to accommodate their personal needs such as going to the gym, meeting a friend, or running errands (Mintel Group, 2019; Ngoc et al., 2022), all of which contribute to maintaining the work-life balance that they desire (Ariker & Toksoy, 2017; Chillakuri, 2020). Highly cherishing teamwork (Ngoc et al., 2022), they value collaboration over competition, personal relationships, sincerity, and workplace ethics (Ngoc et al., 2022). Meaningful work (Chillakuri, 2020) should not be routine, repetitive, or boring; they also want to be given clear goals and instructions (Schroth, 2019).

They have high expectations of their managers when it comes to providing "guidance, support, work independence, work meaningfulness, and personality utility value" (Botezat et al., 2020, p. 86). Clear expectations and frequent supervisory feedback (Ariker & Toksoy, 2017; Chillakuri, 2020) are highly valued, as they help Gen Z to identify their strengths, weaknesses, and know how they may contribute to the firm's overall performance (Kulkarni & Rai, 2023). Gen Z values internal talent mobility, a career path where they can grow, intellectual challenges, and opportunities to learn new skills and abilities as they mature in an organization (McGregor, 2022). Their ideal workplace should be a "friendly, fun, happy social environment" in an "open, clean office space" (Ngoc et al., 2022, pp. 5-6). Nevertheless, they are a forgetful generation, and employers need to communicate with them through social networks rather than by just speaking to them (Sharma & Pandit, 2021).

Challenges of Working With Gen Z in the Workplace

Demonstrating a low degree of organizational commitment from the start of their careers, they do not hesitate to switch jobs several times prior to settling down in an organization. They value new

job opportunities more highly than stability at work (Barhate & Dirani, 2021; Dolot, 2018). The rationale behind this is because they do not want to be trapped, spending their entire career in a single organization until they retire, when there are many organizations and opportunities waiting for them (Ngoc et al., 2022). Gen Zers prefer not to perform tasks for which they were not hired (Chillakuri, 2020), and start looking for a new workplace when their needs are not met (Racolța-Paina & Irini, 2021). Managers are especially concerned about stemming turnover rates in light of this situation (Nabahani & Riyanto, 2020).

Soft competency deficiencies are the most frequently mentioned weakness associated with Generation Z. They frequently have poor listening skills, and are unable to understand body language or discern others' intentions. They are referred to as the "New Silent Generation," since they converse online more easily than in person. They do not show much empathy or self-control, do not cooperate well in groups, and are often unwilling to share ideas or thoughts with others. If a disagreement emerges, they may either start a fight or sidestep the problem (Mazurek, 2019). If they are unable to discover enjoyment at work, they may consider leaving a position without hesitation. Gen Z do not relate well to any one age group, since they value their individuality and dislike authority (Ozkan & Solmaz, 2015). Human Resource directors should be ready to respond to queries from Gen Z, who typically do not hold back, are not afraid to ask difficult questions, and expect to receive prompt responses. They typically have doubts about the legitimacy of the rules to which an organization adheres, what they are trying to accomplish, why they decided to do it, and what the results will be (Karthikeyan, 2022).

From the Organization's Side

Organizations need to adapt to the unique characteristics of this large wave of new Gen Z employees as they join workforces (Ngoc et al., 2022), since they will make up about one-third of the global population, and most of them reside in emerging countries (Thach et al., 2020). Employers who seek to understand them will be better equipped to manage a more challenging and diverse workforce (Leslie et al., 2021; McGregor, 2022). Moreover, by empowering Gen Z and embracing change, they can become attractive employers. It is important for them to teach, educate, and mentor Gen Z employees so that they grow as individuals (McGregor, 2022). Helping them learn to appreciate experienced workers who have different skills and capabilities at the onset can help reduce and prevent conflicts in the workplace. Introducing reverse mentoring benefits organizations, as it helps to "leverage each generation's skills and capabilities" (Ellwood, 2020, p. 18). Giving Gen Z credit for a job well done increases their commitment, and including them in decision-making, committees, and projects provides them with a sense of control over their career pathways (Kulkarni & Rai, 2023).

Organizations have embraced a digital culture that requires not only new ideas, but also new approaches, which Gen Z understands very well. According to McGregor (2022, p. 12), the younger generation are "more altruistic" than previous generations who "see the potential in technology and want to use it to solve problems and make the world a better place." Since they have very different expectations from their predecessors, employers could benefit from gaining a good knowledge of their job seeking expectations and job pursuit intentions as a way of making their organizations more attractive places to work (Ngoc et al., 2022).

Objectives and Research Questions

The objectives of this study were to find out how satisfied selected employers were with the work performance of Gen Z employees, and the challenges of having them in the workplace. Recommendations were also sought from employers as to how universities and organizations could better prepare Gen Z for the workplace. Four main research questions guided this study:
1. What are the challenges of working with Gen Z employees?
2. How satisfied are employers with Gen Z's work performance?
3. What recommendations can be given to organizations to improve Gen Z workplaces?
4. What recommendations can be given to universities to better prepare Gen Z for workplaces?

Methodology

A qualitative phenomenological research method was selected for this study, as Gen Z have just entered the workplace in recent years, and learning how they have impacted workplaces in recent years is a new topic that is worth exploring. Individual in-depth interviews were conducted either through online platforms such as LINE or Messenger, or face-to-face for 30- to 45-minute sessions. Convenience sampling was used, with both researchers relying on their professional networks to invite participants who were working with Gen Z employees to participate in the study. A total of 13 participants were interviewed; each participant's profile (gender, nationality, age range, industry, and position) is shown in Table 1. Data were collected through a Google Form link sent to prospective participants, and by completing this form, they consented to participate in the study. The semi-structured interview protocol consisted of four questions: (a) challenges of working with Gen Z compared to other generations, (b) Gen Z's performance in the workplace, (c) suggestions for improving the workplace performance of Gen Z, and (d) recommendations for universities to better prepare them for the workplace.

Table 1 *Participant Profiles*

Participant	Gender	Nationality	Age Range	% Time with Gen Z	Industry	Position
P1	Female	Thai	41–50	> 70	Education	Financial Controller
P2	Male	Thai	31–40	> 70	Agritech	Senior QA Tester
P3	Female	Vietnamese	28–30	> 70	Printing	Operation Manager
P4	Female	Lao	41–50	30–70	Church Organization	Department Director
P5	Male	Thai	51–60	< 30	IT	Operation Director
P6	Male	Thai	41–50	> 70	IT	Vice-President
P7	Female	Thai	51–60	> 70	Transportation	HRM Director
P8	Male	Thai	41–50	30–70	Education	Assistant Chairman
P9	Female	Thai	28–30	30–70	Audit	Audit Manager
P10	Female	Thai	41–50	30–70	Shipping	General Manager
P11	Female	Thai	51–60	30–70	Education	School Director
P12	Male	Malaysian	41–50	> 70	Media	Manager
P13	Male	Thai	28–30	30 - 70	Fitness	Business Owner

Results

The data was coded and analyzed on Excel spreadsheets, and the clusters formed by similar codes were then organized into broader categories, and finally grouped into four main themes as found in Table 2. The results are then further analyzed in the Discussion section.

Table 2 *Summary of Themes*

Themes	Description of Sub-Themes
Theme 1: Challenges of Working with Gen Z	1. Understanding Gen Z and Their Work Ethic
	2. Difficulties Working with Gen Z
Theme 2: Gen Z's General Performance in the Workplace	1. Neutral or Mild Dissatisfaction with Gen Z's Work
	2. Satisfaction/High Satisfaction with Gen Z's Work
Theme 3: Suggestions for Organizations in Improving the Workplace for Gen Z	1. Playing the Part
	2. What Organizations Can Do
	3. Adhering to Gen Z's Work Preferences

Challenges of Working with Gen Z
Understanding Gen Z and Their Work Ethic

Working with Gen Z does not have to be challenging, and understanding them and their work ethic a little better would be helpful to employers and superiors. A very understanding participant (P2) said that they "don't have much experience because they just graduated." Participant P3 found that they are "brave and speak out," and dislike "being forced to do their work and strict rules." To them, respect is something that needs to be earned (P3). They are "good and fast problem solvers, knowing where to gain access to information, as they are tech savvy" (P4), and are flexible when it comes to "adapting to change" (P3). Not only do they "like to share and help, they do not skimp on knowledge like the older generations" (P5); they are very quick (P6) and "work about two to three times faster than other generations" (P3). Being given clear instructions is important to them, and organizations can reap immense benefits by enhancing their job satisfaction since Gen Z can exceed expectations when they are motivated (P3). Active and quick, they can adapt well to fast changes (P5). Interviewee P6 recommended that "their massive energy needs to be channeled properly to achieve greater impacts."

They "like new, non-repetitive, and challenging work, unlike their older colleagues who prefer routine work" (P4) and dislike change (P4 & P5). According to P1, Gen Z follows the current trend of changing jobs frequently, looking for work that pays better rather than focusing on a stable job. This notion was supported by both P7 and P9, who called Gen Z "short-term thinkers" who are ready to move to "a new workplace with a better job offers instead of thinking to grow with the company" (P9). They "lack the patience of waiting for a promotion after working for two years" (P7). High Gen Z turnover has, according to P7, led to them having a "lower impact compared to the older generations, as they are in lower positions, and are therefore easier to replace than their superiors" (P7). Gen Z "have their own slang and interests which are very different from other generations, resulting in relationship challenges/barriers, which have a significant impact on work" (P10). They have their own mindsets and ways of doing things which cannot be generalized.

Interviewee P12 strongly believed in empowerment as a significant tool in "reaching the same organizational goals through their own way of getting there, as they dislike being told what to do, unlike older generations who are used to and expected to be told what to do, and their loyalties cannot be bought." Moreover, they like flexible working hours because they sleep late in the evening (P4). This finding is aligned with literature that mentioned that their different upbringing impacted the way they have turned out, with "a specific set of behaviors at work and unique expectations, aspirations, and motivations from their jobs" (Botezat et al., 2020, p. 71).

Difficulties Working with Gen Z

A true challenge is the "ability to catch up with Gen Z, who have new ideas, perspectives, and come up with new trends of working." Therefore, P8 had to do some research before talking with them. One big challenge is that "Gen Z prefers to use their own ways of accomplishing tasks, and they never hesitate to ask when in doubt." However, getting things done using their own ways meant "having multiple adjustments and revisions prior to getting the task done," but that was acceptable to P8. Although Gen Z have boundaries in terms of working hours and finish work by 5:30 pm, as agreed in their employment contracts, they are "unwilling to go beyond that time when asked to work overtime as they already had other scheduled plans." Older workers, on the other hand, "do not seem to want to go home" (P8). It's a challenge to work with Gen Z, who are "not resilient to pressure, and become all worked-up, and give up saying they can't do it, when they cannot take the pressures," contrary to other generations, who "would fight to the end" (P9).

Leaving organizations is a trend, as stated by three participants. Participant P11 noted that "retention is definitely a huge challenge in the auditing field, as Gen Z have a tendency to stay for just one to two years, or a maximum of three, and they leave as they see many other new channels for faster success." Interviewee P1, who spends about 70–80% of working time with Gen Z, had a lot to say about them: "They don't have a clear understanding about their job assignments as they don't

pay attention." They also hardly adapt to the work, do not demonstrate a spirit of self-sacrifice for the work when it needs to be done by a specific date and time. They are not satisfied with working overtime to finish their jobs, but have a mindset that "the salary and the quantity of work should go together" (P1). Although they have been described as "being quick and active, their lack of patience sometimes leads to missing out on details" (P5). Participant P4 described them as having "no motivation, with an attention-deficit issue," and "sometimes it looks like they aren't serious about the tasks they have been given" (P13). As McGregor (2022) mentioned, they work very differently from other previous generations, and have some radically unique characteristics that should not be ignored, as they are valuable to future organizations.

Gen Z's General Performance in the Workplace

The overall satisfaction of participants with Gen Z's work performance was favorable with 77% who were satisfied or highly satisfied, and just 23% who felt neutral or expressed mild dissatisfaction.

Neutral or Mild Dissatisfaction With Gen Z's Work Performance

Gen Z were "not detailed, careless, not service-minded, without a volunteer spirit, who would work only during the eight hours even though the job is incomplete" (P1). Interviewee P11 said that they were "not as focused as previous generations, with too many interests, have different ways of resolving problems, and did not do any research prior approaching managers, don't care about money, and don't mind changing to lower paid jobs." As for P12, he said that "if one can take the time and effort to understand them, we can 'bring the best out of them.' They can perform better when they feel the trust and honesty in relationships."

Satisfaction with Gen Z's Work Performance

Participant P2 was impressed with Gen Z's ability to be "independent and get things done on their own, even without training," which was similar to P4, who noted that "you don't have to give them instructions, as they can find their own way to get work done. Aside from working fast, they are creative, skilled in problem solving, and are not afraid to try new things and are brave." A satisfied P6 shared that they are "highly skillful, well trained, very passionate with the willingness to learn more, are respectful, and comply with working policies" and are "cooperative" (P13). All the participants who were highly satisfied expressed that Gen Z was tech savvy as compared to their older colleagues. They are "good at AI, Internet, and technology" (P3), using a lot of technology in their work, and "working more efficiently as they have digitized everything" (P9). This new vitality in "thinking outside the box, being frank, bringing new and effective ideas, and exceeding expectations" impressed P5, while P7 said that they are "fast learners, with a great learning curve and a high sense of general learning." "They understand and accept change as a normal part of their lives, while other generations have many questions about change and need answers" (P7). Participant 8 also made a similar comment about their great ideas; they are great learners, and are able to perform very well at work, as they could "finish their tasks very fast, faster than other generations." They were also complimented as "being very constructive in their suggestions in resolving problems and playing an integral role in getting work done" (P9). The distinctive characteristics of Gen Z that differ from other generations are invaluable in today's workplace, particularly as pertaining to their tech savviness, new ideas, and flexibility in adapting to change.

Suggestions for Organizations in Improving the Workplace for Gen Z
Playing the Part

Human Resource departments play a very significant role, as they can organize good orientation programs for Gen Z employees as they transition to new workplaces. Their first day and week have the most impact, so it is important for them to believe that they made the right decision to work at a company, and do not feel lost. Managerial mindsets need to accept that their workforces have changed, and so their behavior needs to change in order for firms to work together productively (P12).

What Organizations Can Do

Gen Z are "fast moving, fast learners with high confidence, but they need more learning and training in acquiring deep analytical skills that come with experience, training, and self-learning" (P7). Although organizations gain from their speed, Gen Z employees need to receive training and coaching to slow things down (P5), and be more detailed and thorough in their work to prevent mistakes (P1). Other training needs include planning, organizing, and prioritizing work (P1). Moreover, being a digital native does not guarantee ability to use organizational software and technologies; therefore they need training and guidance to be "digitally literate and professional in the workplace" (Ellwood, 2020, p. 18). They also need to be "more tolerant toward goals," as they "have a low tolerance for patience and give up easily" (P13). Empowerment and involving Gen Z in planning, allowing them to express themselves freely (P6), share ideas, and providing clear guidelines and expectations (P3, P4, & P6) are also helpful. Using their ideas (P3) to fulfill their need to be part of decision-making processes is also useful, as they hate to be told what to do (P9). This allows them to "see the big picture," which enables them to understand project objectives rather than just achieving outcomes (P10).

Adhering to Gen Z's Work Preferences

Creating the right atmosphere for work and providing Gen Z employees with modern software and laptops so that they can work more efficiently is critical (P9). According to P8, "giving meaningful work assignments to Gen Z helps to improve their performance, as they have a preference for non-routine tasks, challenging assignments, and like working on projects." Gen Z "do not like long meetings, and prefer 30–45 minutes, as they lose focus and find them boring" (P3). Moreover, participants recommended that meetings should not exceed preset time limits.

Granting them opportunities to use social media or modern communication channels to keep up with current trends was recommended, and a bonus scheme can be a valuable motivational and incentive tool (P3). Another recommendation was to foster close, respectful working relationships, and an atmosphere of fairness, as Gen Z place a high significance on these matters. Commendation and recognition are very important to Gen Z, so it is essential to "take the time to praise them, help them feel they are valuable and contributing to the organization, allowing them to express themselves to be understood, and to touch their hearts" (P12). As retention is a problem, efforts need to be made to help Gen Z see goals, a career path, job significance, and the benefits of working at an organization, while making jobs more meaningful by providing job enlargement (P11).

Recommendations for Universities to Better Prepare Them for the Workplace

Many participants shared that new employees entering the workplace have no basic working skills, lack the soft skills needed to communicate and work with others—particularly those from other generations—and need a lot of training to get settled. In fact, P12 said that he would rather "hire someone with a lower GPA (2.5 than 3.9) who has had prior working experience than someone who is studious without any practical general knowledge." Participant P9 mentioned that "university curricula [sic] do not fit the workplace," and he recommended that "each student should have at least one full year internship to truly understand how the workplace works." Although P3 said that it was difficult to prepare students for the workplace, many recommendations to universities were made by the participants (Table 3).

Table 3 *Recommendations for Universities to Help Prepare Gen Z for the Workplace*

1. Universities need to be current and flexible in adapting to current trends by updating curricula and teaching materials. Revised curricula should move away from theoretical knowledge and memorization to applying concepts in case studies, integrating working models, field trips, internships (suggest one year), and practical, hands-on learning.
2. Students need to understand the significance and practice responsibility and accountability (assignment submissions by deadlines), as these attitudes are necessary at work.
3. Provide career counseling and invite working alumni to share their working experiences, along with workplace demands and expectations, to furnish a clearer picture of real workplaces.
4. As Gen Z has demonstrated less human interaction and participation in workplaces, students need to be taught the soft skills of socializing, collaborating, and talking with people within/outside of their generation.
5. Students need to be taught to screen their thoughts prior to speaking, and the importance of learning how to remain calm, controlling their moods and emotions.
6. Help students cultivate skills of working with other people, working as a team member, and not thinking only of themselves (opinions, responsibilities), but also being considerate and learning to accept other peoples' opinions, which may not be aligned with current trends. Since they have been labeled as a "selfish generation" (P10), they need to understand that the world does not revolve around them.

Discussion

Generation Z is definitely a generation that stands out in many ways when compared to prior generations (McGregor, 2022). Efforts aimed at understanding their mindset and being more accepting of their ways of working can help bridge the gaps that occur in current workplaces (Leslie et al., 2021; McGregor, 2022). Human resource practitioners, managers, and employers will find it valuable to gain an understanding of Gen Z's values and characteristics instead of stereotyping them, but instead should evaluate them as individuals under the three subcategories of Social Investors, Chill Worker Bees, and Go Getters (Leslie et al., 2021). Moreover, being able to identify intergenerational overlaps in terms of values and desires is helpful in diversity management.

Many positive aspects of Gen Z were noted in the literature review. Studies indicate Gen Z as being tech savvy, flexible, adaptable, fast, and self-learners, which were reasons why participants enjoyed working with them and were satisfied with their workplace performance. An important finding emerging from this study involved their work speed. They work more rapidly than earlier generations, and they do not hoard–but willingly share–information. They are extremely flexible and can adapt very quickly to organizational and technological changes, which is difficult for other generations. Work assigned to them needs to be well-thought out as they want meaningful, challenging, and non-routine duties that benefit organizations in the long run. This helps to retain them, while routine or boring work finds them planning to leave. Since they normally sleep late, they desire flexible working hours so that they can come to work later than usual. Their creativeness and ability to think quickly about great and new ideas is commendable.

Their shortcomings are many, but quite different from those of prior cohorts. New to organizations (Chicca & Shellenbarger, 2018), they make mistakes because they are inexperienced, impatient, lack attention to detail, do not ask for help when in doubt, and try to do things in their own way. This means that time is lost correcting their mistakes, and revisions must be made, but this is part of the learning process. Their commitment to organizations is relatively low; they do not like to "go the second mile" by staying longer to complete their work, and cannot take pressure. Lacking in patience, they are often ready to quit and thus are labeled "short-time thinkers," and have high turnover rates. This low level of organizational commitment was also mentioned by Ngoc et al., (2022), where Gen Z participants with little or no work experience would job hop several times before settling down. It was also supported by Barhate and Dirani (2021), who found that Gen Z looked for new job opportunities rather than stability at work. This is a headache for organizations, as it creates a constant need to recruit and train, only to see employees leave again in a short time, as

"*organizational loyalty*" does not seem to be part of their vocabulary. The fortunate thing is that Gen Z employees who leave are usually at entry level positions (McGregor, 2022), so their departure does not create a major problem.

The challenges of working with Gen Z are numerous, but the majority of participants were satisfied with and enjoyed their performance. By carefully managing their considerable energy, passion, and empowering them with challenging work, they have proved to be a huge asset to their organizations. Older supervisors and peers have found it challenging to keep up with Gen Z's new ideas, perspectives, and work trends, but it is important that they try. Gen Z's tech savviness as digital natives is a crucial element that previous generations lacked, but is definitely significant to today's organizations as the world continues to advance in its use of AI and technology in operations (McGregor, 2022). The digital era has greatly impacted the entire world, and technological changes will continue at a rapid speed. So Generation Z is a great asset in many ways for organizations, as they are equipped with the necessary technological skills to cope with current and future digital trends.

Organizations can better prepare new employees through orientation and training sessions as they transition from the university into the workplace. As P12 mentioned, "organizational managers' and leaders' mindsets need to adapt to the fact that the workforce has changed, with changed behaviors, in order to be productive in working together." This finding was also mentioned by Botezat et al. (2020). In the same manner, it is important for HR departments to educate new employees concerning an organization's culture, mindset, and gaps that may occur between generations. Human Resources should include diversity training so as to reduce generational gaps and create an awareness of Gen Z's mindset amongst older employees, so that they will understand them a little better. Employers who seek to understand them will thus be better equipped to manage a challenging and diverse workforce (Leslie et al., 2021).

A skill set that is greatly lacking amongst Gen Z is "*soft skills,*" and universities are encouraged to incorporate these into their curricular programs. This need for improved social skills was also mentioned by Priporas et al. (2017). Participants recommended that revisions be made to university curricula to make them more practical and better prepare students for workplace realities. This is easier said than done, as curricular revision is a major task that takes a lot of time and effort, with approval from Higher Education authorities required that sometimes takes years to obtain. Moreover, it is challenging for universities to teach soft skills to students if instructors are out of touch with the current work world.

One-year internships were recommended by one participant, as some new employees not only lack soft skills, but also basic office skills. The three-month internship required by some universities is too short, and useless when organizations do not teach their interns, but assign random tasks because of their short-term stays. This study was conducted in Thailand, where students usually start work after graduating from university, and so most new employees have no prior work experience as compared to teens in other countries, who start working in high school. According to Schroth (2019), this lack of work experience is because Gen Z grew up at a time when family incomes were higher, and parents encouraged their children to focus on their studies rather than on working.

Conclusion and Recommendations for Further Research

This study sheds light on Thai employers' views of the work performance of their Gen Z employees, and is based on first-hand work experience with them. The information about Gen Z helps readers gain a better understanding of how to work with them. Their invaluable suggestions as to how organizations and universities can better prepare Gen Z for the workplace should be considered carefully. Most Thai students do not work prior to graduation from university, and hence lack prior workplace experience, along with soft and basic office skills. It is recommended that further research be conducted in other countries where teens start working in high school, and that the findings be compared with those from this study to generate additional insights into these issues.

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Livelihood Resiliency of Selected Informal Sectors in Cebu City, the Philippines

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Abstract

This study focused on the livelihood resiliency of selected informal sectors in Cebu City, the Philippines. It employed a mixed-method approach to describe how informal sectors responded to external shocks. A quantitative approach was used to measure three resilience capacities: absorptive, adaptive, and transformative resilience. The results revealed that both street and platform vendors showed high resilience capacities. When relationships between gender and resilience capacity levels were tested for street and platform vendors, only gender and adaptive capacities showed significant relationships at the .02 and .04 levels, respectively. By contrast, their absorptive and transformative resilience capacities showed no significant differences. Qualitative findings revealed that informal sector street and platform vendors were vulnerable in times of economic shock due to their irregular incomes, poor working conditions, and struggles to sell their products. Despite external shocks, they attempted to cope by looking for alternative sources of income, utilizing their savings, and receiving assistance from the government, along with support from their families.

Keywords: *Resilience capacity, livelihood resiliency, informal sectors, Philippines*

Introduction

Having a livelihood is an essential element for human survival. However, external threats such as economic and natural disasters pose ongoing risks. Therefore, it is important to look into how individuals or communities adjust to the different shocks that affect their livelihoods. The livelihoods of people in small communities are often those most severely affected by external shocks. Exploring the livelihood options and resilience of rural communities in earthquake-prone areas is critical for assisting them in dealing with disaster risks (Zhou et al., 2021).

There are increasing efforts by international development and humanitarian organizations to measure livelihood resilience to external shocks such as floods or droughts (Quandt, 2018). The study of livelihood resiliency cannot be under-estimated, as the world constantly faces different disasters that affect community livelihoods and, thus informal livelihood sectors. Some scholars believe that in an uncertain future, livelihood resilience may be the best way to protect informal livelihoods and promote communities' long-term development (Zhou et al., 2021). Resilience thinking offers a fresh perspective on livelihood research. It can help us understand how individuals maintain their livelihood levels in times of adversity (Forster et al., 2014).

The United Nations Sustainable Development Goal 8.3 (2021) states: "Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity, and innovation, and encourage formalization and growth of micro, small, and medium-sized enterprises, including through access to financial services." This is the only Sustainable Development Goal that directly targets informal economic sectors (International Labour Organization, 2022). Despite significant societal progress, a substantial number of people at the grassroots level are excluded from the benefits of economic growth. This is contrary to the claims of mainstream development economists about the "trickle-down" effects of economic growth.

According to McKay and Summer (2008), for economic growth to benefit the poor, it must be linked to creating new jobs, giving opportunities to the poor, and helping them transition away from agriculture. Economic growth may generate new jobs. However, the quality of these jobs, whether the poor can take advantage of these opportunities, and whether these jobs are stable enough to

withstand economic shocks, are key determinants in the relationships between growth, poverty reduction, and inequality (Melamed et al., 2011).

Livelihoods are undergoing major worldwide transformations due to changes in environmental and social systems. Dangerous climate change has a disproportionate impact on informal sector livelihoods, increasing vulnerability and limiting the development of livelihood sustainability (Tanner et al., 2015). The United Nations warned that during the COVID-19 pandemic, 1.6 billion workers in the informal economy worldwide were at risk of losing their livelihoods (United Nations Sustainable Development Goal, 2021).

External shocks like natural disasters and pandemics primarily impact vulnerable workers in the informal economy. This sector consists of small-scale, self-employed producers and distributors of goods and services, who are generally not covered by labor laws and regulations. The vulnerable employment rate, defined as the share of single proprietorships and contributing family workers in total employment, is one proxy measurement and indicator of the informal economy (International Labour Organization, 2021). These characteristics make the livelihoods of informal workers vulnerable to external shocks.

In 2008, the Philippine National Statistics Office conducted the first nationwide survey with support from the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP). The survey revealed that 37.1 Filipino million workers were employed in the formal sector (Philippine Statistics Authority, 2019), while 10.5 million were informal sector operators. Thus, total employment was 47.6 million. This meant that about 22% of the labor force in the Philippines belonged to the informal sector. The informal sector consisted of 9.1 million self-employed non-paid workers who were employed by a family farm or company, and 1.4 million employers.

An Informal Sector Survey conducted in 2018 by the Philippines Statistics Authority (PSA) (2019) provides the most recent accessible statistics on the number of workers in the Philippines' informal economy. The Institutional Shareholders Services estimated this number at 15.68 million, or roughly 38% of the total working population, with the PSA using the Labour Force Survey proxy indicator on self-employed and unpaid family workers to provide an admittedly incomplete statistic. The PSA used the operational definition for the informal sector as "household unincorporated enterprises that consist of both informal own-account enterprises and enterprises of informal employers."

The highest Philippine unemployment rate of 17.6%, with 7.2 million unemployed persons, was reported in April 2020. This reflected the effects of the COVID-19 pandemic on the Philippine labor market (Philippine Statistics Authority, 2020). Using proxy indicators from the May 2021 Philippine Labor Force Survey, the International Labour Organization estimated that 38.3% were employed in the informal economy (International Labour Organization, 2021). This was much higher than the 2008 estimate of 22% of the labor force. The informal sector's social protection is limited or non-existent. This means that when shocks occur, informal workers are the most vulnerable. Workers in the informal sector work without written contracts, paid leave, minimum wages, or access to social safety nets. Most are subject to "no work, no pay" conditions, and if joblessness last several days, they are in imminent danger of falling below the poverty line (Development Asia, 2020). Although most sectors in the economy were severely affected by the COVID-19 pandemic, informal operators with no access to financial capital were most susceptible to the impact of this shock.

In this study the response of informal sectors to the pandemic shock was investigated as were measures to integrate informal sectors into the formal economy. This was in harmony with the three objectives listed in the 2015 International Labour Organization's Recommendation 204 entitled "Transition Informal to Formal Economy." The objectives were as follows:

1. Facilitate the transition of workers from the informal to the formal economy.
2. Promote the sustainability of decent jobs in the informal economy.
3. Prevent the informalization of formal economy jobs.

Objectives of the Study

The aim of the study was to describe the livelihood resiliency of selected sectors in the informal economy of Cebu City, Philippines. Specifically, the following aspects were addressed:

1. Assess the resilience capacity of the informal sectors in the following context (absorptive capacity, adaptive capacity, and transformative capacity).
2. Describe strategies of livelihood coping mechanisms used by the selected informal sectors.

Literature Review

Resilience Capacity

Resilience in complex adaptive systems involves more than just an aversion to change and a wish to return to the way things were (Folke, 2006). No single one of the three resilience capacities leads to resilience; each capability produces a distinct outcome: (a) absorptive capacity produces endurance (or continuity) (Béné et al., 2013), (b) adaptive capacity produces incremental adjustments or alterations, and (c) transformative capacity produces system-changing transformational responses.

Informal Economy

Employment in the informal sector is defined by the nature of the workplace, such as unregistered or small-scale enterprises, while informal employment refers to jobs that lack formal contracts, worker benefits, and social protections, regardless of the workplace. According to international norms from the 15th International Conference of Labour Statisticians, the informal sector includes unincorporated units that produce goods or services primarily to provide employment and income. These enterprises operate at a low organizational level, on a small scale, with minimal division of labor and capital (Bonnet et al., 2019)

According to the IBON Foundation (2022), informal labor in the Philippines grew across all occupational categories during the pandemic. From January 2020 to July 2022, self-employed workers rose by 1.8 million to nearly 13 million, unpaid family employees increased by 1.1 million to 3.7 million, and employers in family-run farms or businesses grew by 269,000 to 1.3 million. By July 2022, 20.1 million jobs (42.4%) were informal, including domestic help, small family farms, and self-employed or unpaid family workers—an increase of 3.4 million since January 2020.

Livelihood Resilience

Tanner et al. (2015) defined livelihood resilience as the ability of people across generations to sustain and improve their livelihood opportunities and well-being in the face of environmental, economic, social, or political disruptions. In practice, a "resilient livelihood" refers to employment with minimal impact or pressures on one's primary source of well-being, which can create new opportunities for economic development and policy innovation (Folke, 2006).

Hodbod and Eakin (2015) postulated that a diversity of income sources allows for various responses when dealing with disturbances, and may lessen their impact. Diversification of livelihoods can take several forms depending on the situation. Diversification is sometimes used to accumulate resources, but it may also be used to distribute risk or cope with brief crises. Other individuals may use it to respond to longer-term decreases in incomes or resources, or large-scale economic or environmental changes that are beyond local control (Quandt, 2018).

The breadth of research on livelihood resilience emphasizes that having access to capital, or buffer capacity, helps people to grow their assets and continue to produce even in the face of risks to their livelihoods (Tanner et al., 2019). Although earlier research has provided a general grasp of resilience and coping strategies, it mostly provides an overview without going into detail about particular situations. In contrast, the informal sector has developed ways for people and families to survive in countries with few work prospects, and to help small business owners get around legal restrictions (Global Development Research Center, 2020).

Vulnerability of the Informal Sector

An investigation by the Organization for Economic Cooperation and Development (OECD, 2019) explored the difficulties facing informal economies. First, it incorporated the household dimension into pictures of informality, demonstrating how informality is frequently more complex than as revealed by standard indicators, which focus on individual workers or enterprises. This report also demonstrated how pervasive poverty and occupational risks, along with a lack of access to social protection and risk management measures, exposed many informal sector workers (particularly women and their families) to significant vulnerability.

The report closed by advising policymakers to prioritize areas that would reduce vulnerability in informal economies. Informal laborers are twice as likely as formal workers to live in low-income households. The poverty line, set at US$3.10 per day, has been defined using Purchasing Power Parity as the minimum daily income required to cover basic needs in many developing nations. In the 29 countries where comparable data were available, this metric indicated that almost 20% of formal workers, and nearly 42% of informal workers, were living below the poverty line (OECD, 2019).

Damage to Economic Fabric

Restrictions on people movements, as well as an abrupt halt or severe downscaling of economic activities, have a significant impact on and are likely to have consequences for informal enterprises. Given that they have no savings or other financial cushion, most owners of informal businesses are forced to spend their meager business capital. As a result, they may be forced to close their informal businesses either temporarily or permanently, resulting in job losses and increased poverty. Income loss and deepening poverty, in turn, may lead to an increase in child labor and lower school enrollment rates, particularly among young girls. The uneven impact of a crisis on different sectors may result in large-scale economic restructuring. The reorganization of manufacturing activities and supply chains may result in frictional unemployment or expansion of the informal economy (International Labour Organization, 2020b).

Conceptual Framework

Figure 1 shows the conceptual framework adopted for this study. Instead of treating livelihood resiliency as a separate or dependent variable, it was measured using a mixed-methods approach. According to Quandt (2018), measuring livelihood resilience is challenging and requires practical data measurement, analysis, and visualization methods. Similarly, Jones and Tanner (2015) pointed out that resilience is not directly measurable, and that most researchers have used proxies or indicators.

Figure 1 *Conceptual Framework*
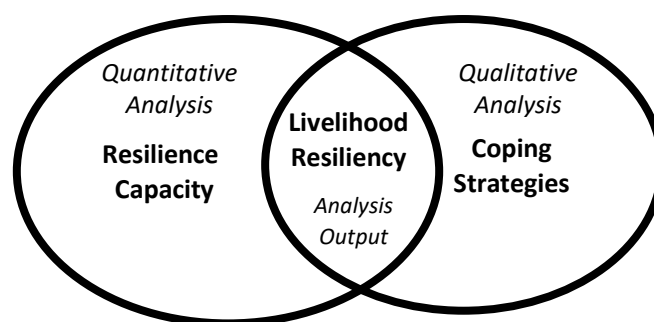
In this study, a quantitative approach focused on resilience capacity, which encompassed the three core principles of resilience (absorptive, adaptive, and transformative) at the individual level. A qualitative exploration of coping mechanisms/strategies of informal sector workers was used to gain a deeper understanding of how they adapt and sustain their livelihoods during times of adversity. By combining these two analyses, a comprehensive description of livelihood resiliency was provided. It is

important to note that no single data source or indicator can fully capture the complexity of livelihood resiliency. Hence, the researchers used this mixed approach in an effort to better understand it.

Research Methodology
Methodological Gap
As mentioned above, most of the approaches used by previous researchers to measure livelihood resiliency employed surrogates or indirect indicators of resilience. In this study elements of livelihood resilience were investigated that were considered to keep livelihoods intact in the face of change, focusing on people's innate ability to bounce back from setbacks and develop new skills. Although research on livelihood resilience is scarce and has frequently used different approaches or focused on other issues, these efforts complement an approach that focuses on poverty alleviation (Speranza et al., 2014).

Research Design
A mixed-method approach was used in this investigation to explore livelihood resiliency. Quantitative analysis was adopted to examine resilience capacities, comparing vendors and platform economy participants, while a qualitative focus group provided insights into how these groups adapted to shocks. Combined, these approaches furnished a deeper understanding of livelihood resiliency.

Research Environment
The study was carried out in Cebu City, Philippines, the capital of the 80 barangays that are located on Cebu Island. Cebu City, well-known for its thriving unofficial sector that includes small, unregistered companies and street vendors, was a perfect place for this study. Cebu City unites old marketplaces with contemporary commercial districts to serve as a regional center for trade, business, and culture.

Participants of the Study
Two informal sectors were examined—street sellers and platform economy members. Street vendors needed to be unregistered with local or national agencies, willing to participate, and of legal age. Platform vendors needed to be self-employed, rely on platforms like Facebook or Instagram to sell their items, be unregistered with national or local organizations, operate in Cebu City, and be willing to participate. The study included 200 respondents from each group, for a total of 400.

Instrument
The two informal sectors resilience capacity was assessed using a self-developed instrument. The survey questionnaire was in two sections: The first was about respondents' demographic profiles, while the second evaluated the three resilience indicators—absorptive, adaptive, and transformative capacity. After being pre-tested on thirty laborers and evaluated by professionals, the instrument received a high-reliability Cronbach's alpha score of .974. Focus group discussions were led by a moderator where data were collected on the groups' livelihood coping mechanisms.

Data Gathering
The data collection was divided into two phases: An online survey was utilized for platform merchants, and a field survey evaluated street vendors' potential for resilience. Convenient locations were chosen for focus groups with street vendors, while online sessions were done with platform sellers. No one was coerced into participating in the study. Instead, participants signed an informed consent form attesting to their free involvement.

Data Analysis
Quantitative analysis included comparing the responses of platform and street vendors, frequency analysis, a Mann-Whitney U test, and a comparison of respondents' resilience capacities. Correlations

among gender, vendor types, and resilience were also examined. Focus group transcripts were subjected to thematic analysis, which involved finding patterns and categorizing them into themes. The intended meaning of participant responses was verified during data collection, ensuring the validity of the qualitative data.

Results
Resilience Capacity (Quantitative Results)

Table 1 shows informal sector resilience levels, presenting absorptive, adaptive, and transformative capacities for both platform and street sellers.

Table 1 *Informal Sector Levels of Resilience Capacity* (N = 400)

Categorization	Absorptive Capacity		Adaptive Capacity		Transformative Capacity	
	Platform Vendors	*Street Vendors*	Platform Vendors	*Street Vendors*	Platform Vendors	*Street Vendors*
Highly Resilient	124	103	47	103	124	104
Resilient	74	65	120	65	66	64
Less Resilient	2	24	33	25	10	24
Not Resilient	-	8	-	7	-	8

Note. Highly Resilient & Resilient – Desirable levels of resilience capacity; Less Resilient & Not Resilient – Less desirable levels of resilience capacity.

Platform vendors (124) demonstrated higher absorptive capacity compared to street sellers (103). For adaptive capacity, street vendors (103) outperformed platform vendors (47), with 65 street vendors and 120 platform vendors in the Resilient category. However, there were 65 street sellers and 120 platform vendors in the Resilient category showing adaptive capacity. Less Resilient were 25 street vendors and 33 platform vendors, with 7 street vendors and no platform vendors in the Not Resilient group.

Platform vendors led the Highly Resilient category. On the other hand, 104 street vendors reported highly transformational capacities levels, meaning that they could build new systems if the current ones were broken. There were 24 street vendors and 10 platform sellers in the Less Resilient group. The Not Resilient tier had no platform vendors and just eight street vendors.

The data revealed how intricate and varied resilience was within various vendor groupings. Previous research had indicated that resilience was not a single quality, but rather a combination of multiple capacities, including coping, adapting, and changing. From a practical standpoint, this implied that interventions aimed at enhancing the livelihood resilience of street and platform sellers must be customized to meet their unique requirements. Interventions can be more successfully implemented with awareness of the different degrees of resilience among informal vendors.

The absorptive capacity findings in Table 2 indicated that platform merchants had higher levels of resilience (mean score of 3.65) than did the street vendors (mean score of 3.47).

Table 2 *Respondents' Absorptive Resilience Capacities*

Indicators	Street Vendors (*n* = 200)		Platform Vendors (*n* = 200)	
	Mean	Interpretation	Mean	Interpretation
1. When faced with a problem, I work hard for a solution instead of worrying.	3.55	Highly Resilient	3.56	Highly Resilient
2. I aim to know more about anything that will help me to equip myself.	3.53	Highly Resilient	3.69	Highly Resilient
3. I am motivated to work hard on something because I love doing it regardless of its difficulty.	3.55	Highly Resilient	3.56	Highly Resilient
4. I use my previous experience to solve my current problem.	3.37	Highly Resilient	3.72	Highly Resilient

	3.43	Highly Resilient	3.69	Highly Resilient
5. I see any situation as an opportunity to learn.	3.43	Highly Resilient	3.69	Highly Resilient
6. I am aware of the risk of this type of job.	3.39	Highly Resilient	3.66	Highly Resilient
7. I develop new insights and ideas by combining my knowledge with existing knowledge easily available.	3.45	Highly Resilient	3.60	Highly Resilient
8. I constantly consider how I can apply new knowledge to improve my work	3.50	Highly Resilient	3.74	Highly Resilient
Aggregate Mean	**3.47**	Highly Resilient	**3.65**	Highly Resilient

Legend. Highly Resilient (3.26–4.00); Resilient (2.51–3.25); Less Resilient (1.76–2.50); Not Resilient (1.00–1.75).

All things considered, the data pointed to a desired level of focus and value placed on expertise within the informal sector. This was in line with Adger's (2000) research, which characterized adaptive capacity as the capability to react to and adjust to changes in the environment. One focus group participant used the pandemic's increased demand and online sales to illustrate this by stating, "When the pandemic began, we were unsure whether to stop or continue our business. However, due to high customer inquiries, we decided to continue since online buying and food delivery became popular." This decision demonstrated an ability to adapt by leveraging technology, reflecting the capacity to recognize, assimilate, and apply new information for business purposes (Cohen & Levinthal, 1990).

Table 3 shows that the street vendors' group had an aggregate mean of 3.24, which meant that they displayed a high level of adaptive resilience capacity, which was considered desirable. A similar resilience capacity level of 3.15 aggregate mean was observed with the platform vendors.

Table 3 *Respondents' Adaptive Resilience Capacities*

Indicators	Street Vendors (*n* = 200)		Platform Vendors (*n* = 200)	
	Mean	Interpretation	Mean	Interpretation
1. Every time there is a change, I plan a way to make it work for me.	3.21	Resilient	3.55	Highly Resilient
2. I build network relationships within my community.	3.24	Resilient	3.36	Highly Resilient
3. I do well in my current work but am open to any opportunity for me and my family to survive.	3.38	Highly Resilient	3.60	Highly Resilient
4. I always get professional advice before making any decision.	3.33	Highly Resilient	3.05	Resilient
5. I have the means for transportation, lodging, and funds for my personal needs.	3.20	Resilient	3.12	Resilient
6. I have an emergency fund that I can easily access anytime during events and calamities such as the pandemic.	3.08	Resilient	2.73	Resilient
7. I am confident that I can find another source of income.	3.24	Resilient	3.21	Resilient
8. I have access to affordable health care.	3.23	Resilient	2.58	Resilient
Aggregate Mean	**3.24**	Resilient	**3.15**	Resilient

Legend. Highly Resilient (3.26–4.00); Resilient (2.51–3.25); Less Resilient (1.76–2.50); Not Resilient (1.00–1.75).

The data indicated that both groups were able to learn from their experiences and adjust to external conditions. In the focus discussion, this quality was revealed when one of the participants shared this: "Since my younger brother has a bicycle, I ask him to deliver for me."

Another participant was asked about the strategies employed to lessen the impact of the shock that they had experienced. She shared that one should not just stick to one product when selling, but should find another way to earn income.

> You have to find another way to earn, like what's popular nowadays. You can't just stick to what you have, like for example, if I stick to selling tapioca and it doesn't sell well, it's risky. It might not sell, so we have to plan another kind of food that you think will sell fast.

The social and technological skills and strategies that people employ to adapt to environmental and socioeconomic changes are referred to as adaptive capabilities. These skills are frequently used in food systems to maintain availability, production, and livelihoods. It is critical to distinguish between mitigation and adaptation capabilities when discussing climate change (Chapin, 2024).

Table 4 shows that street vendors and platform vendors had a high transformative capacity with an aggregate mean of 3.27 and a higher mean score of 3.43, respectively.

Table 4 *Respondents' Transformative Resilience Capacities*

Indicators	Street Vendors (n = 200)		Platform Vendors (n = 200)	
	Mean	Interpretation	Mean	Interpretation
1. I understand and consciously engage in long-term changes.	3.15	Resilient	3.43	Highly Resilient
2. I easily fit into social and environmental conditions.	3.18	Resilient	3.29	Highly Resilient
3. I have a responsibility to make a contribution to the community I live in.	3.21	Resilient	3.37	Highly Resilient
4. I engaged myself with other people to improve my capacity.	3.22	Resilient	3.42	Highly Resilient
5. My work has value not only to myself and my family but to the community.	3.47	Highly Resilient	3.47	Highly Resilient
6. I actively participate in activities that will bring improvements to my work and others.	3.21	Resilient	3.44	Highly Resilient
7. I am aware of the role I play in the community.	3.19	Resilient	3.43	Highly Resilient
8. I see value in the work that I do.	3.54	Highly Resilient	3.58	Highly Resilient
Aggregate Mean	**3.27**	Highly Resilient	**3.43**	Highly Resilient

Legend. Highly Resilient (3.26–4.00); Resilient (2.51–3.25); Less Resilient (1.76–2.50); Not Resilient (1.00–1.75).

These results suggested that both groups were able to establish new systems when existing ecological, economic, or social structures failed. One focus group discussion participant demonstrated this attitude when asked about what was learned from the pandemic, and how they prepared themselves for future problems due to shocks. "We should prepare if something happens, since problems are inevitable and may happen daily."

Relationship between Gender and Resilience Capacities
An analysis of the street vendors' group in Table 5 showed that absorptive capacity (*p*-value = .58) and transformative capacity (*p*-value = .07) had no significant relationship with gender, suggesting they were not directly associated with gender. In contrast, adaptive (*p*-value = .02) capacity showed a significant relationship with gender, leading to rejection of the null hypothesis.

According to the ILO (2020a), informal economy workers, regardless of gender, had to continue working to survive the pandemic, increasing their exposure to the virus. The study of street vendors highlighted that gender did not significantly impact shock-buffering capacity, but it did affect adaptive capacities. This indicated that while both men and women faced similar survival challenges, their methods for adapting and changing their livelihoods differed.

Table 5 *Relationship Between Gender and Resilience Capacities*

Street Vendors' Pairs of Variables	Chi-Square	df	p-value	Interpretation	Decision
Gender and Absorptive Capacity	4.67	6	.58	Not Significant	Fail to Reject H_o
Gender and Adaptive Capacity	13.99	6	.02*	Significant	Reject H_o
Gender and Transformative Capacity	11.50	6	.07	Not Significant	Fail to Reject H_o

Platform Vendors' Pairs of Variables	Chi-Square	df	p-value	Interpretation	Decision
Gender and Absorptive Capacity	1.89	3	.59	Not Significant	Fail to Reject H_o
Gender and Adaptive Capacity	9.95	4	.04*	Significant	Reject H_o
Gender and Transformative Capacity	6.41	4	.17	Not Significant	Fail to Reject H_o

*Significant at $p \leq .05$

A similar observation was reflected in the platform vendors' test results on absorptive and transformative resilience capacity, which had *p*-values of .59 and .17 respectively. However, a significant relationship between gender and adaptive capacity was observed with a *p*-value of .04. This analysis indicated that both genders displayed the ability to respond to external shocks as they strove to find other sources of income.

The three resilience capacities of platform and street sellers are contrasted in Table 6.

Table 6 *Difference in Resilience Capacities Between Street and Platform Vendors*

Pair of Variables	U Value	p-value	Interpretation	Decision
Street and Platform Absorptive	18,796.5	.23	Not Significant	Fail to reject H_o
Street and Platform Adaptive	19,508.0	.65	Not Significant	Fail to reject H_o
Street and Platform Transformative	17,452.5*	.01	Significant	Reject H_o

*Significance at $p \leq .05$

There were no discernible variations in absorptive and adaptive capacity according to the Mann-Whitney U-Tests (*p*-values of.23 and .65). Significant variations in transformative capacities were found, however, suggesting that the two groups may have different capacities for developing alternative systems if the current ones prove unsustainable.

Strength of the Association of Resilience Capacities

When correlations between pairs of variables were tested (Table 7), the *p*-values of all pairs were .000, and the data indicated statistically significant links between the three resilience capacities for both platform sellers and street vendors. The data indicated an association among the three resilience capacities. The results, therefore, supported the anchoring theory adopted in this study, which postulated that resilience is not an outcome of just one capacity. Rather, it is comprised of three capacities (*absorptive, adaptive, transformative*), each resulting in a different outcome (Berkes et al. (2003); Walker et al., 2004), as referenced in Bene et al. (2013).

Table 7 *Spearman's Strength of the Association of Resilience Capacities*

Platform Vendors Pairs of Variables			
	Rho Value	p-value	Interpretation
Absorptive and Adaptive	.475	.000	Significant *at p < .01*
Absorptive and Transformative	.548	.000	Significant *at p < .01*
Adaptive and Transformative	.727	.000	Significant *at p < .01*

Street Vendors Pairs of Variables			
Pair of Variables	Rho Value	p-value	Interpretation
Absorptive and Adaptive	.455	.000	Significant *at p < .01*
Absorptive and Transformative	.531	.000	Significant *at p < .01*
Adaptive and Transformative	.757	.000	Significant *at p < .01*

Coping Strategies – (Qualitative Findings)

In focus group discussions, the platform and street vendors shared how they coped with the shocks that they experienced. Four themes emerged from an iterative analysis. The coping strategies indicated that humans were consciously dealing with life's problems and pressures. People engaged in various adaptation behaviors when confronted with personal or interpersonal challenges. If the action was performed consciously, it was referred to as coping; otherwise, it was referred to as a self-defense mechanism (Nasution et al., 2021).

Theme 1. Alternative Source of Income. Shocks inevitably impact the work of people in a community, causing problems. Previous investigators found that informal traders in South Africa and Vietnam explored new products, changed prices, and used innovative supply delivery strategies (Thanh & Duong, 2022). The study participants shared that they resorted to alternative work options to survive. A street vendors' group participant shared: "In the aftermath of Typhoon Odette, I had to find a way to earn. I collect garbage. I make lumps out of Kulafu (alcohol) bottles. I did these things and could earn about one thousand Pesos daily." Another street vendor shared that he volunteered to buy supplies for the residents because of their limited mobility. He said,

> During the pandemic, I did what I could to earn money. At that time, residents were prohibited from going out in our area. Since I am allowed to go out, some residents paid me to buy supplies for them, and they paid me 50 Pesos, and this helped me to be able to save.

The platform vendors also shared stories about finding alternative sources of income.

> I kept posting at the time, but posted a different one (product). I looked into other things that would work, so I decided to post gold jewelry pieces and RTWs (ready-to-wear) as many are looking for those items, and usually, many are women.

Information technology was also utilized by displaced informal workers for their trade activities during the shutdown. Social media sites like Facebook have developed into online markets for service providers that were deemed non-essential services (e.g., beauty parlors) (Thai et al., 2021).

Theme 2. Family Support. The family is the basic unit in the community, and each member relied on the others for support, especially in times of need. The participants from this study shared that their families were on their side during difficult times in the calamities.

The street vendors shared this: "We continued selling fish, except during the pandemic. My spouse pushed to sell and bought items to be sold." "We still have (money) since we are many in the family, so we have support from one another by lending money."

A platform vendor also shared that her brother was kind enough to help her: "Since my younger brother has a bicycle, I asked him to deliver it for me."

Theme 3. Access to Savings. Savings are a crucial resource, providing a safety net in times of need. In this study, participants from the street vendors' group shared that they relied on their savings to support their daily needs during the crisis.

> What we did is to save. Saving, and when we have profit, we have something to use to repurchase materials…we have to save up, and that is what we use…we need to save up as we can never tell when something happens that will come suddenly.

Theme 4. Access to Government Relief. One responsibility of governments is to assist people during calamities. During the pandemic, government agencies provided relief to support constituents in crisis, including the informal sector, one of the most vulnerable groups. Social assistance is essential for reducing the effects of socioeconomic hardship, according to Castle et al. (2012). Participants in this survey reported using government assistance to get by: "Relief aid, we relied on our relief, which was slowly used to get by. In terms of food, we still have our food aid provisions."

Discussion

Resilience was found in absorptive, adaptive, and transformative capacities among informal sectors in Cebu City. The quantitative results provided a broad view of resilience capacities, while

qualitative insights added depth to the coping strategies used by Cebu City's street and platform sellers. The convergence of these findings highlighted the varied nature of their resilience.

Gender differences emerged in adaptive capacities, with a significant difference in transformative capacities between street and platform sellers. Gender influenced adaptive capacities significantly, suggesting that gender dynamics shape resilience strategies. The disparity in transformational capacity between vendors may stem from different socioeconomic conditions and access to resources. Coping strategies included reliance on other income sources, family support, savings, and government assistance. The analysis deepened our understanding of livelihood resiliency, highlighting the need for tailored interventions that consider gender and contextual differences to enhance resilience.

The mixed-methods approach effectively explored resilience, but it was one of many approaches that can be used to study livelihood resiliency. The study revealed that both informal sector groups in Cebu City displayed strong resilience across the three constructs, allowing them to endure adversity. The coping strategies shared by participants were aligned with the quantitative findings. By integrating quantitative and qualitative evidence, the study enhances understanding of livelihood resiliency, and contributes to the resilience literature, informing interventions for vulnerable populations during disasters.

Recommendations

Based on these findings, more research is encouraged to investigate other factors influencing livelihood resiliency among informal employment sector members. The use of mixed methods is one of many ways to attempt to capture livelihood resiliency.

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The Influence of Social Media Marketing and Customer Experience on Consumer Purchase Intentions: A Case Study of Mixue Ice Cream & Tea Company

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Abstract

In this study the impact of social media marketing and customer experience was investigated on consumer purchase intentions, using Mixue Ice Cream & Tea as a case study. Data were collected through an online survey of 501 Nanjing, China respondents who had purchased products from Mixue Ice Cream & Tea. Structural equation modeling was used for hypothesis testing. The findings revealed that social media marketing and customer experience significantly and positively influenced purchase intentions, with trust and brand awareness as key mediators. The results underscore the importance of innovative social media strategies and high-quality customer experiences in fostering trust and enhancing brand awareness. Practical implications include recommendations for enhancing social media engagement, customer service, and transparent business practices. Future research should expand geographically, incorporate additional variables, and explore emerging technologies. This study contributes to the literature by offering a comprehensive model of consumer behavior and actionable insights for the ready-to-drink tea industry.

Introduction

Tea is one of the most popular beverages globally, with a history dating back to 1500 BC in Yunnan Province of China (Macfarlane & MacFarlane, 2009). In 2022, the Chinese tea market was valued at nearly $100 billion, dwarfing India's $15.7 billion market (Ridder, 2023). China is the leading producer, exporter, and consumer of tea, consuming almost one-third of the global 6.9 billion kilograms of tea in 2022. The global tea market is expected to grow, reaching $266.7 billion by 2025, despite a dip in 2020 due to the pandemic. The Chinese tea market is evolving with the rise of ready-to-drink (RTD) tea, which is especially popular among young consumers. In 2023, more than 40% of Chinese consumers bought bubble tea or RTD tea at least three times a month, favoring brands like HeyTea, Nayuki, and Mixue Ice Cream & Tea (Hu et al., 2023). The ready-to-drink tea market alone was projected to reach $30 billion worldwide by the end of 2024 (Ridder, 2023).

Mixue Ice Cream & Tea, a multinational RTD tea company from Zhengzhou, Henan, China, was established in June 1997 (Ramadhan et al., 2023). It targets younger people, and has a strong market presence, with over 29,000 stores in China and around 4,000 overseas by the end of 2023 according to Mixue Ice Cream & Tea's official website. Mixue gained significant attention in 2021 with its viral theme song, "I love you, you love me, Mixue ice cream and tea," which promoted brand awareness through social media (Nursalim & Setianingsih, 2023). This study focused on the domestic market in China, identifying social media marketing and customer experience as independent variables, trust, and brand awareness as mediating variables and purchase intention as the outcome variable.

Prior research studies (Aji et al., 2020; Solomon, 2020) has highlighted social media marketing's influence on brand awareness and purchase intentions, but these often focus on broader contexts, such as retail or the fast-moving consumer goods sectors, and do not address the unique dynamics of the RTD tea market in China. Moreover, the Chinese social media environment (dominated by platforms like Xiaohongshu, WeChat, and Douyin) presents different engagement behaviors compared to global platforms. This distinction is critical for companies like Mixue Ice Cream & Tea, which must tailor their strategies to context-specific audiences. Additionally, research on the mediating roles of trust and brand awareness in the relationship between social media marketing, customer experience, and purchase intentions remains scarce in this sector. The aim of this study was to fill these gaps by

providing insights into how social media marketing and customer experience influence consumer behavior, focusing on trust and brand awareness as mediating factors in the Chinese RTD tea market.

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

1. What is the impact of social media marketing on consumer trust and brand awareness?
2. What is the impact of customer experience on consumer trust and brand awareness?
3. How do trust and brand awareness affect consumer purchase intentions?
4. Do trust and brand awareness mediate the influence of social media marketing and customer experience on purchase intentions?

Literature Review

Social Media Marketing

Social media marketing has become an essential tool for businesses, which leverage platforms like Twitter, Facebook, YouTube, and Pinterest to promote products and engage with consumers (McClure & Seock, 2020). This trend especially is notable among millennials and younger generations, who frequently share their experiences online, making social media a vital marketing channel (Shearer et al., 2021). Social media marketing, driven by elements such as entertainment, influencers, interaction, customization, and word-of-mouth, enhances a brand's ability to engage with and influence consumers (Kim & Ko, 2012). As a second-order reflective construct, social media marketing is constituted by these elements. In the light of reported evidence, the following hypotheses were proposed:

H_{1a}: Social media marketing has a significant positive effect on trust.

H_{1b}: Social media marketing has a significant positive effect on brand awareness.

Customer Experience

Customer experience (CX) was defined as the internal and subjective responses customers have to any direct or indirect contact with a company (Schwager & Meyer, 2007). Schmitt developed a comprehensive consumer experience framework, advocating five dimensions of experience: Sensory (sense), cognitive (think), affective (feel), physical (act), and social-identity (relate) (Schneider & Bowen, 1999). These dimensions help companies create engaging environments and memorable experiences, ultimately adding value to their products (Keiningham et al., 2020). Customer experience was considered a second-order formative construct, where each dimension independently or simultaneously contributed to the overall experience (Wijaya et al., 2019). Based on this evidence, the following hypotheses were proposed:

H_{2a}: Customer experience has a significant positive effect on trust.

H_{2b}: Customer experience has a significant positive effect on brand awareness.

Trust

Trust is a multifaceted concept studied across various disciplines, including social psychology, sociology, economics, and marketing (Doney & Cannon, 1997). It can be divided into cognitive trust, based on perceptions of competence and reliability, and affective trust, which emphasizes emotional interactions and connections (Rempel et al., 1985). Trust is considered crucial for long-term, reliable connections between brands and buyers, influencing purchase intentions (Chae et al., 2020). A previous study found that trust in social networking sites mediated between social commerce and online purchase intentions (Aloqool & Alsmairat, 2022). In the light of reported evidence, the following hypotheses were proposed:

H_{1c}: Social media marketing positively influences purchase intention through the mediating effect of trust.

H_{2c}: Customer experience positively influences purchase intention through the mediating effect of trust.

Brand Awareness

Brand awareness is the ability of a prospective buyer to recognize or recall a brand as part of a particular category (Aaker, 1991). It significantly influences purchase decisions through brand

association and image (Keller, 1993). Earlier research findings have indicated that brand awareness mediated the impact of social media marketing on Haroo Table purchase decisions (Angelyn & Kodrat, 2021a). High brand awareness enhanced marketing effectiveness, as familiar brands are more likely to be considered during decision-making processes (Nursalim & Setianingsih, 2023). Based on this evidence, the following hypotheses were proposed:

H_{1d}: Social media marketing positively influences purchase intention through the mediating effect of brand awareness.

H_{2d}: Customer experience positively influences purchase intention through the mediating effect of brand awareness.

Purchase Intention

Purchase intention reflects a consumer's plan to buy a specific product brand in the future, indicating willingness to make purchases (Chetioui et al., 2020). Understanding purchase intention is considered crucial for marketers to anticipate consumer behavior and foster brand loyalty (Chae et al., 2020). It encompasses the mix of consumers' concerns and the likelihood of purchasing the goods. Previous research has linked purchase intention to attitudes and preferences towards a brand or product (Kim & Ko, 2012). In a previous study, it was shown that halal brand trust had a significant positive effect on purchase intention (Kusuma & Anandya, 2023). Based on this evidence, the following hypotheses were proposed:

H_3: Trust has a positive impact on purchase intention.

H_4: Brand awareness has a positive impact on purchase intention.

H_5: Social media marketing has a positive effect on purchase intention.

H_6: Customer experience has a positive effect on purchase intention.

The above hypotheses were generated and displayed in a conceptual framework (Figure 1). At its core, the framework elucidates the interplay between social media marketing, customer experience, trust, brand awareness, and consumer purchase intentions, highlighting the intricate relationships and mediating mechanisms that influence consumer decision-making processes.

Figure 1 *Conceptual Framework*
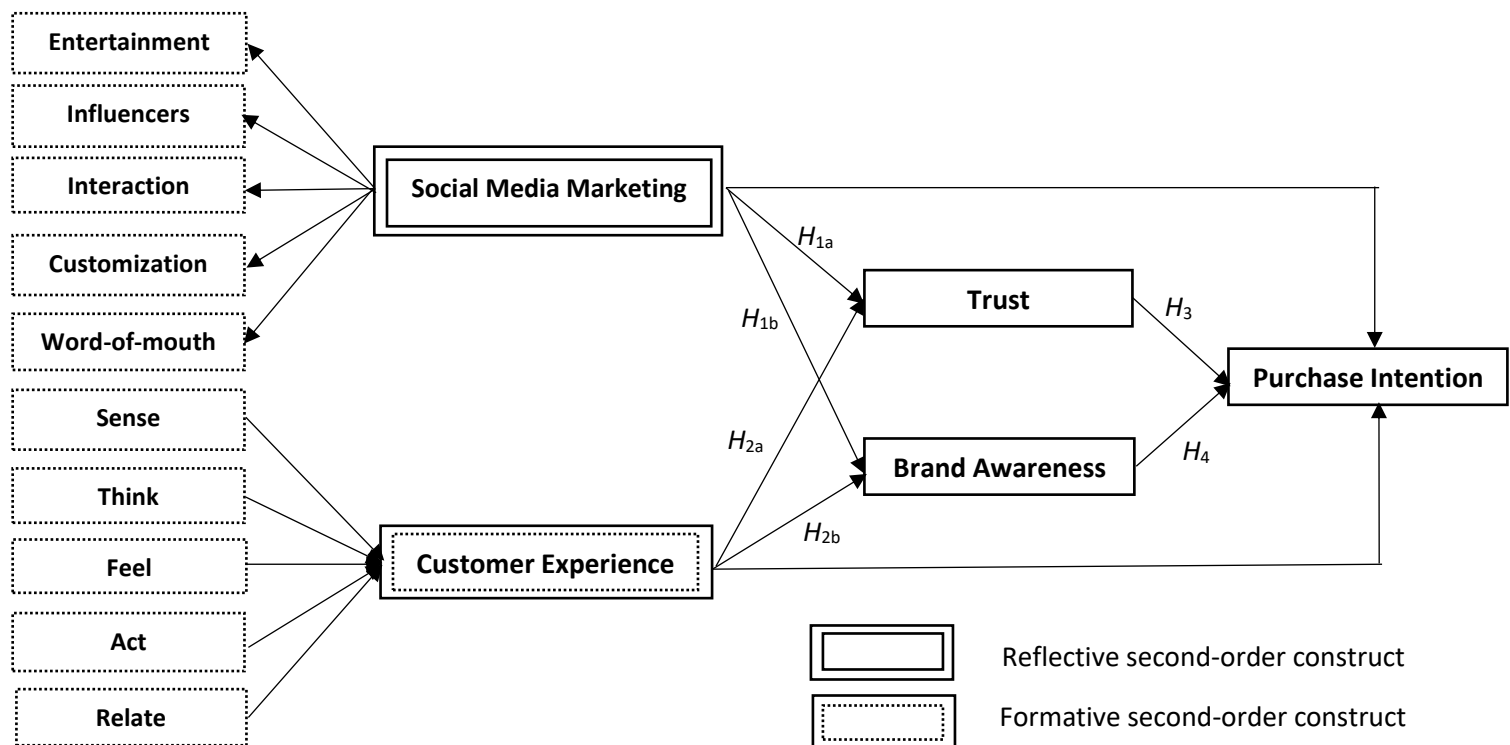
Source. Developed by Authors.

Methodology

A quantitative research method was employed in this study. An online survey was conducted using items with a 5-point Likert scale (*Strongly Agree* - 5, *Agree* - 4, *Neutral* - 3, *Disagree* - 2, *Strongly Disagree* - 1). The questionnaire, divided into three parts (demographic data, purchasing behavior and preferences, and adapted scale questions), was translated into Mandarin Chinese using the back-translation technique. The target population for this study was customers over the age of 18 who had purchased Mixue Ice Cream & Tea products in Nanjing, China. Nanjing, with its high economic development level and diverse consumer market, was chosen for its relevance.

A pilot test was conducted with 30 respondents to assess reliability and validity, followed by Cronbach's alpha and Exploratory Factor Analysis (EFA). The social media marketing scale, consisting of 10 items, had a Cronbach's alpha coefficient of .79. Other scales (customer experience, trust, brand awareness, and purchase intention) also demonstrated good reliability, with an overall Cronbach's alpha coefficient of .92. The Kaiser-Meyer-Olkin test result for the Social Media Marketing scale was .63, and Bartlett's Test of Sphericity was significant at $p < .001$, indicating good construct validity.

After the survey questionnaire was refined, data was collected from a convenience sample of 501 respondents using a self-administered online questionnaire. The final data were analyzed using descriptive statistics, Cronbach's alpha analysis for scale reliability, Confirmatory Factor Analysis (CFA) to assess validity, and Confirmatory Bias Structural Equation Modeling (CB-SEM) to analyze the conceptual model and test hypothesis paths.

Data Analysis

Data from 501 samples showed nearly equal gender distribution (50.1% female, 49.9% male). The young adults constituted the majority, with 31.7% aged 26–30 and 24.8% aged 31–40. Nearly half of the respondents (47.9%) held a Bachelor's degree. Most respondents earned between 5,000 and 10,000 Renminbi per month (34.3%). Occupation-wise, office workers comprised the largest group (38.1%). Regarding consumer behavior, 30.7% purchased Mixue Ice Cream & Tea products less than once a month. Meanwhile, 27.5% purchased them 4–8 days a month, classifying them as moderate buyers. Notably, 20.6% of respondents bought the products daily, demonstrating strong brand loyalty and consistent product preference.

To ensure the reliability and validity of the constructs used in this study, various statistical tests were conducted. Factor loadings, which indicate the degree to which each item was correlated with the underlying construct, all exceeded the recommended threshold of .50. Specifically, factor loadings ranged from .67 to .83 for Social Media Marketing, .73 to .81 for Customer Experience, .73 to .75 for Trust, .66 to .79 for Brand Awareness, and .70 to .79 for Purchase Intention. Cronbach's alpha was adopted to ensure the reliability of all the scale items. The results indicated that all variables had Cronbach's alpha values higher than .70, demonstrating good internal consistency. Additionally, the Composite Reliability values for all constructs were above the threshold of .70, confirming the internal consistency of the constructs. Furthermore, the AVE values for all constructs exceeded the threshold of .50, indicating good convergent validity.

Confirmatory Factor Analysis (CFA) was conducted to assess the measurement model's fit for the independent variables, mediators, and dependent variables. The analysis was performed in three parts: Independent variables (Social Media Marketing, Customer Experience), mediators (Trust, Brand Awareness), and the dependent variable (Purchase Intention). The results are summarized in Table 1.

The CFA results for the independent variables demonstrated excellent model fit. The χ^2/df ratio was well below the recommended threshold of 3.0, indicating a good fit between the hypothesized model and the observed data. Moreover, the comparative fit indices (CFI, NFI, TLI) all exceeded the criterion of .90, suggesting a robust fit where the model explained a substantial proportion of variance in the observed variables. The CFA results for the mediators displayed exceptional model fit. These indices indicated that the proposed model fitted the data very well, with the RMSEA and SRMR values well below the threshold of .05 and .08, respectively. This suggests a high level of congruence between the hypothesized relationships and the observed data for the mediators. For the dependent variable,

the CFA results indicated an excellent model fit. These findings demonstrated that the model adequately represented the relationships among the variables of interest, with all fit indices meeting or exceeding the recommended thresholds.

The goodness-of-fit indices for the SEM model, presented in Table 1, conformed to the established benchmark values, indicating adequate model fit. The Chi-square to degrees of freedom ratio (χ^2/df) should be below 3.0 (Byrne, 2016). According to Hair et al. (2013), the Goodness of Fit Index (GFI) should exceed .90, while the Comparative Fit Index (CFI) should also be above .90. RMSEA values between .05 and .08 suggest a reasonable fit, and the Standardized Root Mean Square Residual (SRMR) should be below .08 (Hu & Bentler, 1999). The SEM model demonstrated a good fit with the data.

Table 1 *Results of Confirmatory Factor Analysis*

Items	χ^2/df	GFI	CFI	NFI	TLI	RMSEA	SRMR
Criteria	**<3**	**>.90**	**>.90**	**>.90**	**>.90**	**< .05**	**< .08**
CFA of Social Media Marketing, Customer Experience	1.07	.96	.99	.97	1.00	.01	.04
CFA of Trust, Brand Awareness	.73	.99	1.00	.99	1.00	.00	.02
CFA of Purchase Intention	.34	1.00	1.00	1.00	1.01	.00	.01
SEM model	1.26	.93	.99	.94	.99	.02	.06

Note. Minimum Value of Discrepancy (χ^2/df), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR).

In this study, Structural Equation Modeling was employed to investigate the relationships between Social Media Marketing, Customer Experience, Trust, Brand Awareness, and Purchase Intention, accounting for potential measurement errors. The structural model is illustrated in Figure 2.

Figure 2 *Summary of Structural Equation Modeling*
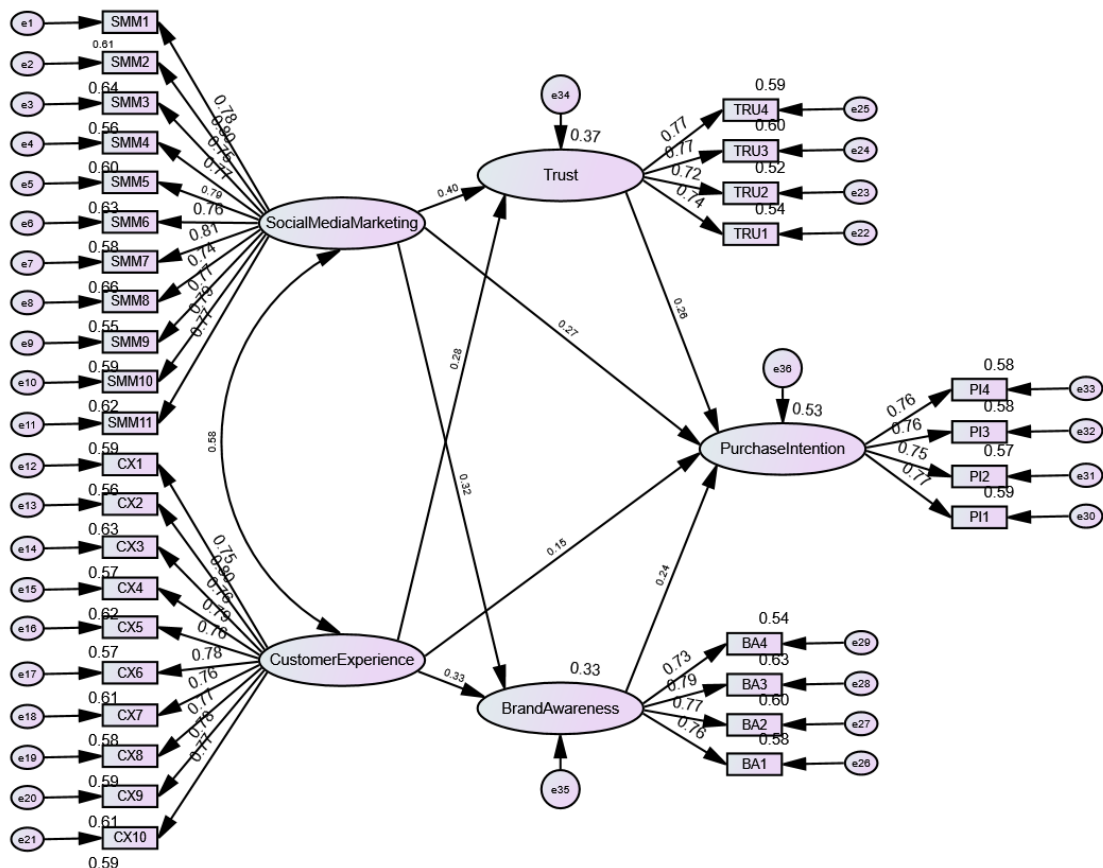
Source. Developed by Authors

This section presents the hypothesis testing results of the structural equation model, summarized in Table 2. The proposed model includes 12 hypotheses related to social media marketing, customer experience, trust, brand awareness, and purchase intention; all were supported in the path analysis.

Table 2 *Hypothesis Testing Results*

Hypothesis Path	Standardized Coefficients (β)	Estimate	*SE*	CR (*t*-value)	*p*-value	Results
H_{1a}: Social media marketing → Trust	.40	.36	0.05	7.04	***	Supported
H_{1b}: Social media marketing → Brand awareness	.32	.27	0.05	5.69	***	Supported
H_{2a}: Customer experience → Trust	.28	.26	0.05	5.03	***	Supported
H_{2b}: Customer experience → Brand awareness	.33	.29	0.05	5.72	***	Supported
H_3: Trust → Purchase intention	.26	.26	0.06	4.53	***	Supported
H_4: Brand awareness → Purchase intention	.24	.25	0.06	4.28	***	Supported
H_5: Social media marketing → Purchase intention	.27	.24	0.05	4.88	***	Supported
H_6: Customer experience → Purchase intention	.15	.14	0.05	2.78	**	Supported

* $p < .05$; ** $p < .01$; *** $p < .001$

To conduct the mediation analysis, we employed the bootstrap resampling technique, recognized for its robustness and reliability in assessing indirect effects. We set the number of bootstrap samples at 2,000 and established a 95% confidence interval. This approach allows for a more accurate estimation of the indirect effects by repeatedly resampling the data and calculating the indirect effects in each resample. The bootstrap method generates estimates for the indirect effects and their associated confidence intervals. If the confidence interval for an indirect effect does not include zero, the mediation effect is considered statistically significant. The results are detailed in Table 3.

Table 3 *Bootstrap Mediation Test Results*

Hypothesis Path	Estimate	*SE*	Lower	Upper	*p*
H_{1c}: Social media marketing → Trust → Purchase intention	.11	0.04	.05	.19	**
H_{1d}: Social media marketing → Brand awareness → Purchase intention	.08	0.03	.04	.13	**
H_{2c}: Customer experience → Trust → Purchase intention	.07	0.03	.03	.13	**
H_{2d}: Customer experience → Brand awareness → Purchase intention	.08	0.03	.03	.14	**

* $p < .05$; ** $p < .01$; *** $p < .001$

Discussion

This study was conducted to address four primary research objectives. First, the study aimed to examine the influence of social media marketing (SMM) on consumer trust and brand awareness. The results demonstrated that SMM significantly enhanced both trust and brand awareness among consumers, thereby supporting hypotheses H_{1a} and H_{1b}. Additionally, SMM had both a direct and indirect impact on purchase intentions. The indirect effect was mediated by trust and brand awareness, suggesting that while SMM can directly influence consumer behavior, the strength of its influence is amplified when trust and brand awareness are established as mediators. These findings aligned with

previous research, which indicated that well-executed SMM strategies can build consumer trust through personalized and authentic content (Wibowo et al., 2021) and significantly increase brand awareness (Hu et al., 2023). In practical terms, businesses can leverage these findings by investing in tailored SMM campaigns that resonate with target audiences, fostering trust and brand recognition.

Second, the impact of customer experience on consumer trust and brand awareness was assessed. According to our analyses, hypotheses H_{2a} and H_{2b} were supported, consistent with the findings of Saputra et al. (2023) and Biedenbach and Marell (2010). These studies indicated that the better the customer experience, the higher the customer's trust in the company, and vice versa. Moreover, customer experience positively influenced brand awareness. For businesses, this underscores the importance of delivering superior customer experiences across all touchpoints.

Third, the relationships between consumer trust, brand awareness, and purchase intentions were investigated in the study. The results supported hypotheses H_3 and H_4. These findings corroborated previous studies, such as a study by Sembiring and Ananda (2019), which demonstrated that trust fosters stronger consumer commitment and purchase intentions by reducing perceived risk and increasing confidence in the brand. Similarly, Sivaram et al. (2020) highlighted how brand awareness increased purchase intentions by enhancing brand recall and perceived value. However, while these studies have predominantly focused on other industries, this research extends their findings by examining these relationships within the rapidly growing Chinese "ready-to-drink" tea industry. Our study provides new empirical evidence showing that in this context, trust and brand awareness not only play a pivotal role in driving purchase decisions, but also mediate the effects of social media marketing and customer experience.

Finally, the study aimed to determine whether trust and brand awareness mediated the influence of SMM and customer experience on purchase intentions. The results confirmed that trust and brand awareness served as mediators between both SMM and customer experience on purchase intentions, supporting hypotheses H_{1c}, H_{1d}, H_{2c}, and H_{2d}. This indicates that SMM and customer experience not only have a direct impact on purchase intentions, but their influence is also significantly strengthened when mediated by trust and brand awareness. A comparison of direct and indirect effects revealed that the indirect path, mediated by trust and brand awareness, exerted a stronger overall influence on consumer purchase intentions. This finding aligned with prior research, suggesting that trust (Aloqool & Alsmairat, 2022) and brand awareness (Angelyn & Kodrat, 2021) are key mediators in the relationship between marketing efforts and consumer behavior. From a practical standpoint, this implies that businesses should not only focus on SMM and customer experience, but also ensure that these efforts effectively build trust and brand awareness to drive purchase intentions. These strategies can be applied across various industries, particularly in the rapidly evolving digital marketplace, where consumer trust and brand visibility are paramount.

Limitations and Implications

This study had some limitations that should be acknowledged. It focused exclusively on the Chinese market and the Mixue Ice Cream & Tea brand, limiting the generalizability of the findings to other contexts or brands. The data collection relied on self-reported questionnaires, which may introduce biases such as social desirability or recall biases, potentially affecting response accuracy. Additionally, the study concentrated on specific dimensions of social media marketing and customer experience, omitting other influential factors like economic conditions, competitor actions, and broader market trends.

The study contributes to the existing literature by empirically demonstrating the influence of social media marketing and customer experience on consumer purchase intentions. It incorporates constructs from Kim and Ko (2012) and the consumer experience framework by Schmitt (2000), offering a comprehensive model that elucidates the multidimensional effects of these factors on consumer behavior. The mediation analysis provides deeper insights into the indirect pathways through which marketing efforts influence purchase intentions, emphasizing the roles of trust and brand awareness. This integrated approach offers a robust framework for understanding consumer

behavior dynamics, contributing valuable knowledge applicable to various marketing contexts.

The findings have practical implications for managers and marketers, especially in the ready-to-drink tea industry. Enhancing social media strategies is crucial. Brands should innovate their social media presence, create engaging content, leverage influencers, and encourage user-generated content to boost visibility and credibility. Improving customer experience across all touchpoints is also vital. Managers should focus on building and maintaining trust through transparent practices and high-quality products. Effective communication, both online and offline, and targeted marketing campaigns can enhance brand awareness, making the brand more recognizable and appealing. By implementing these strategies, Mixue Ice Cream & Tea and similar businesses can achieve sustainable growth and competitive advantage in the dynamic ready-to-drink tea market.

Conclusion and Recommendations

The impact of social media marketing and customer experience was examined on consumer purchase intentions, with trust and brand awareness as mediating factors, using Mixue Ice Cream & Tea as a case study. The results from the structural equation modeling confirmed that both social media marketing and customer experience significantly and positively influenced purchase intentions. There are some recommendations for future research. First, extend the research to different regions and cultures to improve generalizability and identify unique consumer behavior factors. Second, include variables like economic conditions, competitor actions, and market trends to gain a comprehensive understanding of purchase intentions. Third, explore the role of technologies such as Artificial Intelligence, Virtual Reality, and Augmented Reality in enhancing social media marketing and customer experience.

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New Normal Learning Method Satisfaction Among University Students in the Post-Pandemic Period: A Myanmar Perspective

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Abstract

E-learning has become the new normal learning method in the post-pandemic period around the globe, including Myanmar. The present study aimed to examine the satisfaction of Myanmar university students with the new normal learning method. The study utilized an inductive quantitative approach, and structural equation modeling (SEM) was employed to analyze the data. Data was collected from 262 Myanmar students who were studying locally and abroad. The results of the study indicated that e-learning trust was more critical than e-learning effectiveness ($p < .001$), while e-learning system quality was insignificant for e-learning satisfaction. In addition, e-learning trust and effectiveness were mediating variables between e-learning system quality and e-learning satisfaction. This study delivers valuable insights for educators and university facilitators to enhance students' satisfaction with new normal learning methods.

Introduction

The global outbreak of the coronavirus (COVID-19) presented the educational sector with unexpected difficulties and educators with enormous challenges (Phiakoksong et al., 2023). While on site instruction was suspended at private and public educational institutions including universities, the pandemic stimulated formulation of new methods of teaching and learning. Traditional educational systems were transformed due to restrictions on social gatherings to prevent virus transmission as more than 1.2 billion students were shut out of their physical classrooms due to various restrictions. In response, educators around the globe maintained ongoing education by utilizing communication technology, digital tools, and remote services (Su et al., 2020).

The higher education community had been evolving prior to the pandemic, driven by advancements in Internet technology, rapid developments in computer software, and the emergence of new technologies. Modern technologies revolutionized teaching and learning methods, notably in distance education (Northey et al., 2015). E-learning or online learning has been widely utilized in higher educational environments, leading to challenges and opportunities for student learning outcomes, collaborative learning activities, and digital literacy (Wang, 2010). The use of these technologies for educational purposes became inevitable during the pandemic (Kerres, 2020). During the COVID-19 pandemic, Myanmar, like other countries, understood that fulfilling the demands of higher education required implementing new learning methods. Myanmar universities prepared to establish new learning methods by implementing e-learning, despite various barriers such as insufficient Internet infrastructure, inadequate technical backgrounds, and lack of human resources (The & Usagawa, 2018).

E-learning is conducted on platforms that allow learners to access multimedia course materials stored on a centralized server through the Internet and serve as a communication channel to coordinate learning processes. This was considered an essential technology during the pandemic (Wang et al., 2021), and implementing e-learning enhances collaboration, convenience, and learning effectiveness (Abuhassna et al., 2020). For e-learning to be successful, it is vital to identify and investigate learners' expectations. While e-learning offers remote learning opportunities and sustainable education for students, research on e-learning in developing countries has been limited (Gurban & Almogren, 2022).

Research Motivation

Technology has been employed in learning activities for several decades. Wheeler (2001) explained that information and communication technologies (ICT) such as learning support systems, knowledge management systems, and communication systems transformed traditional teaching-learning methods. The rise of online learning during the pandemic has encouraged researchers to continue studying e-learning success, even in the post-pandemic period. According to a study by Vanitha and Alathur (2021), the satisfaction level of students is a vital predictor of e-learning adoption.

A number of studies (Butt et al., 2021; Mohammadi, 2015; Sayaf, 2023) also have reported similar results regarding the role of satisfaction in the e-learning context. Fleming et al. (2017) stated that learners' satisfaction with learning methods differed according to e-learning platforms. Despite Myanmar students being aware of and realizing the benefits of using e-learning during the pandemic, some students were reluctant to continue adopting e-learning during the post-pandemic period (Thant, 2022). Additionally, Su et al. (2020) argued that e-learning is new to many Myanmar students who were accustomed to conventional educational systems.

Although many researchers have highlighted the role of e-learning among learners during the pandemic, there has been a limited focus on the post-pandemic period. Furthermore, previous studies on Myanmar students (Garton & Cleesuntorn, 2021; Thant, 2022; The & Usagawa, 2018) did not investigate factors that could improve satisfaction in online learning contexts. Another significant contribution of this study involved the aim to identify the roles of effectiveness and trust on system quality and satisfaction in the post-pandemic period. So the primary objective of the present study was to identify the factors that influenced e-learning satisfaction among university students from Myanmar. Thus, the following research questions have emerged for investigation.

RQ1: What are the factors affecting students' satisfaction with e-learning (EL)?
RQ2: What are the roles of system quality, effectiveness, and trust in ensuring students' satisfaction with EL?

Literature Review

A new normal learning method emerged from the blending of computing technology, telecommunication advancements, and pedagogical innovations, most notably during the pandemic. E-learning is an ICT-based platform encompassing various tools such as learning portals, learning management systems, and web and mobile applications. Online learning enables learners to access course materials digitally from anywhere, without the limitation of physical attendance in a classroom (Samsudeen & Mohamed, 2019). It allows participants in educational environments such as educators, professors, professionals, and students to impart or receive knowledge with minimal physical barriers (Krishnan & Hussin, 2017). Online learning utilizes electronic devices such as computers, tablets, and mobile phones as instruments to enhance communication accessibility between educators and learners, employing various learning methods (Gill et al., 2020).

E-learning has become an essential method for both lecturers and students in university environments, and the rapid improvement of telecommunication technologies has allowed them to use it easily. Ramadiani et al. (2021) explained that online learning is a distance learning system that provides various customized courses according to the requirements of learners. Online learning makes education cheaper, easier, and quicker to share and learn. Solangi et al. (2018) refer to e-learning as a technological platform that can create digital classrooms for students to attend from their own place of residence through online communication channels. Students can collaborate with others, submit assignments, take quizzes and exams, check their grades, and have discussions with teachers on the e-learning platform.

Basak et al. (2018) defined e-learning as a learning procedure provided by electronic tools and digital media. On the other hand, Sangra et al. (2012) defined e-learning as an educational program that delivers materials, courses, and training electronically. During the pandemic, the new learning methods depended entirely on e-learning tools such as Microsoft Teams, Google Classroom, Zoom, etc., which caused a widespread transformation from conventional ways of communication between

learners and educators (Shahzad et al., 2021). Delivering courses to students through e-learning platforms is cost-effective and convenient because educational processes on e-learning platforms are more flexible (Dhawan, 2020).

Research Hypotheses and Model Development
System Quality

The majority of e-learning (EL) users are concerned about system quality, anticipating that using an EL system will save a significant amount of their time and energy (Alkhawaja et al., 2022). Now EL system quality (SQ) refers to the functionalities of EL that support student ease of use. System quality can also be defined as a measurement associated with course contents, communication capability, interaction design, response time, and functional EL features (Fathema et al., 2015).

A study by Alshurideh et al. (2019) advocated system quality as a major determinant of EL's success, proposing that students perceive system effectiveness through its quality. Prasetyo et al. (2021) stated that enhancing system quality assists users in understanding the essence of utilizing EL. Dangaiso et al. (2022) found that system quality played an indispensable role in students' satisfaction with EL. Moreover, Mulhem (2020) suggested that system quality was a vital exogenous factor representing performance which led to student satisfaction with the educational environment. Additionally, the vital role of establishing trust in online learning communities in turn leads students to accept them as trustworthy providers of quality educational services (Wang, 2014). Thus, the following statements were hypothesized for this study.

H_1: System quality has a positive effect on effectiveness.
H_2: System quality has a positive effect on satisfaction.
H_3: System quality has a positive effect on trust.

Effectiveness

E-learning effectiveness (EF) can be referred to as the degree to which a learner or an educator assumes that utilizing an EL platform is useful and effective for performing educational activities such as learning and teaching (Davis, 1989). Additionally, EL effectiveness is the extent to which learners accept that its use will assist and enhance their learning performance. The usefulness of e-learning is exhibited by aiding users in saving energy, time, and cost in several ways (Pham et al., 2021). E-learning effectiveness is one of the major values that students expect from EL, and they are more likely to use EL if it is efficient (Alkhawaja et al., 2022).

Students expect that e-learning will remain effective and useful both during and after the pandemic period (Siron et al., 2020). Additionally, Almaiah and Alismaiel (2019) explicitly stated that perceiving a system as effective and useful is one of the most significant factors influencing user intentions to adopt EL. On the other hand, EL effectiveness is a major component in understanding the satisfaction or dissatisfaction of using EL (Mahande et al., 2019). Therefore, the following hypothesis was proposed.

H_4: Effectiveness has a positive effect on satisfaction.

Trust

Trust originates from assurance that is derived from reliable and morally upright providers, demonstrated through their consistency, competence, honesty, fairness, responsibility, support, and benevolence (Tri & Loc, 2013). Moreover, trust involves the expectation that people will act in a manner that prioritizes their own interests (Li, 2024). Additionally trust, which could be considered as the reliance of a learner on a service provider in whom they believe, has been demonstrated to be crucial in studies evaluating learner behavior (Dramani et al., 2022).

Students perceive a higher level of risk in online learning environments compared to traditional methods, particularly in terms of communication, submission, reading, and discussion (Wang, 2014). Therefore, students prefer to interact with online learning platforms that they can trust. Furthermore, trust is an essential antecedent in developing a connection between service providers and users. This

connection is particularly significant in online service contexts, where trust may be a fundamental element for establishing student satisfaction (Kim et al., 2009). Based on the above literature, the following hypothesis was formulated.

H_5: Trust has a positive effect on satisfaction.

Satisfaction

E-learning satisfaction can be defined as the degree to which participants perceive that the e-learning that they are using fulfills their needs (Zhao & Khan, 2022). It can also be understood as the perception of e-learning users regarding the extent to which their requirements are met by a specific e-learning system (Dangaiso et al., 2022). According to the Information Systems (IS) Success Model, satisfaction is a major determinant of system usage outcomes and a significant measure of IS success.

Integrating the Technology Acceptance Model (TAM) with the IS Success Model, it is logical to propose that the system quality and effectiveness of e-learning are antecedents of e-learning satisfaction (Mohammadi, 2015; Petter et al., 2008). Since e-learning is primarily utilized in the educational industry, trust becomes imperative in building satisfaction due to the absence of physical interaction among institutions, instructors, and students. Kim et al. (2009) explained that an unreliable, ineffective, and inferior e-learning system may lead students to feel dissatisfied. Based on the above arguments, the following hypotheses were tested in an exploratory study.

H_6: Effectiveness is mediating between system quality and satisfaction.
H_7: Trust is mediating between system quality and satisfaction.

The proposed hypotheses are listed below in Table 1, while the theoretical model is shown in Figure 1.

Table 1 *Proposed Hypotheses*

Hypotheses	Effects	Literature Support
H_1	SQ → EF	Vanitha & Alathur, 2021
H_2	SQ → ST	Dangaiso et al., 2022
H_3	SQ → TR	Wang, 2014
H_4	EF → ST	Zhao & Khan, 2022
H_5	TR → ST	Kim et al., 2009
H_6	SQ → EF → ST	Exploratory Study
H_7	SQ → TR → ST	

Figure 1 *Proposed Theoretical Research Model*
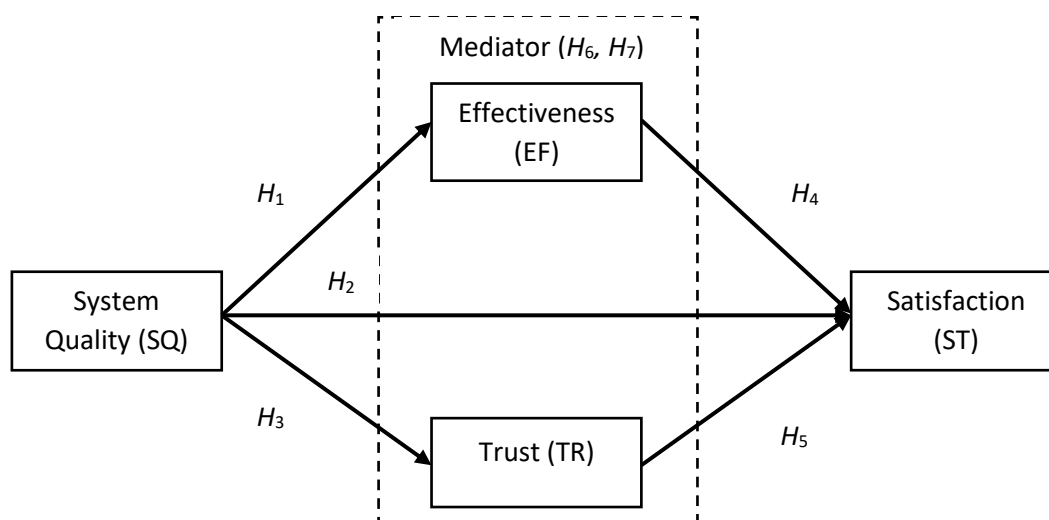
Research Design

The present research employed an inductive reasoning quantitative study. Data were collected using snowball sampling techniques to ensure that the target respondents were Myanmar students. The questionnaire was sent to target respondents via email with a restriction to answer only once. The questionnaire consisted of two sections to examine the proposed theoretical research model (Figure 1). Demographic questions about the participants' gender, type of university, and academic level were included in the first section of the questionnaire.

The second section of the questionnaire contained 14 items (see Appendix A) to measure the four factors from the proposed theoretical research model. Each item used a five-point Likert scale for respondents to express their attitudes. The Likert scale ranged from 1 = *Strongly Disagree* to 5 = *Strongly Agree*. The reliability and validity of research items were tested through convergent validity, discriminant validity, Cronbach's Alpha (CA), and composite reliability (CR) values using SPSS and AMOS software. The proposed hypotheses were tested using the structural equation modeling (SEM) approach.

Data Analysis and Results

Participants' Profile Analysis

The data were collected from 262 Myanmar university students from different majors and various types of universities worldwide who had experience using e-learning at their institutions. After eliminating 12 outliers from the dataset, the number of datasets decreased to 250. In the dataset, 84 (33.6%) respondents were male, and 166 (66.4%) were female. Almost half of the respondents (45.6%) were studying abroad, while the remainder (54.4%) were local university students. Less than 10% of participants were from local private universities, and more than 40% were from local public universities. Most respondents were post-graduate students (87.6%), and the rest (12.4%) were undergraduates. The participants' profile is presented in Table 2.

Table 2 *Results of Participants' Profile Analysis*

Demographic Profile		Freq (*N* = 250)	Percent
Gender	Male	84	33.6
	Female	166	66.4
Type of University	Local Private	18	7.2
	Local Government	118	47.2
	Abroad Private	55	22.0
	Abroad Government	59	23.6
Academic Level	Undergraduate	31	12.4
	Post-Graduate	219	87.6

Convergent Validity and Construct Reliability Analysis

The standardized regression weights and average variance extracted (AVE) were tested to validate the convergent validity of factors and their measurement items. According to the recommendation of Fornell and Larcker (1981), the threshold value of AVE must exceed .50 to establish convergent validity. The analysis results shown in Table 3 indicate that the AVE of all the constructs was above .50, suggesting that convergent validity was established. Furthermore, construct reliability was determined by composite reliability (CR) and Cronbach's Alpha (CA). All values of CR and CA exceeded the criterion value of .70.

Table 3 *Results of Convergent Validity and Construct Reliability Analysis*

Factors	Measurement Items	Std. Regression Weights	AVE	CR	CA
Effectiveness (EF)	EF1	.836	0.697	0.902	0.901
	EF2	.883			
	EF3	.812			
	EF4	.806			
System Quality (SQ)	SQ1	.729	0.550	0.829	0.815
	SQ2	.837			
	SQ3	.615			
	SQ4	.769			
Trust (TR)	TR1	.748	0.674	0.861	0.858
	TR2	.854			
	TR3	.857			
Satisfaction (ST)	ST1	.792	0.698	0.874	0.871
	ST2	.849			
	ST3	.863			

Discriminant Validity Analysis

Discriminant validity was tested to confirm that factors from the proposed research model were not highly related to one another. Discriminant validity was examined by comparing the square root of the AVE with the correlation coefficient between factors (Hair et al., 2010). According to the results of the discriminant validity analysis (Table 4), the values of the square root of the AVE were greater than correlations between factors. Therefore, the validity of the research instrument was confirmed.

Table 4 *Results of Discriminant Validity Analysis*

Factors	EF	SQ	TR	ST
Effectiveness	**0.835**			
System Quality	0.462	**0.742**		
Trust	0.609	0.611	**0.821**	
Satisfaction	0.706	0.562	0.795	**0.835**

Model Fit Indices Analysis

The values of CMIN/*df*, GFI, AGFI, NFI, CFI, and RMSEA for both the measurement and structural models are presented in Table 5. The minimum cut-off value for GFI, NFI, and CFI should be greater than .90, AGFI should be greater than .85, CMIN/*df* should be less than 3.0, and RMSEA should be less than 0.08. According to the analysis of model fit indices, all the values exceeded the minimum cut-off values. Therefore, both the measurement and structural models resulted in a good fit.

Table 5 *Results of Model Fit Indices Analysis*

Indices	Good-Fit	Measurement	Structural
CMIN/*df*	< 3.0	2.026	2.512
GFI	> 0.9	.926	.911
AGFI	> 0.85	.891	.870
NFI	> 0.9	.936	.919
CFI	> 0.9	.966	.949
RMSEA	< 0.08	.064	.078

Note. Minimum Discrepancy of Confirmatory Factor Analysis/Degrees of Freedom (CMIN/*df*); Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA).

Casual Direct Effects Analysis

The analysis results of the causal direct effects are shown in Table 6. E-learning system quality positively affected e-learning effectiveness (β = .514, *p* < .001) and e-learning satisfaction (β = .651, *p* < .001), which meant that H_1 and H_3 were both supported. E-learning effectiveness (β = .396, *p* < .001) and e-learning trust (β = .570, *p* < .001) both evidenced a positive effect on e-learning satisfaction. Therefore, H_4 and H_5 were accepted. However, the results indicated that the causal direct effect between e-learning system quality and e-learning satisfaction (β = .048, *p* = .555) was insignificant. Therefore, H_2 was rejected.

Table 6 *Results of Casual Direct Effect Analysis*

Hypotheses	Direct Effects	Beta	*t* value	*p* value	Result
H_1	SQ → EF	0.514	6.845	***	Accepted
H_2	SQ → ST	0.048	0.590	0.555	Rejected
H_3	SQ → TR	0.651	7.874	***	Accepted
H_4	EF → ST	0.396	6.234	***	Accepted
H_5	TR → ST	0.570	6.804	***	Accepted

*** *p* < .001

Mediating Effect Analysis

The value of Variance Accounted For (VAF) was tested to confirm the mediating effects. The extent of VAF can be determined by dividing the indirect effect by the total effect, and if the result is greater than 20% it means that the factor is a mediator; otherwise there is no mediation (Hair et al., 2016). The analysis results (Table 7) confirmed that both e-learning effectiveness (VAF = 35%) and e-learning trust (VAF = 65%) were mediating factors between e-learning system quality and e-learning satisfaction. Thus, H_6 and H_7 were both accepted. The research model with analysis results is shown in Figure 2.

Table 7 *Mediating Effect Analysis Results*

Hypotheses	Indirect Effect	Beta	VAF	Result
H_6	SQ → EF → ST	0.204	35%	Accepted
H_7	SQ → TR → ST	0.371	65%	Accepted

Figure 2 *Theoretical Research Model with Analysis Results*

60
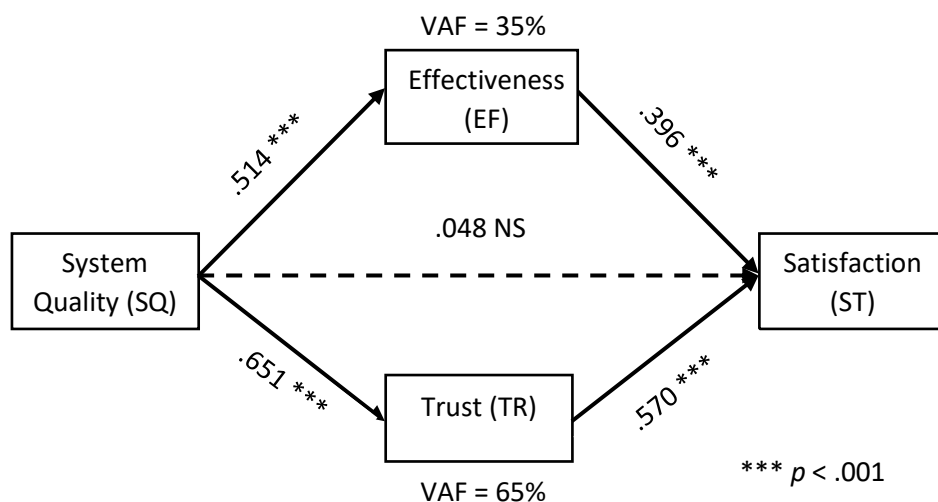
Discussion

The present study contributes to a better theoretical understanding of Myanmar students' perspective on new normal learning methods, as indicated by the data analysis results based on the proposed theoretical research model (Figure 2). All the proposed hypotheses in this study were accepted except for H_2. First, if institutions provide e-learning with better system quality, students will perceive the effectiveness of the system, leading to satisfaction with it (SQ → EF → ST). Second, users determine the reliability and trustworthiness of digital learning methods based on system quality, and their satisfaction with the system ultimately relies on their trust in e-learning (SQ → TR → ST). Surprisingly, system quality cannot improve users' satisfaction, and this result may be considered a new finding.

The analysis results indicated that system quality can enhance students' trust in e-learning and its effectiveness; these results were aligned with the findings of Mahande et al. (2019). Improving trust in e-learning depends on stakeholder perspectives of various factors, including institutional infrastructure, technological readiness, effective management, swift support, and new pedagogical approaches (Zalat et al., 2020). The findings of this investigation extend the knowledge and literature, indicating that trust can be built by improving the system quality of e-learning. Moreover, effectiveness and trust can be improved if the system quality of e-learning is better. In terms of satisfaction with the new normal learning method, trust and effectiveness had a significant positive effect on satisfaction, while system quality was insignificant, answering RQ1. This finding implies that system quality alone does not improve users' satisfaction in e-learning, especially for users from Myanmar, unless e-learning is unreliable and ineffective. Bwachele et al. (2023) suggested that satisfaction with learning platforms has shifted from emphasizing quality to prioritizing reliability and effectiveness, due to changing trends in higher learning institutions.

Furthermore, trust is more critical than effectiveness in achieving satisfaction, thus answering RQ2. Kim et al. (2009) reported that trust is the most important factor for users' satisfaction in the context of online activities. When users increasingly perceive e-learning as effective and useful, their satisfaction with e-learning improves (Mahande et al., 2019). According to the findings, trust (VAF = 65%) mediates the relationship between system quality and satisfaction even more strongly than effectiveness (VAF = 35%). Previous studies have also demonstrated that effectiveness and trust are significant mediators between system quality and satisfaction in the online context (Mahande et al., 2019; Lee & Chung, 2009). The and Usagawa (2018) warned that e-learning readiness among Myanmar students might decrease over time unless institutions update requirements for e-learning, teaching materials and formats, communication devices, and Internet usage behaviors. Additionally, institutions in Myanmar should note that e-learning will not succeed based on system quality alone.

Most users are dissatisfied with e-learning systems due to the lack of physical interaction, reliance on Internet connections, poor visualization quality, and high software and hardware requirements. Institutions should pay more attention to providing appropriate and reliable learning materials in educational environments to earn students' trust in specific new learning methods. When institutions develop new learning methods for students, they should consider that these newly developed methods assist students in accessing learning resources effectively, improving their learning performance, and achieving better learning outcomes. Furthermore, institutions should note that if a system is easy to use, interact with, and understand, this will reduce user dissatisfaction and alleviate users' doubts about it. Simultaneously, to improve students' satisfaction with EL, educational institutions need to assure students that e-learning platforms will increase their performance, productivity, and efficiency.

Research Limitations

The research objectives were achieved in this study, but there were still certain research limitations. The usage of online questionnaires was one limitation because the results may only reflect the attitudes of respondents who have proper Internet access. Additionally, a majority of respondents were post-graduate students, and so the findings may not be the same for students at other academic

levels, who might have different perceptions and usage of e-learning. The results may also be biased toward the viewpoints of university students because the e-learning experiences of lecturers, professors, and academic administrators were not considered. Furthermore, the respondents of this study were Myanmar students. Therefore, the implications of this study may not be appropriate for students from other nations with different academic domains and facilities. Finally, teachers from different subjects might have different approaches and teaching strategies, but their opinions on e-learning were not considered in this study.

Conclusion and Recommendations for Future Studies

It is not easy to create and develop satisfactory new learning methods without a comprehensive understanding of existing theories. In this study, effectiveness and trust were not only investigated as antecedents of satisfaction, but also as mediators between system quality and satisfaction. This study confirmed that effectiveness and trust act as mediators between system quality and satisfaction. System quality was statistically insignificant according to the data analysis results. Additionally, the findings revealed that trust was the foremost variable in online learning environments.

The role of trust in an institution should be investigated in future research studies on Myanmar students' satisfaction with new learning methods. In the present study, technical perspectives were the focus; therefore, it is recommended that future studies consider extending the current research model by incorporating social perspectives. Future studies should also endeavor to identify strategic and technological barriers in online learning environments, particularly for Myanmar students, so that education policymakers can make constructive and effective decisions.

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Appendix A *Questionnaire and Preliminary Data Analysis*

Items	Statements	Mean	Std. Deviation	Skewness	Kurtosis
EF1	E-learning enhances my effectiveness of learning.	4.27	0.742	-0.595	-0.552
EF2	E-learning improves my learning performance.	4.23	0.771	- 0.576	-0.596
EF3	E-learning increases my learning outcomes in my course work.	4.14	0.768	-0.467	-0.532
EF4	E-Learning improves my learning achievements.	4.13	0.739	-0.328	-0.726
SQ1	E-learning is easy to use.	4.02	0.836	-0.420	-0.613
SQ2	There is clarity in my interaction with the e-learning.	3.82	0.889	-0.433	-0.166
SQ3	Interacting with the e-learning does not require a lot of my mental effort.	3.37	1.076	-0.190	-0.599
SQ4	The interaction with the e-learning is clear and easy to understand.	3.78	0.837	-0.114	-0.700
TR1	I believe I can trust the e-learning of my university.	4.16	0.775	-0.494	-0.561
TR2	I believe that the e-learning is reliable.	4.03	0.763	-0.212	-0.811
TR3	I believe that the e-learning provides dependable service.	3.93	0.776	-0.090	-0.855
ST1	I am satisfied with using e-learning as a learning assistant.	4.21	0.720	-0.464	-0.505
ST2	If I am asked, I would likely recommend the e-learning as an ideal learning platform.	4.20	0.717	-0.382	-0.752
ST3	I am satisfied with using the functions of e-learning of my university.	4.11	0.673	-0.216	-0.498

Framing of Flood News in The Borneo Post, a Regional Malaysian Newspaper

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Abstract

In recent years, climate change and unpredictable weather are causing more frequent severe floods in various areas, but little is understood about how regional newspapers shape public reactions to and preparations for natural disasters. This study investigated the framing of flood news by The Borneo Post, an English-language newspaper circulated in Sarawak, Malaysia. The specific aspects examined were: (a) frequency of thematic and episodic framing of flood events and (b) frame dimensions used in articles. Altogether 76 articles (25,676 words) on floods published by The Borneo Post from 1 January to 31 December 2023 were analysed. All articles were in the episodic frame. The main frame dimension was attribution of responsibility (79%), where authorities act as disseminators and narrators of disaster facts. However, the absence of thematic framing of floods lowers attribution of responsibility to authorities to plan long-term solutions to flooding. The economic consequences frame ranked second (14.5%), emphasising losses suffered. Little attention was given to human interest (3.9%) or conflict (1.3%). There was no morality frame, and 1.3% of articles were fact-filled and did not have an obvious frame dimension. The findings suggest that fact-focused flood reporting lacking the humanity element may not move readers to action.

Keywords: *Newspaper, framing, flood, episodic, thematic, climate change*

Introduction

Climate change plays a role in the increased frequency of floods. "Climate change may cause river floods to become larger or more frequent than they used to be in some places, yet become smaller and less frequent in other places" (United States Environmental Protection Agency, 2023, para. 6). As a result of increasingly frequent floods, the negative impacts on people, property, and the environment are multiplied. For example, floods cause erosion, and the massive movement of rocks and soil may lead to landslides. Either the flood itself or the resulting landslides cause deaths, injuries, and homelessness every year; floods also damage buildings, roads, and other infrastructure (State of Alaska, 2024).

In the past few years, floods may be the most devastating natural disaster experienced in Malaysia. On 28 January 2022, floods devastated much of Malaysia, causing an estimated Malaysian Ringgit (RM) 6.1 billion (US$ 1.46 billion) in overall losses ("Malaysia floods," 2022). Throughout Malaysia, including Sabah and Sarawak, there are 189 river basins (89 of these river basins are in peninsula Malaysia, 78 in Sabah, and 22 in Sarawak), with the main channels flowing directly into the South China Sea, and 85 of them are prone to recurrent flooding. The estimated area vulnerable to flood disasters is approximately 29,800 km^2, or 9% of the total area in Malaysia; almost 4.82 million people, or 22% of the Malaysian population, may be affected (Abdullahi, 2014). Flood risk management in Malaysia has been a top-down government responsibility, and Malaysians are heavily reliant on a top-down government-controlled ethnocentric approach to flood management (Chong & Kamarudin, 2018). Awareness among local communities is very important for flood mitigation initiatives to have the desired impact in reducing the risk of flooding in such areas. In this context, it is the media that creates public awareness of initiatives and prompts those living in flood-prone areas to reduce water damage and thus the devastating impact of flooding.

Reporting of flooding constitutes environmental journalism (Santana et al., 2019). Studies on environmental journalism show different emphases in flood news in different countries. News reports

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of the Florence flood in Italy were reported in negative tones in five newspapers (two international, three Italian), and highlighted the catastrophe experienced by flood victims (Roney et al., 2022). In Ireland, Devitt and O'Neill's (2017) analysis of three newspapers showed a focus on the emotional impact of the flood on people, and citizens' participation in risk management. On the other hand, flood coverage in India did not emphasise human interest stories. Giri and Vats (2018) found that four newspapers published in India (The Times of India, Hindustan Times, The Hindu, The Telegraph) highlighted the response of authorities to the Uttarakhand flood, and did not draw attention to community preparedness.

In Malaysia, there are few academic publications about flood reporting in newspapers, and two previous studies both focused on mainstream national newspapers. Ihediwa and Ishak (2015) compared how two English dailies framed floods: The New Straits Times focused on government responses to the flood, while The Star highlighted individual losses suffered. Ahmad and Lateh's (2016) framing study of two mainstream newspapers (Utusan Malaysia, The Star) was not directly about floods, but how flooding resulting from a landslide in Taman Puncak Setiawangsa, Kuala Lumpur, in December 2012. Both newspapers relied on government sources, and Utusan Malaysia tended to highlight government measures, while The Star was inclined towards portraying elements of humanity by including victims as sources (Ahmad & Lateh, 2016). Ahmad et al. (2015) adopted a different line of investigation by examining the role of social media in flood disasters, and their findings showed that self-efficacy, social support, and social recognition influenced the knowledge sharing intentions of social media users.

Thus far, framing studies on the newspaper coverage of floods in national newspapers in Malaysia have shown a focus on government responses and government sources of information in New Straits Times and Utusan Malaysia, but The Star was different as it focused on victims' experiences and human interest. However, little is known about the coverage of floods in regional newspapers, as there has been no research on them. It is crucial to determine the characteristics of flood news in newspapers "closer to home," especially in terms of the salient dimensions of flood incident reporting. This is because earlier studies have found different perspectives between national and regional newspapers for topics such as selection of the site for the international science-business belt (Lee, 2011), and communication of science (Baruah, 2019). The present study used framing priorities, in terms of episodic and thematic reporting, as well as frame dimensions for flood news, to provid insights into how regional newspapers shape the public's reactions and preparations for natural disasters.

In this study the framing of flood news by The Borneo Post was investigated, an English mainstream newspaper in Sarawak Malaysia. The objectives of the study were:

1. To identify the frequency of thematic and episodic framing of flood events.
2. To examine the frame dimensions used for framing flood events.

Literature Review

Flooding is one of the most common types of natural disaster, and the results often are fatal. The Central China flood of 1931, for example, was one of the worst flooding events in recorded history. The Yangtze and Huai Rivers broke their banks, killing as many as several million people. The aftermath was devastating as deadly waterborne diseases like dysentery and cholera spread quickly, and those who survived faced the threat of starvation (National Geographic, 2024).

People and governments suffer economic losses due to floods. Flood damages public assets and infrastructure, individual homes and vehicles, business, manufacturing and agricultural sectors. Flooding is among the most prevalent of natural hazards, with particularly disastrous impacts in low-income countries, bearing in mind that low- and middle-income countries are home to 89% of the world's flood-exposed people (Rentschler et al., 2022).

Inadequate public awareness among communities is one of the main challenges that local authorities have to face in implementing flood disaster management (Yazid et al., 2022). Although flood disasters are natural disasters that often occur in Malaysia, some individuals are still not aware of the hazards posed by flooding and neglect essential safety precautions (Rosmadi et al., 2023).

People in affected areas lack awareness of Standard Operating Procedures (SOP) during a flood disaster (Yazid et al., 2022). For example, Rosmadi, et al. (2023) pointed out that some individuals refused to evacuate despite receiving orders, while others treated the flood as a festive occasion. Children play in the flood water, and some drown; this is caused by parents and local communities who underestimate the danger of flooding in their home areas (Perera et al., 2020). This dismissive attitude towards flood disasters poses significant dangers, threatening lives and property. Every time a disaster occurs, the Malaysian government declares a state of emergency in the affected states and sends out teams of rescuers and aid workers to assist in the relief effort (Shafiai & Khalid, 2016). However, public awareness is needed for the community to be prepared for the next flood, and little is known about the messages sent by newspapers to the public (as explained in the Introduction section).

Theoretical Framework of Study

The theoretical framework of the study is Entman's (1993) framing theory, which delineates four locations of communication where frames are manifest: The communicator, the text, the receiver, and the culture (Figure 1). Framing is defined as the process of selecting certain elements of a perceived reality and emphasising them in a communicative text to promote a specific problem definition, causal interpretation, moral evaluation, and/or recommended course of action (Entman, 1993).

Figure 1 *Framing Theory Incorporating Entman (1993) and de Vreese (2005)*
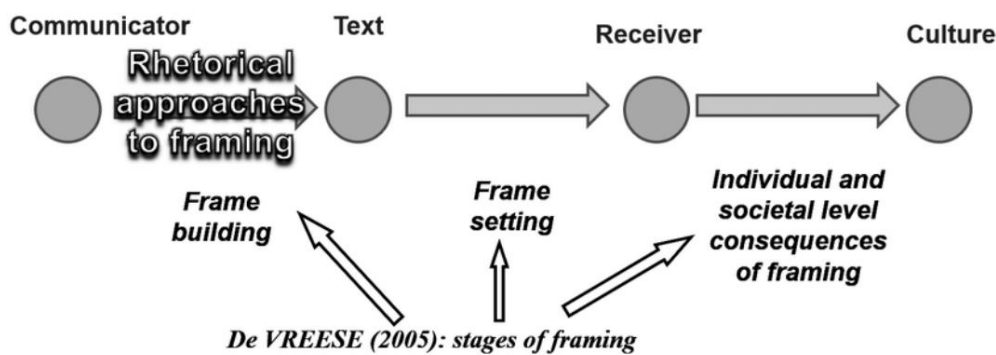
Source. Carlan & Ciocea, (2016)

When communicators construct texts, this is referred to as frame building by de Vreese (2005). Frame building occurs within newsrooms, where journalists consider editorial policies, news values, and social movements. Journalists utilise both issue-specific and generic frames to shape news narratives, which Iyengar (1990) categorised as episodic and thematic frames, respectively.

The subsequent phase, frame setting, involves the interplay of readers' pre-existing knowledge and predispositions with the frames presented in the news (de Vreese, 2005). The final stage, framing effects, pertains to the impacts of these frames at both the individual and societal levels. This study focuses on the examination of frames within news articles.

Episodic and Thematic Frames

Iyengar (1990) introduced a framework for analysing frames, distinguishing between episodic and thematic frames. Episodic framing concentrates on individual events and personal narratives, often eliciting more intense emotional reactions from readers compared to thematic framing (Gross, 2008). Episodic framing has been documented in reports on child abuse in Bangladesh (Jahan & Razib, 2023) and floods in India (Giri & Vats, 2018). However, a limitation of episodic framing is that readers may not be able to link events to broader historical or contextual backgrounds. Episodic framing in crisis reporting also tends to reduce the attribution of political responsibility (Boukes, 2022). In contrast, thematic framing situates events within a broader context or trend (Iyengar, 1994), providing readers with a macro-level perspective.

Frame Dimensions

In their framing analysis, Smetko and Valkenburg (2000) employed a deductive methodology to evaluate the prevalence of frames within news content. Their analytical framework encompassed five distinct dimensions of news frames:

- Conflict, which highlights disputes and disagreements to engage the audience,
- Human interest, which focuses on the human or emotional aspects of events,
- Economic consequences, which shows the financial impact of events,
- Morality, which situates events within religious and ethical contexts, and
- Responsibility, assigning accountability to governments, individuals, or groups for specific issues.

Smetko and Valkenburg's (2000) framework was used by Ihediwa and Ishak (2015) in their analysis of crisis news in Malaysian and Nigerian newspapers between 2007 and 2009. A total of 2,834 news stories on political, environmental, health and economic crises were collected from four newspapers, comprised of 912 articles from Malaysian newspapers (New Straits Times and The Star), and 1,922 articles from Nigerian newspapers (The Sun and The Nation). All the four newspapers reported the crisis news mostly using the conflict frame (New Straits Time 38.1%; The Star 47.8%; The Sun 34%; The Nation, 28.6%). It is interesting that the responsibility frame ranked second for New Straits Time (28.6%) and The Sun (34%), but the human interest frame ranked second for The Star (26.1%) and The Nation (22.8%). The other frames accounted for 20% or less of the frames in the crisis articles in each of the newspapers. The inclination of The Star towards reporting personal stories was found in Ahmad and Lateh's (2016) framing analysis of landslide news in Malaysia.

Method of Study

The descriptive study involved framing analysis of articles on floods published in The Borneo Post. The Borneo Post is selected because it is the largest and widely circulated English-language daily newspaper in East Malaysia, and also the alternately circulated newspaper in Brunei (The Borneo Post, n.d). The Borneo Post currently has a daily print subscription of about 80,000 in Sarawak and Sabah, and it has about 300,000 followers across its social media platforms (Boon, 2023).

The Borneo Post was the first English newspaper in East Malaysia to use photo-composition for type-setting, and printing was done in offset as against the old-fashioned letterpress (Boon, 2023). The Borneo Post became part of a group of newspapers, along with See Hua Daily News and Sin Hua Evening News, as well as weekly tabloids the See Hua Weekly and Your Weekender (Boon, 2023). Although The Borneo Post has its headquarters in Kuching, the company originated in Sibu. The expansion to Kuching on 28 October 1979, and to Miri and Sabah in 1986, made The Borneo Post the most widely distributed English newspaper in Borneo (Boon, 2023).

To collect news articles on flood in The Borneo Post, the search term "flood" was used in the online portal of this media (https://www.theborneopost.com/). The search identified 76 news articles on flood from 1 January to 31 December 2023. The selection criteria were: (a) straight news articles, and no editorials and letters to the editor, and (b) news articles with text, and not photos with captions only. Articles in languages other than English were excluded. The total word count was 25,676 words. The year-long data collection period was chosen to cover the whole cycle of floods in a year.

The unit of analysis was the news article for identification of episodic and thematic framing, and frame dimensions. No thematically framed article on flood was found. Episodic framing was the norm (refer to Appendix 1 for an example). For the analysis of thematic and episodic framing, a dominant frame was identified for each news article. An article is considered episodic if it accentuates individual events and personal narratives (Iyengar, 1994), although it may contain a minimal amount of background information such as history, analysis of facts, and expert opinions. An article was considered thematic if it promoted a macro perspective by situating issues within a broader societal context (Iyengar, 1994).

The frame dimensions were analysed based on Smetko and Valkenburg's (2000) definitions given in the Theoretical Framework of the Study section. To ensure reliability in both analyses, the first

researcher coded the news articles, and the codes were checked by the second researcher. Differences in coding were discussed, and resolved by referring to the definitions. A point of difference was the human interest frame, as the first researcher was not able to distinguish between articles that merely mentioned flood victims and those that highlighted their personal experiences and stories.

Results

A total of 76 news articles on floods reported in The Borneo Post were analysed for thematic and episodic framing, and frame dimensions. All of the flood news in The Borneo Post were in the episodic frame (100%). The absence of thematic framing of flood framing meant that readers were unable to connect the latest flood incident to past floods. People have short-term memories, and when newspaper articles do not provide background information on previous floods, readers cannot develop a macro perspective on flooding. The absence of thematic framing of flooding also lowers attribution of responsibility to authorities to find long-term solutions to flooding, as opposed to short-term solutions such as evacuation to higher ground and provision of shelter.

Episodic articles revealed details of the work of flood rescuers, consequences of floods, government calls and actions. The government presence in the handling of flood disasters was particularly strong. For example, The Borneo Post article dated 28 December 2023 read "Anwar arrives in Kelantan to assess flood situation." This article was written from the first-person perspective of Prime Minister Anwar Ibrahim. It briefly described his visits to assess the flood situation, but the news article was careful to avoid promises of response, because he had not visited the site of the flooding at the time of the news report. The care in reporting was reflected by the following: "Anwar is scheduled to visit the Lubok Jong Bridge and two temporary relief centres at Sekolah Kebangsaan Sri Kiambang in Kampung Repek and Sekolah Menengah Kebangsaan (A) Lati in Kampung Banggol Manok, Pasir Mas" and "In his posting on Facebook yesterday, Anwar said he would visit Kelantan today to personally check on the flood situation currently affecting the state." Anwar also shared the information following his meeting with the Prime Minister of Thailand, Srettha Thavisin, in Phuket yesterday. He said, "We also discussed the current flood situation, and Insya-Allah, I will go to Kelantan tomorrow to personally assess the increasingly worrying situation there. May Allah lift this disaster soon." ("Anwar arrives in Kelantan," 2023).

Anwar Ibrahim is the prime minister, and yet he made time to visit a flood disaster area in Kelantan. The ministerial presence shows the importance the government places on solving the flood problem for the people; the news report had Anwar Ibrahim's travelling schedule. There was also a religious element when Anwar Ibrahim was quoted as saying "May Allah lift this disaster soon." As Islam is the official religion of Malaysia, it was natural for the prime minister to make statements on weather and flood as events beyond human control, and under the control of God.

Dominant Frame Dimensions

Table 1 shows the frequency and percentage of frame dimensions in The Borneo Post. The main frame dimension is the responsibility frame (79%), followed by economic consequences frame (14.5%), human interest frame (3.9%), conflict frame (1.3%), not classifiable (1.3%), and no morality frame.

Table 1 *Frequency and Percentage of Frame Dimensions in The Borneo Post* (N = 76 articles)

Frame Dimensions	Frequency	Percentage (%)
Attributions of Responsibility	60	79.0
Economic Consequences	11	14.5
Human Interest	3	3.9
Conflict Frame	1	1.3
Not Classifiable	1	1.3
Morality	0	0
Total	76	100

One article could not be classified into any of the five frame dimensions because it was a factual update on the flood situation in Johor, Sabah, and Pahang, the number of evacuees in temporary relief centers, and the water levels ("Floods," 2023).

Attributions of Responsibility

In most responsibility frameworks, authorities typically play key roles in flood relief, evacuation, and resettlement efforts. In The Borneo Post articles on floods, authorities sometimes acted as disseminators and narrators of disaster facts. Within these responsibility frameworks, authorities were occasionally framed negatively. For example, a 25 January article headlined "30 houses in Kg Bako hit by flash floods" included facts about the flash flood in Kampung Bako to answer the Wh questions (what, where, who, when), and an announcement by the Fire and Rescue Department that evacuation orders had not been issued.

> Around 30 houses, including a kindergarten, in Kampung Bako were inundated by flash floods as of 9.30 pm today. The Fire and Rescue Department (Bomba) in a statement said so far, no order was issued to villagers to vacate their homes and move to a flood relief centre.
> "The sea tide has started to recede – however, a large volume of water is still flowing from the nearby mountainside due to heavy rain in the area" it said.
> At the scene today were rescuers from the Tabuan Jaya fire station and Bomba volunteers from Bako Indah.
> In a separate incident, flash floods also hit villagers in Kampung Telaga Air and affected three houses.
> The three houses are home to 18 adults and seven children, said Bomba.
> "No orders were given to those affected to relocate to a flood relief centre," it said.
> In Lundu, a video also circulated via WhatsApp showing water levels rising to almost knee-level. Meanwhile, Bomba is monitoring other areas which are seeing a trend of rising water levels such as Kampung Sungai Laru, Jalan Setia Raja, Kampung Buntal and areas in Santubong. ("30 houses in Kg Bako hit," 2023)

It was not clear from the news article whether the Fire and Rescue Department is responsible for issuing evacuation orders. It may look as if the image of the government agency was negative. However, the next part of the news article informed readers that the sea tide was receding, and that the fire department had sent rescuers and volunteers to the site. The news article went on to report another flash flood in Kampung Telaga Air, with similar circumstances. The article ended on a positive note by informing readers that the Fire and Rescue Department was monitoring the rise in water levels in other villages, thereby showing government readiness and response to natural disasters.

Another example of the responsibility dimension was the 3 February 2023 article headlined "Dr Sim: S'wak govt to learn flood management from Netherlands." As The Borneo Post is a regional newspaper circulated in Sarawak, this explained the highlight given to a local minister. Dr Sim is a deputy chief minister of Sarawak, and he was quoted as saying that the Sarawak government plans to learn flood management techniques from the Netherlands, and would allocate funds for the redevelopment and infrastructure improvement of Sibu, which is located in the low-lying area of the Rejang River Basin. This article highlighted government responsibility and initiative in learning about flood mitigation measures from other countries.

Economic Consequences

Economic consequences highlighted in The Borneo Post included the funds provided by the government to support post-flood reconstruction efforts, including financial support for flood prevention systems and plans, as well as economic assistance to the people affected by a disaster. For example, the headline of an article was "Six flood mitigation projects re-tender process won't take long, says Ahmad Zahid" ("Six flood mitigation projects," 2023). In this article, Deputy Prime Minister Ahmad Zahid Hamidi assured the public that there would be a quick re-tendering for six flood mitigation projects. Tender is the financial process by which the government selects project awardees, and the tendering process takes time because meetings need to be held at different levels to reach a

decision. This was why the Deputy Prime Minister pacified the public by assuring them that the process would not take long.

Human Interest

Some articles narrated personal stories and used emotive language. An example was the 25 January 2023 article headlined "Floods badly hit northern Sabah." The last part of the article included an SOS message sent by a Facebook user Manuel Manual (bolded). This personalised the dire conditions they were in ("We need help. Our area is in danger"), in contrast to reports of rain, inaccessibility of roads, and closure of schools, which were reported as if there were no people involved. A more extensive account is given below ("Floods badly hit northern Sabah," 2023).

> A secondary school in Pitas allowed its students and teachers affected by the floods following heavy rain on Tuesday, to be absent on Wednesday.
> Principal of SMK Pitas II, Johori Botohong made the announcement on the school's Facebook page on January 24 night after a number of roads connecting Pitas, Kota Marudu, Kudat and the city centre are inaccessible to vehicles.
> "There has been no proposal to close the school since our school area has not been flooded. Safety first." He said.
> "Please prioritise safety in whatever we do when facing this flood. Safety first," he said.
> A Facebook user, Manuel Manual who claims is from Kampung Dandun in Bengkoka constituency said his area is currently in danger as the Sungai Bengkoka water has overflowed without any flood siren warning.
> "We need help. Our area is in danger. Our phone connection is also bad," he said in his post around 8am.

The news article also used information from other flood victims who shared their disaster experiences and responses, highlighting the human side of the disaster and the challenges faced by communities due to floods. The human interest stories can connect with readers on a personal and emotional level, and provide a different perspective from the government-centric narratives. However, this journalistic strategy was not used much in The Borneo Post flood articles (less than 4% of the 76 articles analysed).

Conflict Frame

There was only one article in The Borneo Post with a conflict frame–that is, the 4 January 2023 article headlined "Bengkoka flood victims disappointed over aid" (2023). This article quoted flood victims saying that some households had not received the RM 2,500 cash aid. The article also highlighted discrepancies between the aid received by flood victims in the peninsula (amounting to RM 10,000 per household) versus those in Sabah. In the interior regions like Bengkoka, aid delivery was slower and less comprehensive. The victims felt neglected compared to flood victims in the peninsula, where faster and more substantial aid was provided. The victims were frustrated and hoped for more attention from the government as it had been almost a year. The conflict between the affected community and the authorities was still on-going at the time of this news report. Part of the news report is given below:

> Flood victims here have expressed disappointment over the unfair treatment by the government in channeling financial aid. Their spokesperson Omar Jalun said in a statement the worst flood in Bengkoka in February 2022 had affected thousands of victims. However, only about 50 households have received one-off RM 2,500 cash aid, while the rest are still waiting.
> "One hundred and seventy-one household heads in Sinukab temporary flood relief centres were told that they would be getting financial aid. However, only about 50 have received the aid. It is frustrating because the government does not seem to make any effort to help those badly affected by the flood," he said.
> One of the victims, Seina Suaib said flood victims in the peninsular often received fast assistance and [were] given proper attention. In Sabah, she said, especially those in the interior are normally left behind.
> "Although one-off cash aid of RM 2,500 was given to some of the victims, it was not given to all.

In the peninsular, we saw on TV flood victims were given RM 10,000 for house repairs, but for us here, we did not get anything," she said.

Seina said she is hoping they will be still getting attention from the government although the flood already happened almost a year ago.

"Our houses were badly affected and our furniture, electrical goods and daily essentials were damaged during the flood. We are still waiting for the government to ease our burden," she added. ("Bengkoka flood victims," 2023)

Discussion and Conclusion

In the examination of news frames on floods employed by The Borneo Post, a regional newspaper published in English, two main findings are worthy of discussion.

First, all news frames in flood news were episodic frames. This is rather extreme, when compared to Giri and Vats' (2018) study on four Indian newspapers, where 70% of newspaper articles on the Uttarakhand flood were episodic frames. In crisis news, episodic frames bring breaking news on the unfolding events and creates a sense of urgency. In the case of floods, which occur several times a year in certain places in Malaysia, the response of readers depends on whether their area is flood-prone. If their area has been safe from flood, they probably read the episodic articles with a detachment–places affected, flood rescuers at work, statements by government officials, visits and assessments by government officials, along with other rescue and flood mitigation action. The prevalence of episodic reporting in all articles on flooding may lead readers to believe that the only methods to alleviate flooding are immediate relief and short-term measures, thereby diminishing their comprehensive understanding of the overall situation and overlooking long-term solutions, environmental issues, and possible policy changes on flood response.

Second, attribution of the responsibility frame is the most salient (79%) in flood news articles published in The Borneo Post, compared to economic consequences, human interest, and conflict frames. This salience is not surprising, as An and Gower (2009) found that 95.1% of newspaper articles carrying news on business crises had at least one item of responsibility frame attribution. The newspapers analysed were the New York Times, the Washington Post, and USA Today. In their study, the responsibility frame tended to be used to attribute blame to parties involved or to question the capabilities of the parties involved. Whether it was a regional newspaper like The Borneo Post or newspapers published in the United States, and whether it was flood crises or business crises, the responsibility frame was dominant because there were parties involved.

However, there were other findings where the conflict frame predominated like in Ihediwa and Ishak's (2015) analysis of flood news in two Malaysian newspapers and two Nigerian newspapers. The responsibility frame was second in New Straits Time (Malaysia) and The Sun (Nigeria), but fourth in The Star (Malaysia) and The Nation (Nigeria). Since a majority of the crisis articles in Ihediwa and Ishak's (2015) study were on political, health and economic crises, it was natural for the news articles to highlight these conflicts. In their corpus, environmental crisis articles only accounted for 17.98% of their corpus, but they did not separate the reporting of the frame dimensions according to type of crises, so it was not known whether the responsibility frame dominated in the news articles on environmental crises.

An and Gower's (2009) results showed that it is important to analyse the responsibility frame in terms of the level of responsibility. Their findings showed that accidental crisis news articles (52.9%) focused on the organisational level of responsibility, whereas preventable crisis news articles were more likely to use the individual level of responsibility (47.1%). The Borneo Post flood articles tended to focus on the organisational level of responsibility, and this is because floods are not preventable crises. In The Borneo Post articles, authorities were portrayed as playing positive roles in flood relief, evacuation, and resettlement efforts, and also sometimes acted as disseminators and narrators of disaster facts. Individual responsibility was not given much attention, which may lead readers to feel that they are not accountable and blame the government for flood problems. This may explain why some members of the public have a relaxed attitude towards flooding, and let their children play in the rising flood waters, while others refuse to evacuate and leave their homes (Rosmadi et al., 2023).

Deaths due to flooding are actually preventable and avoidable if the public were more informed about Standard Operating Procedures during a flood disaster (Rosmadi et al., 2023; Yazid et al., 2022) and had a more cautious attitude towards the danger of floods (Perera et al., 2020). From our analysis of flood news in The Borneo Post, it is apparent that the regional newspaper has not taken it upon itself to educate the public about their individual responsibility for flood preparedness. For example, some ways for the public in flood-prone areas to be prepared are buying insurance, and ensuring that any wiring is above the predicted flood level to lower the danger of getting electric shocks.

In terms of environmental journalism, the flood coverage in The Borneo Post would benefit from some thematic articles to educate the public about the history and the science of floods, so that they would better understand the consequences of climate change and other environmental consequences resulting from deforestation and construction. Increasing the content on economic consequences and human interest frames would also help people to realise the financial losses incurred when families must buy or repair vehicles and houses, and the trauma of not knowing when their houses may be inundated with water again. As an example, newspapers in Ireland tended to focus on the emotional impact of the flood on people, and how citizens were active in flood risk management (Devitt & O'Neill, 2017). In Malaysia, The Star, a national newspaper, led the way in highlighting economic consequences and personal stories in crisis reporting (Ihediwa & Ishak, 2015) to make the public more aware of their responsibility to be prepared. The Borneo Post is like the New Straits Time (Ihediwa & Ishak, 2015) and Utusan Malaysia (Ahmad & Lateh, 2016), which focus on government responses to floods and landslides, respectively. As a regional newspaper, The Borneo Post has an advantage over national newspapers, as it can afford to zoom in on flood preparedness in flood-prone areas since the geographical scope of coverage is smaller.

The implications drawn from the findings are that journalists may consider writing more thematic articles, and adding a human interest element to the episodic articles to attract readers' attention. As for readers, the study suggests that it is worth giving feedback to newspapers on articles that interest them or angles of reporting they would like to see so that journalists may modify their reporting practices and cater to reader preferences. Newspapers often have social media accounts, and some newspapers allow readers to comment on a particular article. This is one avenue for readers to give their input on news reporting.

Reader input gives an idea of preferred news slants, and these messages constitute a form of data that other media researchers may analyse to understand reader preferences. In flood framing, reader responses need to be studied to identify which newspapers or sources they refer to for flood news, and what triggers them to take preemptive measures to minimise flood risk. Such insights would be useful for environmental journalism and disaster reporting.

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Appendix 1: Episodic Article in The Borneo Post on Flood

The sole episodic article in The Borneo Post, during the survey period, was recorded by David (2024). The details are as follows:

> Heavy afternoon downpour has caused flash floods in several parts of the city here today including the venue of the 78th birthday celebration of the Yang di-Pertua Negeri Sarawak Tun Pehin Sri Dr Wan Junaidi Tuanku Jaafar at Padang Merdeka, scheduled for tomorrow.
>
> This led to tense moments as motorists navigated through the flooded sections of the road.
>
> Among other areas reported to be hit by the flash flood is along Jalan Tun Abang Haji Openg near the Sarawak General Hospital junction.

The Learning Experiences of Filipino Students in an International Exchange Program in Thailand

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Abstract

Having the opportunity to participate in an international exchange program is not an easy path for every student. After spending a month in an international exchange program at Phranakhon Rajabhat University, Bangkok, seven Filipino students from Iloilo State University of Fisheries Science and Technology shared their reflections for this research study, which aimed to examine their learning experiences during the program. The research methodology included questionnaires and semi-structured interviews. The findings revealed that their experiences in terms of academic growth, cultural understanding, and personal development were overwhelmingly positive, despite some initial adjustments. They expressed a willingness to return to the country with their loved ones, highlighting that the organizers effectively addressed their needs and met their expectations. Their detailed insights in this report may provide useful ideas for those organizing similar programs.

Keywords: *Exchange program, students, learning experiences, Filipino*

Introduction

As an educational institution, a university benefits from a network outside of its home country to set benchmarks and build friendships with other institutions. Thus, teachers and students may have a chance to learn from and help each other grow academically, culturally, and internationally. The world is becoming smaller nowadays, and educational institutions need to be in a network for mutual growth. Traveling outside the country is becoming the norm for many teachers and students. Sending children to have experiences abroad is also a dream of many parents, as they want their children to expand their thoughts, perspectives, mindsets, and wisdom.

When Phranakhon Rajabhat University (PNRU) signed a Memorandum of Understanding (MOU) with Iloilo State University of Fisheries Science and Technology (ISUFST) in February 2023, both institutions aimed to enhance mutual cooperation in academics, research, and teacher and student exchanges. Since then, PNRU teachers and students visited ISUFST and presented their research papers at a conference on ISUFST's main campus. ISUFST also sent a group of seven students and two teachers to immerse themselves in teaching and learning at PNRU for one whole month in 2024. These students and teachers stayed in an apartment near the university, and a tight schedule of academic and cultural activities was arranged for them.

International exchange student programs and studying abroad offer numerous benefits, including cultural enrichment, personal growth, and academic enhancement. Participating students are exposed to new cultures and languages, which broadens their perspectives and fosters global understanding. This cultural immersion helps students develop cross-cultural communication skills, making them more adaptable and empathetic (Anastasia, 2004). Academically, these programs provide access to diverse educational systems and teaching methodologies, which can enhance students' academic experience and future career prospects. Donnelly-Smith (2009) suggested that students in an exchange program would learn best if they participated in some form of service or experiential learning project that put them in contact with their host community. Self-development can occur in a positive way, as studied by Kauffmann and Kuh (1984), who found that changes in three dimensions of personality functioning were associated with studying abroad: (a) increased interest in reflective thought and in the arts, literature, and culture, (b) increased interest in the welfare of others, and (c) increased self-confidence and sense of well-being.

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The trend of sending students abroad was increasing in the West as the parents have better economic strength. A study in Switzerland found several reasons for their students going out for an exchange program—79.8% respondents wanted to improve their knowledge of foreign languages; 69.8% wanted to improve their academic knowledge; and 18.6% wanted to establish useful connections (BBW, 2002, as cited in Messer & Wolter, 2007).

Exchange programs also increased cultural intelligence, as was found in a one-semester exchange program with 203 Australians and 232 French students. It was found that the exchange helped enhance students' cognitive, metacognitive and motivational cultural intelligence. It summarized that university student exchange is a valuable tool for promoting the development of cultural intelligence and helping students to prepare for jobs in a global work environment (McKay et al., 2022).

Literature Review

Student exchange programs offer numerous benefits that significantly enhance the academic and personal growth of participants. One of the most notable advantages is the opportunity for students to experience and understand different cultures firsthand. According to Onosu (2021), cultural immersion allows students to develop a broader perspective and greater cultural sensitivity. The exchange students would realize that physically being in a location is much different from reading about it in a book. They need to go into the cultural experience with openness and a readiness to learn from all situations. This firsthand experience of living in a new culture fosters adaptability and resilience, qualities that are essential for personal development and future career success.

Moreover, living with host families or interacting closely with locals enables students to experience everyday life from a new cultural perspective. This daily interaction helps students understand the subtleties of social behaviors and traditions that define a culture. According to a study by Sustarsic (2020), both students and the host families reap the benefits of intercultural exchange by way of active interaction and culture sharing that is enhanced by a positive student-host relationship. Students also gain deeper insights into the host culture, including family dynamics, social etiquette, and community values.

Another significant benefit of student exchange programs is the enhancement of language skills. When students are immersed in an environment where a different language is spoken, they are compelled to use that language in everyday situations, which accelerates the learning process. Savage and Hughes (2014) also found that proficient second language skills enable learners to more effectively encourage reform, promote understanding, and convey respect for other peoples and cultures, which may result in increased cooperation, peaceful interaction, and mutual understanding.

Student exchange programs also provide a unique academic advantage by exposing students to different educational systems and teaching methodologies. This exposure can inspire new ways of thinking and learning, as students encounter diverse approaches to education that they can integrate into their own studies. According to a study by Curtis and Ledgerwood (2018), students who participate in studying abroad and exchange programs often report increased academic motivation and improved problem-solving skills. These experiences can lead to better academic performance and a more well-rounded educational background.

Student exchange programs also offer substantial personal growth opportunities. Living away from home and navigating a new environment can build independence and self-confidence. Additionally, the relationships forged with host families, peers, and teachers can lead to lifelong friendships and a valuable international network. As highlighted by Beynon (2023), these social connections and the personal growth experienced during an exchange program can profoundly impact a student's life, shaping future perspectives and career paths.

One notable example of a famous individual who benefited greatly from a student exchange program is former U.S. President Bill Clinton. In 1968, Clinton participated in a student exchange program through the Rhodes Scholarship, studying at the University of Oxford in England. This experience played a crucial role in shaping his global perspective and understanding of international affairs. According to Clinton (2004), his time at Oxford exposed him to diverse viewpoints and helped

him develop a more nuanced understanding of global politics. The relationships he formed and the experiences he gained during this period significantly influenced his later work in international diplomacy and policy-making.

Another prominent figure who gained invaluable experience from a student exchange program is Nobel Peace Prize laureate Malala Yousafzai. After surviving an assassination attempt by the Taliban in Pakistan, Malala moved to the United Kingdom, where she continued her education and advocacy work. She attended Edgbaston High School in Birmingham through an international exchange initiative. This opportunity allowed Malala to further her education in a safe environment and provided her with a platform to amplify her message of girls' education and empowerment on a global stage. Yousafzai (2014) has often spoken about how her experiences in the UK broadened her horizons and strengthened her resolve to fight for education rights worldwide.

Organizing a student exchange program comes with several significant challenges, one of which is ensuring the safety and well-being of the participants. Safety concerns range from health risks, such as exposure to different diseases and healthcare systems, to potential political instability or natural disasters in the host country. According to Zhang et al. (2022), it is crucial for organizers or the host school to have comprehensive risk management plans that include emergency protocols, health insurance, and regular safety checks to protect students during the unexpected events such as the COVID-19 pandemic. Ensuring that all participants are well-informed and prepared for potential risks is a fundamental aspect of managing a successful exchange program.

Another challenge is the cultural adjustment and integration of students into their host communities. Organizers must facilitate the smooth transition of students into a new cultural environment, which often involves overcoming language barriers, cultural misunderstandings, and homesickness. As noted by Ward and Kennedy (2001), providing pre-departure orientations and ongoing support can help students better adapt to their new surroundings. Organizers should also ensure that host families and institutions are adequately prepared to welcome and support the exchange students, fostering an environment of mutual understanding and respect.

Lastly, logistical and administrative complexities can pose significant challenges in organizing student exchange programs. This includes coordinating travel arrangements, visas, accommodation, and academic placements, which can be particularly cumbersome when dealing with large groups of students or multiple countries.

By organizing this student exchange program, we have learned that managing these logistical elements requires meticulous planning and effective communication between all stakeholders, including students, parents, educational institutions, and government agencies. Ensuring that all legal and administrative requirements are met is essential to the smooth operation of the program and the overall experience of the participants.

Population growth in the Association of Southeast Asian Nations (ASEAN) has played an important role in student mobility. By the year 2038, it is predicted that the youth population in this 10-country bloc will reach 220 million, paving the way for the possibility of more international exchange programs. Currently, 20 million students are enrolled in 7,000 universities across ASEAN countries. The top countries sending students to study abroad are Vietnam, Indonesia, and Malaysia, while the top three countries receiving students from outside are Thailand, Singapore, and Malaysia (European Union Support to Higher Education in the ASEAN Region, 2020). Student mobility among ASEAN countries has become a prime target for economic and academic growth.

Research Objectives

This research study aimed to examine the learning experiences of Filipino students in an international exchange program in terms of their academic growth, cultural intelligence, and personal development; please see Figure 1. The results may be useful to organizers of similar programs.

Figure 1 *Conceptual Framework*
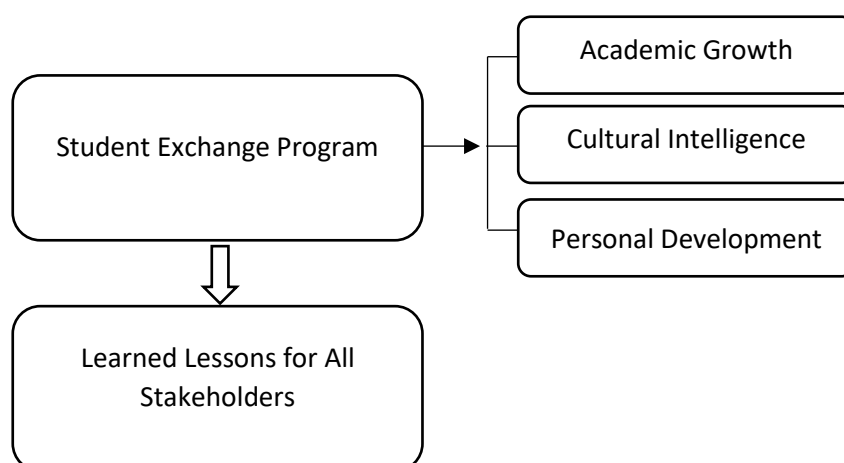
Research Methodology

After the completion of the one-month program, the organizers surveyed the opinions of these seven Filipino students, interviewed them, and analyzed the obtained data to summarize in this research report. The effectiveness of the program was measured based on what the students learned academically, culturally, and personally. The research utilized mixed methodologies, including both quantitative and qualitative approaches. The population consisted of the seven Filipino exchange students from ISUFST. The quantitative method used a questionnaire with 20 items asking for their opinions about all aspects of the program. For the qualitative method, a semi-structured interview was conducted with all students. All questions were validated by university lecturers with experience in student exchange programs. The data obtained were analyzed across three dimensions: academic growth, cultural intelligence, and personal growth.

Results

There were seven students and two teachers in this exchange program, which was organized from February 13 to March 12, 2024, at PNRU (Photo 1). This exchange program resulted from the MOU between PNRU and ISUFST for academic and research cooperation. In the past, students and teachers from these two universities have visited each other for meetings and conferences. This time, ISUFST students spent a month learning about academic and cultural aspects in Thailand. All students were about to graduate from their four-year program in Education. This trip was their first outside of the Philippines. All of them will become school teachers after graduation, so their experience observing classes and helping teach Thai students in some classes will be a valuable asset for their future careers.

Below in Table 1 is the one-month program the organizers finalized after several online discussions with the management of ISUFST prior to their departure from the Philippines.

Table 1 *Schedule for a One-Month International Exchange Program*

Date	Time	Activities
Week 1		
13/2/2024	—	Arriving at PNRU / dormitory
14/2/2024	10.00–15.00	Welcome and orientation by PNRU / Getting to know the university / campus tour
15/2/2024	09.00–12.00	Visiting WPM School (Wat Phra Sri Mahathat Demonstration School Phranakhon Rajabhat University) / Class observation
16/2/2024	09.00–12.00	Thai Cultural Training / Thai Dance Program
17-18/2/2024	09.00–16.00	PNRU International conference on Arts and Culture / attending research conference rooms / Two research papers presented by ISUFST teachers.

Week 2		
19/2/2004	09.00–12.00	Story-telling to children of kindergarten school, PNRU
20/2/2024	09.00–16.00	Class observation at PNRU Demonstration Elementary School (DES)
21/2/2024	09.00–16.00	Assisting in teaching the PNRU DES classes
22/2/2024	09.00–16.00	Attending the traditional Thai dance class / training with Thai students
23-24/2/2024	09.00–16.00	Visiting Bangkok - Jatuchak market / temples / with Thai students
25/2/2024	—	Sunday / Rest
Week 3		
26/2/2024	—	National holiday / visiting Bangkok with Thai students
27/2/2024	13.00–16.00	Class observation: General Science Program – STEM (science, technology, engineering, mathematics)
28/2/2024	13.00–16.00	Class observation: GBL with 21st Century Teachers; Game-based learning
29/2/2024	12.30–16.30	Class observation "Curriculum Development" / Teaching Profession Program / M.Ed
1/3/2024	13.00-–16.00	Attend CTE Elementary Program: Integration Project and STEM Education
Week 4		
4/3/2024	09.00–16.00	Cultural trip to the ancient city Ayutthaya
5/3/2024	09.00–12.00	Observing classes in Business English Program, PNRU
6/3/2024	09.00–12.00	Assisting preparation for the Cultural Flea Market by DES students
7/3/2024	09.00–12.00	Assisting preparation for the Cultural Flea Market by DES students
8 Mar 24	09.00–12.00	Attending the Cultural Flee Market PNRU DES
9-10/3/2024	—-	Rest / visiting Bangkok with Thai students
Week 5		
11/3/2024	09.00–12.00	Answering questionnaires / giving an interview on the exchange program research
12/3/2024	09.00–12.00	Closing ceremony at the president's building / certificate giving
13/3/2024	-	Departure to Philippines

Personal information about students is found in Table 2; all names are pseudonyms.

Table 2 *Information about Filipino Students*

Name	Degree of Study	Major	Sex	Age
S1	Bachelor of Secondary Education	English	Female	22
S2	Bachelor of Secondary Education	English	Female	22
S3	Bachelor of Elementary Education	General Education	Female	23
S4	Bachelor of Elementary Education	General Education	Female	22
S5	Bachelor of Secondary Education	Science	Female	22
S6	Bachelor of Secondary Education	Science	Female	22
S7	Bachelor in Physical Education	Physical Education	Male	22

The two accompanying teachers were Dr. Sunny Gabinete, Dean of the College of Education and an expert in educational management, and Dr. Rex Paulino, an English language teacher. Both of them came to take care of their students and also to present their research papers at two international conferences, held at PNRU and a venue in Nakhon Ratchasima Province (Photo 5).

After the program was completed, these exchange students were asked to answer the questionnaires and be interviewed about their feelings towards the program. The questionnaires contained 20 questions. Their opinions are shown in Tables 3 and 4.

Table 3 *Students' Opinion about the Program*

	Statements	x̄	%
1.	You are happy with this exchange program.	5.0	100
2.	Your academic experience in the program has fulfilled your expectation.	5.0	100
3.	The timing of one month is adequate.	4.4	88
4.	You are happy with the apartment.	4.7	94
5.	The cultural elements in the program are adequate	5.0	100
6.	The local teachers treated you with respect and professionalism.	5.0	100
7.	Your Thai friends treated you with respect.	5.0	100
8.	You like Thai food.	4.9	98
9.	The transportation in Bangkok is satisfying.	4.9	98
10.	The exchange program is worth your expenses.	5.0	100

Student answers indicated a high level of satisfaction. However, some answers needed interpretation. Statement No. 3 might suggest that they wanted to stay in Thailand a little longer. This was the first trip outside the country for all of them, and they experienced independence living without their parents. They were happy to stay in an apartment with their friends. They were in the last semester of their studies for their Bachelor's degree in education. Statement No. 4 received 94% satisfaction, which is very high. However, since it's not a perfect score, it might be worth looking into the details. The organizers wanted to accommodate them in the university's dormitory on campus, but all rooms were occupied. So, a private apartment behind the campus was rented; it was about a two-kilometer walk from the campus. The heat from the Bangkok sun can make it tough for some students to walk that distance. Furthermore, they were charged 1,000 Baht each (US$ 27) to stay in the air-conditioned apartment, with 3-4 students per room, so the students were not burdened with heavy expenses. This amount also included electricity and water.

Table 4 *Students' Opinion About the Program*

	Statements	x̄	%
11.	You feel safe to travel inside and outside the campus.	5.0	100
12.	You will recommend other students to join this exchange program.	5.0	100
13.	You like the classes you've observed and participated.	5.0	100
14.	You feel welcomed by PNRU teachers and students.	5.0	100
15.	You are happy while you are in Thailand.	5.0	100
16.	The programs given each day is appropriate.	5.0	100
17.	The exchange program makes me want to come back to Thailand again.	5.0	100
18.	You like Thai people's hospitality and service-mindedness	5.0	100
19.	The exchange program helps you to be a better person.	5.0	100
20.	The program helped you able to accept the differences in race, religion, belief and customs.	5.0	100

Statement No. 11 indicated a safe environment in the university and the surrounding area. By Thai law, selling alcohol near schools is prohibited, which helps to increase the safety level. There are currently around 9,000 students and 800 university personnel traveling in and out of the university around the clock. Security guards in uniform are always roaming the campus, and there are few crimes in this area. All statements in Table 4 received full scores for satisfaction. All students expressed plans to visit Thailand again in the future, and some expressed their willingness to seek a teaching job in Thailand, as they know that many Filipino teachers are employed in the country. There are currently around 17,921 Filipinos working in Thailand, mostly as teachers at all levels of education (Novio, 2019). PNRU employed six Filipino teachers during this time, while another three Filipino teachers were teaching English at the PNRU Demonstration School. The Philippines is only a four-hour flight from Thailand, and there are some similarities in personalities and ways of life.

Meanwhile, the two Filipino teachers were invited by PNRU's Business English for International Communication Program to give a public lecture on English Language Teaching to the Thai language teachers on campus, thanks to their willingness to share ideas and engage in discussions with the audience. ELT was discussed in the context of ASEAN usage, and it was emphasized that differences in accents and language styles should be respected, as well as differences in beliefs, lifestyles, and traditions. The promotional poster for this public talk is shown at the end of this article.

The two teachers efficiently used their time while looking after their students. The possibility of conducting two research projects linking ISUFST and PNRU in the field of teacher training was also discussed. It is easy to see that the student exchange program involves not only student affairs, but also teachers' personal growth and mutual cooperation between the two universities.

Results from the Interviews

The researchers conducted semi-structured interviews with the seven students at the end of the exchange program. Three questions were asked:
1. How much did you achieve in academic growth during the exchange program?
2. How did you enhance your cultural intelligence during the exchange program?
3. How did you enhance your personal development during the exchange program?

The students provided various kinds of feedback. Some excerpts from the interviews of students (S1 to S7) are shared below.

Academic Growth

S1: It is an eye opener for me to make interactive activities to offer to my students in the future. It has a lot to offer when it comes to teaching strategies. The inventions and creations of the students made me realize that I can give more than just talking and speaking in front of my students. The program focused on the real-life scenarios which helped me to become prepared as an educator. What I loved about the activities is that it's more on the field activity we have explored a lot and learned from it. There's a lot of exposure that helped us overcome our fears, and try our very best to show our potential and skills differently whether in academic or real-life basis.

S2: The professors at PNRU are knowledgeable and passionate about their subjects. They make the classes engaging and interactive, which makes learning so much more enjoyable. I feel like I'm gaining a lot of valuable knowledge and skills that will benefit me in the future. … Studying in the Philippines and Thailand shows interesting differences in education. The Philippines focuses on written works, active participation, and student-centered learning, promoting critical thinking. Thailand emphasizes hands-on activities and student-centered approaches, enhancing practical skills and collaboration.

S5: Thailand's approach to education is like a rare gem, unique, and unparalleled. It embraces a learner-centered approach that empowers students to learn through hands-on experiences, a departure from the traditional methods prevalent in our own country. Aside from all of these, I am definitely impressed by the unique teaching pedagogies applied by educators in Thailand, and I am impressed by the dynamic and lively interaction between teachers and learners. They embody "Learning by Doing," where knowledge is not simply transmitted but actively explored and applied.

S6: What's truly commendable about PNRU's approach is the incorporation of enriching activities into the program. These activities not only break the monotony of lectures but also provide practical learning experiences and foster social connections among students. It's like learning with a twist, where education meets enjoyment, resulting in a holistic and fulfilling university experience. So, as you immerse yourself in the activities laid out by PNRU, remember that it's not just about hitting the books but also about embracing the opportunities for growth, collaboration, and fun. After all, a well-rounded education is about more than just grades; it's about the journey of discovery and self-improvement that unfolds along the way.

Cultural Intelligence

S6: I've amassed a treasure trove of insights and experiences that I am compelled to share with my fellow citizens. Foremost among these is the profound significance of cultural awareness and appreciation. By immersing ourselves in diverse cultures, engaging with individuals from varied backgrounds, and actively participating in cultural activities, we not only broaden our understanding but also enhance our intercultural competence.

S5: In just a month of staying in Thailand, it feels as though I've been here for many years. It's become a home to me... I would recommend everyone to experience Thailand at least once, not just for its rich cultural heritage, but also for its delectable "Aroi Mak" cuisine, especially my favorite dish, "Pad Thai." The Thai people are truly hospitable and very welcoming. Reflecting on my time here, I can confidently say that Thailand indeed embodies its well-deserved nickname - the Land of Smiles.

S1: My feelings towards Thailand are fascination, deep admiration and curiousness in their culture and tradition. The respect they show towards each other especially to their leader. ...The bustling streets of Thailand made me realize how hardworking and dedicated Thai people are. I am in awe with their rich tapestry and tantalizing cuisine. My journey here in Thailand is a profound voyage of exploration and personal growth. ...As we wandered through the historical ancient temples of Ayutthaya and the amusing story behind Koh Kret Island had made me reflect to life. Thailand's intricate designs from their temples up to their infrastructures the hard worked carvings spoke the lands rich cultural heritage that will forever have an impact towards me.

S4: My feelings towards Thai people are often characterized by admiration for their warm hospitality, vibrant culture, and resilient spirit. As a collective, Thai individuals embody a unique blend of tradition and modernity, creating a tapestry of diversity that captivates and inspires. Beyond their hospitality, Thai people take great pride in their cultural heritage, which is reflected in their traditions, customs, and way of life. For me, Thai people are the heart and soul of Thailand, embodying the essence of what it means to be gracious, compassionate, and resilient in the face of life's challenges.

Self-Development

S7: Student exchange programs often challenge individuals to step out of their comfort zones, adapt to new environments, and navigate unfamiliar situations. This can promote personal growth, resilience, independence, and self-confidence which is something that I have developed in me. Living and studying in a different country broadens my perspectives and expands my worldview. I gain insights into global issues, cross-cultural dynamics, and international affairs, fostering a more nuanced understanding of the world.

S2: Reflecting on my time here, there are several key learnings that stand out as the most significant. First and foremost, cultural immersion has been a transformative experience. Being fully immersed in Thai culture has allowed me to develop a deeper understanding and appreciation for the customs, traditions, and way of life in Thailand. I have learned to embrace diversity and respect different perspectives, fostering a greater sense of cultural sensitivity and empathy....

S3: This exchange program in Thailand proved to be an enriching and transformative experience. It wasn't just about acquiring knowledge and skills in diverse fields like Thai dancing, basic Thai language, and local food preservation; it was a journey of personal growth and cultural immersion. One of the most profound aspects was learning to interact with children. Though language barriers existed, the eagerness of the elementary students to communicate, participate, and enjoy my classes was truly heartwarming. It instilled in me a deep appreciation for the power of human connection transcending spoken words. Beyond the classroom, I embraced the opportunity to experience authentic Thai culture firsthand. I savored the unique flavors of local cuisines, explored the city on foot, and built lasting connections with my peers at PNRU.

S4: Being a part of student exchange here in Thailand has been an eye-opening and transformative experience, filled with valuable lessons and personal growth. …Overall, my stay in Thailand has been a transformative journey filled with invaluable lessons and experiences. I've learned to embrace cultural diversity, cultivate resilience, expand my worldview, and foster meaningful connections with others. As I continue my academic journey, I carry these lessons with me, grateful for the profound impact that studying in Thailand has had on my personal and intellectual growth.

Discussion

The data coming from the questionnaires revealed that the students were very satisfied with almost every aspect of the exchange program, including the arrangements, the local people, safety, transportation, culture, and class observation. However, they rated the "adequateness" of the program lower, indicating they thought the one-month duration was rather short. They also rated the apartment lower, which probably was on account of its distance from the university. The university dormitory was full at that time, so they stayed in a private apartment.

The exchange students participated in class activities across various levels, including kindergarten, elementary, secondary, and university. In some classes, they were like students, while in others, they served as teacher's assistants (Photo 3), enriching themselves with various roles in the classroom.

Most agreed that differences exist between classroom atmospheres in the Philippines and what they observed in Bangkok. They noted that Thai students are quite passive and obedient in the classroom, whereas their peers in the Philippines are more active and participative. This finding is supported by research indicating the quiet personality of Thai students. Chung (2021) found that Thai students were very shy to express ideas in class discussions, reflecting their passive nature and desire to harmonize with their environment.

The exchange students often complained that language barriers hindered their communication with Thai peers. This is a common issue noted by English teachers, who have pointed out that Thai students feel shy speaking English. Karnchanachari (2019) found that Thai students' willingness to communicate in some classes was affected by fear of negative evaluation, anxiety, interest, interlocutors, and personality. Familiarity with an English-speaking environment increases their willingness to speak.

The exchange students were in awe of Thai classical music and traditional dances after watching a performance at an international conference held at the university. They also learned to dance with Thai counterparts in a traditional Thai dance class (Photo 2). Thai classical dance is renowned worldwide and often featured in tourism promotions. However, the belief that international visitors universally appreciate this rich culture might not always be accurate. Henkel et al. (2006) found that Thai residents valued cultural sightseeing, friendly people, and food when considering Thailand as a tourist destination, while international visitors placed more importance on nightlife and entertainment.

Despite this, the Filipino students expressed appreciation for the cultural differences and were willing to participate in culture-related classes. Sobkowiak (2019) found that students surrounded by local and their fellow international students experienced foreign cultures, which motivated them to explore and interpret the encountered diversity, and thus equipped them with knowledge about foreign cultures, sensitizing them to cultural diversity (Photo 4). Homburge and Homburg (2021) also suggested that diagnosing a prospective exchange student's motivation and monitoring the capacity for providing social support in host families before and during the exchange are vital components of a successful exchange program, so that students can successfully immerse in a different culture. The exchange program organizers did not include experiences of Bangkok's nightlife, although the students might have visited such places on their own.

The Filipino students likely had positive expectations of the exchange program due to their university's assurances about the positive environment in Thailand. Consistent with these expectations, the program organizers were good hosts, resulting in a positive outcome for the program. This results obtained were similar to Nyaupane et al. (2008), who found that positive

interactions between visitors and hosts promoted peace and mutual respect. This was particularly important for students, given their young age and quest for global and cultural awareness.

After these Filipino students returned home, they were likely to become ambassadors promoting tourism in Thailand. Their positive attitudes toward the country may influence their families, friends, teachers, and neighbors, potentially leading some to visit Thailand for vacation or work. Statistically, 28% of travelers to Thailand return. They spend an average of eight nights, with repeat travelers coming from Malaysia (42%), Singapore (41%), the Philippines (28%), Mainland China (25%), and Vietnam (22%) ("Thailand tourism," 2023).

After the exchange program ended, the researchers continued to communicate with the students, who expressed their intention to visit Thailand again when financially ready. This indicated that they were captivated by the country's positivity and the local people, which was aligned with an unwritten goal of the exchange program.

The similarities between Thailand and the Philippines were so significant that the Filipino students did not feel much difference from their homeland. As Professor Felipe De Leon, chairman of the National Commission for Culture and the Arts of the Philippines stated

> The people from both countries have a service-minded nature, deep faith in a spiritual being, and take life as it comes. We are happy-go-lucky people who love to socialize. Both cultures are also rather superstitious, and our historical roots are intertwined, so our physical features are quite similar. ("Cultural connections," 2013)

It was common for Thais who met these exchange students to assume that they were Thai, which could be one reason why they felt happy to be here. It might be too soon to declare the student exchange program a success. We may need to wait until these students return to Thailand as tourists to fully assess the program's impact. However, the questionnaire results and interviews indicated that the Filipino students had a very positive view of the program and Thailand in general. Thus, it can be humbly claimed that the program was somewhat effective.

Conclusion

Seven ISUFST students, escorted by two teachers, participated in an international exchange program for one month at PNRU. They engaged in various activities, including observing classes, assisting in teaching, joining cultural shows, and taking a trip to an ancient city. They expressed the opinion that the program was successful, that they appreciated the experience very much, and that they wanted to return to visit Thailand again. The organizers were also pleased, as they saw that Thai students had a chance to speak English and befriend foreign students. The Filipino students felt that they grew both academically and culturally. The independent stay in Bangkok, away from their families, also helped them gain a deeper understanding of their lives, thoughts, and personal desires. Moreover, observing a different way of life in Bangkok broadened their perspectives, as they compared and contrasted it with the lifestyles of people in their home country.

Limitation

The student exchange program involved only seven students from ISUFST. This limited number may have hindered the researchers' ability to gather a range of opinions.

Photo 1 ISUFST Students Meeting
PNRU Management

Photo 2 Exchange Students Learning Traditional
Thai Dancing

Photo 3 One Filipino Student (far left) Assisted
in Classroom Teaching

Photo 4 Exchange Students on a Cultural Trip to
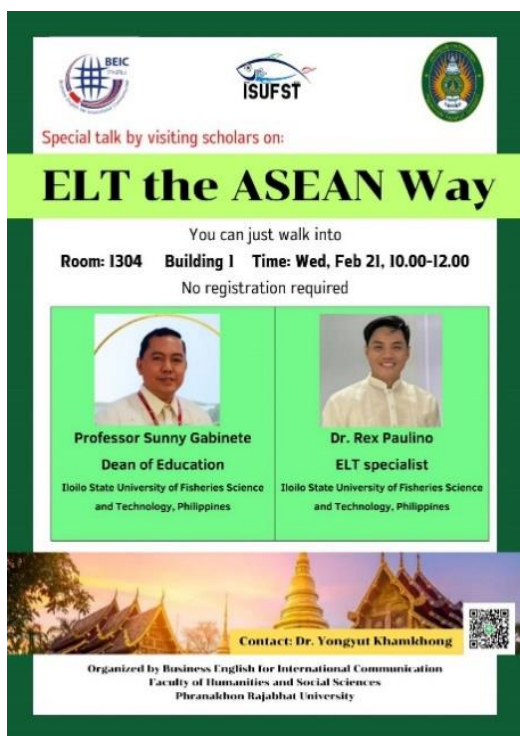Ancient City of Ayutthaya

Photo 5. Poster of Public Lectures by
ISUFST Professors

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Enhancing Multi-Object Tracking with Compact Model Adjustment

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Abstract

Tracking human movement and interactions in complex environments is a key challenge in computer vision, especially for multi-object tracking. Transformer-based models have shown promise in addressing these challenges due to their capacity to recognize complex patterns across sequences. However, their high computational demands and substantial training data requirements often restrict their real-world applicability. This study aimed to enhance multi-object tracking by introducing a Compact Model Adjustment approach that integrates trainable rank-decomposition matrices within the Transformer architecture. This approach involves freezing the pre-trained model weights and adding trainable low-rank matrices to each layer, substantially reducing the number of parameters that need updating during training. This design allows the model to retain its pre-trained knowledge while efficiently adapting to new tasks, thereby reducing the overall computational load. Additionally, the proposed approach utilizes data from both the current and previous frames to refine object localization and association. Experimental results on the MOT17 benchmark demonstrated that this method achieved a Multiple Object Tracking Accuracy of 71.0, comparable to state-of-the-art techniques while enhancing computational efficiency. This work provides a practical solution for real-world applications in areas such as surveillance, autonomous driving, and sports analytics.

Keywords: *Multi-object tracking, compact model adjustment, transformer architecture*

Introduction

Multi-object tracking (MOT) (Amosa et al., 2023) has become an essential area of research in computer vision, driven by the increasing demand for automated systems capable of monitoring and analyzing dynamic environments. The ability to accurately track multiple objects over time is crucial for a wide range of applications, such as surveillance, robotics, autonomous driving, sports analytics, and human-computer interaction. The primary challenge in MOT lies in accurately detecting and tracking multiple objects across frames in a video sequence, especially in dynamic environments where occlusions, varying object appearances, and complex interactions occur (Du et al., 2024). Recent advancements in deep learning, particularly through the use of transformer architectures, have shown promise in addressing these challenges by effectively capturing temporal dependencies and spatial relationships among objects (Manakitsa et al., 2024).

The introduction of transformer models has revolutionized various domains, including natural language processing and computer vision, by utilizing self-attention mechanisms to capture long-range dependencies and contextual information (Patwardhan et al., 2023). One of the notable contributions in this domain is the DEtection TRansformer (DETR), which models object detection as a translation task, converting image features into object-level representations (Carion et al., 2020). DETR's innovative approach allows it to handle complex scenes more effectively than traditional detection methods, laying the groundwork for subsequent models that extend its capabilities to multi-object tracking.

In addition to DETR, other transformer-based models have also made significant strides in MOT. For example, the TrackFormer model (Meinhardt et al., 2022) employs a transformer architecture to simultaneously perform object detection and tracking. It utilizes a bipartite matching algorithm to associate detected objects across frames, effectively leveraging the strengths of transformers to enhance tracking accuracy in dynamic scenarios. Similarly, the TransTrack model (Sun et al., 2020) employs a transformer-based architecture for simultaneous object detection and tracking. By

leveraging the self-attention mechanism, this model can capture relationships between objects across frames, enhancing tracking performance in complex scenarios.

Despite these advancements, the computational demands of transformer-based models have remained a concern, especially when they are deployed in real-time applications. The need for extensive training data and high computational resources can limit their practicality. To address these challenges, researchers have explored various adaptation techniques that reduce the number of trainable parameters while preserving model performance. For example, the Dynamic Layer Tying technique (Hay & Wolf, 2024) involves dynamically selecting layers during training and tying them together, facilitating weight sharing across layers. By employing reinforcement learning to determine whether to train each layer independently or to share weights from previous layers, this method can significantly reduce the number of trainable parameters. However, the reliance on reinforcement learning can introduce complexity in implementation and may require careful tuning to achieve optimal performance.

Another technique is Teacher-Student Learning (Wang et al., 2019), where a larger, more complex model (teacher) is trained first, and then its knowledge is transferred to a smaller, more efficient model (student). The student model can be trained to mimic the teacher's output, often using techniques like knowledge distillation. While these techniques can effectively reduce the number of trainable parameters in transformers, they also have potential disadvantages, such as performance degradation, where techniques like aggressive pruning or quantization (Wu et al., 2019) can lead to a decrease in model performance. In a related study, Hu et al. (2021) proposed a low-rank adaptation approach in natural language processing (NLP), which decomposes large weight matrices into smaller ones. This technique can significantly reduce the number of parameters and the computational complexity of the model.

To address these limitations, the present researcher proposed a novel approach termed Compact Model Adjustment (CMA), which integrates the concept of trainable rank-decomposition matrices into the transformer encoder architecture. The trainable rank-decomposition matrices technique allows for the efficient adaptation of large pre-trained models by freezing the original model weights and adding trainable rank-decomposition matrices to each layer of the transformer architecture. This method drastically reduces the number of trainable parameters, thereby minimizing computational overhead while maintaining or even improving model performance. The rationale behind CMA comes from the observation that not all parameters in a model contribute equally to its performance on specific tasks. By focusing on updates to trainable rank-decomposition matrices, CMA enables models to adapt effectively to new tasks without the need for extensive retraining of all parameters. This is particularly beneficial for multi-object tracking, where rapid adaptation to varying conditions and object behaviors is essential.

The key contributions can be outlined as follows:

- An architectural innovation was proposed that incorporated the Compact Model Adjustment technique specifically designed for multi-object tracking (MOT). This technique addresses the challenges of high computational complexity and extensive training data requirements commonly associated with transformer-based models.
- A pair of consecutive video frames was utilized, specifically the current frame and the previous frame, to enhance object tracking and association.
- The performance of the proposed method was evaluated by comparing it to state-of-the-art techniques on the MOT17 benchmark, demonstrating the effectiveness of the approach in real-world tracking scenarios.

The structure of the remaining manuscript is outlined as follows: Section 2 introduces the related work, Section 3 presents the proposed method, Section 4 demonstrates the experimental results, and Section 5 concludes this work.

Related Work
Multi-Object Tracking in Complex Environments
Multi-Object Tracking has seen significant advancements over the years, particularly in dealing with complex environments. These environments, characterized by occlusions, varying object appearances, and dynamic backgrounds, pose substantial challenges to tracking algorithms. One of the foundational approaches to MOT has been the Kalman Filter (Khodarahmi & Maihami, 2023), which provides a recursive solution for estimating the state of a dynamic system in the presence of noise. Although it was primarily developed for single-object tracking, it has been adapted for multiple objects by employing data association techniques (Yilmaz et al., 2006). In recent years, deep learning has revolutionized MOT, especially with the introduction of deep appearance models that enhance the robustness of data association (Emami et al., 2020).These models can learn discriminative features from object appearances, which are crucial in distinguishing between similar objects in crowded scenes. Moreover, approaches like the SORT (Simple Online and Realtime Tracking) algorithm (Bewley et al., 2016), have demonstrated the effectiveness of combining a Kalman Filter with a Hungarian algorithm for data association in real-time tracking scenarios. This method has been further improved by extending it with deep learning-based re-identification models, resulting in DeepSORT (Wojke et al., 2017).

Transformer-Based Models in Computer Vision
Transformers, initially developed for natural language processing, have recently gained popularity in computer vision tasks due to their capacity to capture long-range dependencies and contextual information across sequences (Meinhardt et al., 2022). In the context of MOT, transformer-based models offer a promising solution by utilizing attention mechanisms to effectively associate objects across frames, even in complex and crowded scenes. These models, however, come with their own set of challenges. The computational complexity of transformers is quadratic with respect to input size, making them resource-intensive and requiring extensive training data to achieve optimal performance (Fournier et al., 2023) .

Challenges and Limitations of Transformer Models in MOT
Despite their potential, transformer-based models for MOT face significant hurdles in real-world applications. One major limitation is the high computational cost associated with training and deploying these models. As the input sequence length increases, the memory and processing power required grows substantially, often making real-time applications impractical (Carion et al., 2020). Moreover, transformers require large amounts of labeled data to avoid overfitting, which can be a bottleneck in domains where annotated data is scarce or expensive to obtain (Alzubaidi et al., 2023).

Advancements in Reducing Computational Complexity
Recent advancements in MOT have focused on reducing computational complexity to enable real-time applications. One approach has involved model pruning, where redundant parameters are removed from deep neural networks (Wu et al., 2019). Another technique is quantization, which reduces the precision of model weights and activations to smaller data types, resulting in smaller models and faster inference (Xie et al., 2023). While parameter pruning and quantization are effective techniques for reducing the size and computational complexity of deep learning enhancement models, they can also lead to performance degradation, require careful hyperparameter tuning, and may not be fully compatible with all hardware platforms or generalize well to different datasets or noise conditions. Additionally, knowledge distillation transfers knowledge from a large, complex model to a smaller, more efficient one (Faber et al., 2024). These techniques have shown promising results in reducing computational complexity. However, they may require fine-tuning and careful design to achieve optimal performance, which can be time-consuming and challenging.

Proposed Method

The proposed method was based on encoder-decoder transformer architecture. It leverages the power of transformers to simultaneously perform detection and tracking within a unified framework. By treating object tracking as a sequence prediction problem, the researcher utilized transformers to model the relationships between detected objects across consecutive frames. The encoder-decoder transformer architecture consisted of multi-head attention layers, residual connections, layer normalization, feed-forward networks, and cross-attention. Multi-head attention, a mechanism for self-attention, operates in parallel multiple times. The overall architecture of the proposed method is illustrated in Figure 1.

The process begins with a pair of consecutive video frames, typically denoted as the current frame F_t and the previous frame F_{t-1}. Both frames are processed by a convolutional neural network (CNN) backbone network, specifically employing ResNet50, to extract deep features. These features capture various aspects of the objects in the scene, such as their appearance, shape, and position.

Figure 1 *Overall Architecture of the Proposed Method*
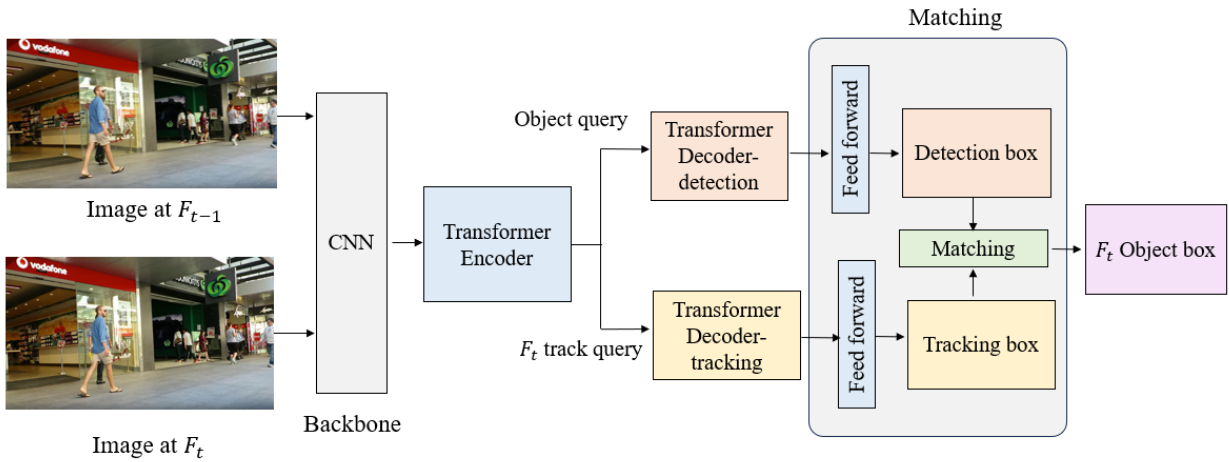
Transformer Encoder

The extracted features from both frames are flattened and combined, then passed through a transformer encoder. The encoder processes these features to capture global contextual information and interactions between objects within and across the frames. The encoder's role is to build rich feature representations that are aware of the spatial and temporal relationships in the input frames.

The researcher introduced Compact Model Adjustment, a method that employs trainable rank-decomposition matrices to significantly reduce the number of trainable parameters for downstream tasks when applied to multi-head attention mechanisms in transformer encoders.

Compact Model Adjustment

The researcher introduced a CMA method that was designed to efficiently adapt large models to new tasks or domains without requiring full fine-tuning. Full fine-tuning can be computationally expensive, time-consuming, and storage-intensive. The CMA method chosen addressed these issues by incorporating trainable rank-decomposition matrices into the pre-trained model's parameters while freezing the original weights. This approach allows for efficient adaptation while preserving the valuable knowledge stored in the pre-trained model.

Applying CMA to a transformer's multi-head attention mechanism involves a series of steps to adapt the pre-trained model weights with updates to trainable rank-decomposition matrices. In transformers, the multi-head attention mechanism is a crucial component. It consists of several attention heads that allow the model to focus on different parts of the input sequence. Each head computes the following (1):

$$Attention \ (Q, K, V) = softmax \left(\frac{QK^T}{\sqrt{d_k}} \right) V \tag{1}$$

Where Q=XW_Q , K=XW_K , V=XW_V, X is the input, W_Q, W_K and W_K are learned weight matrices for Queries, Keys, and Values, respectively, and d_k is the dimensionality of the Key Vectors.

In CMA, the weight matrix W (for any of W_Q , W_K , W_V) is decomposed into two parts as shown in (2).

$$W'=W+\Delta W \tag{2}$$

Where ΔW is an update of trainable rank-decomposition matrices represented as shown in (3).

$$\Delta W=B \times A \tag{3}$$

Where B∈$R^{d \times r}$ and A∈$R^{r \times d}$ are the trainable rank-decomposition matrices with r (the rank) being much smaller than the original dimension d. The idea is to train these trainable rank-decomposition matrices A and B while keeping the original W frozen.

The process begins with a pre-trained transformer model with weights W and initializing these trainable rank-decomposition matrices B and A for each attention head. During the forward pass, the input X is projected using the adapted weight matrices W' to compute the Queries, Keys, and Values as shown in (4).

$$Q' = X(W_Q+\Delta W_Q) = X(W_Q+B_Q A_Q) \tag{4}$$

The same calculations apply for K' and V'. During training, only the trainable rank-decomposition matrices B and A are modified. The original weights W_Q, W_K, and W_V remain unchanged. By restricting the adaptation to the update of trainable rank-decomposition matrices, the number of trainable parameters is substantially decreased, resulting in more efficient fine-tuning while still enabling effective model adaptation. Figure 2 visually illustrates the Cross-Modal Attention mechanism within the encoder transformer's multi-head attention. CMA utilizes a bounding box regression loss function to minimize the error between the predicted and ground truth bounding boxes.

Figure 2 *Illustration of the Compact Model Adjustment in the Encoder Transformer*
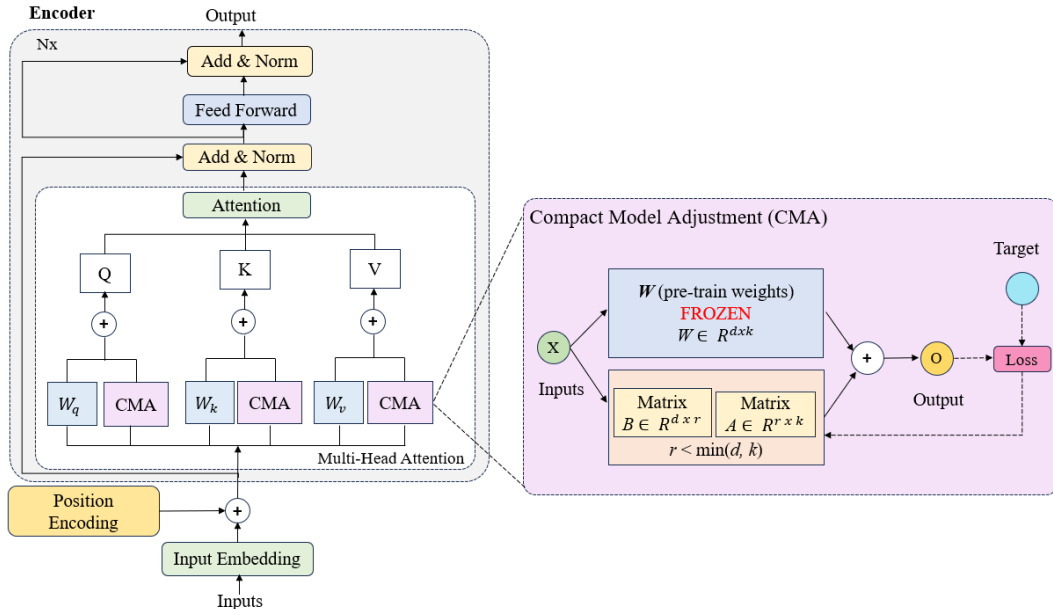
Detection Decoder

The detection decoder is initialized with a set of object queries, which are learnable embeddings that the model uses to search for objects within the encoded features. These queries aid in identifying and locating objects in the current frame. The detection decoder processes the encoded features and queries to generate object predictions. Specifically, for each query, the decoder outputs a set of

bounding boxes and class scores, representing the locations and categories of detected objects in the current frame. The detection decoder block's output comprises a set of bounding boxes indicating the objects' locations in the current frame, along with corresponding confidence scores for each detection, as illustrated in Figure 3(a).

Figure 3 *Detection Decoder and Tracking Decoder Architecture*
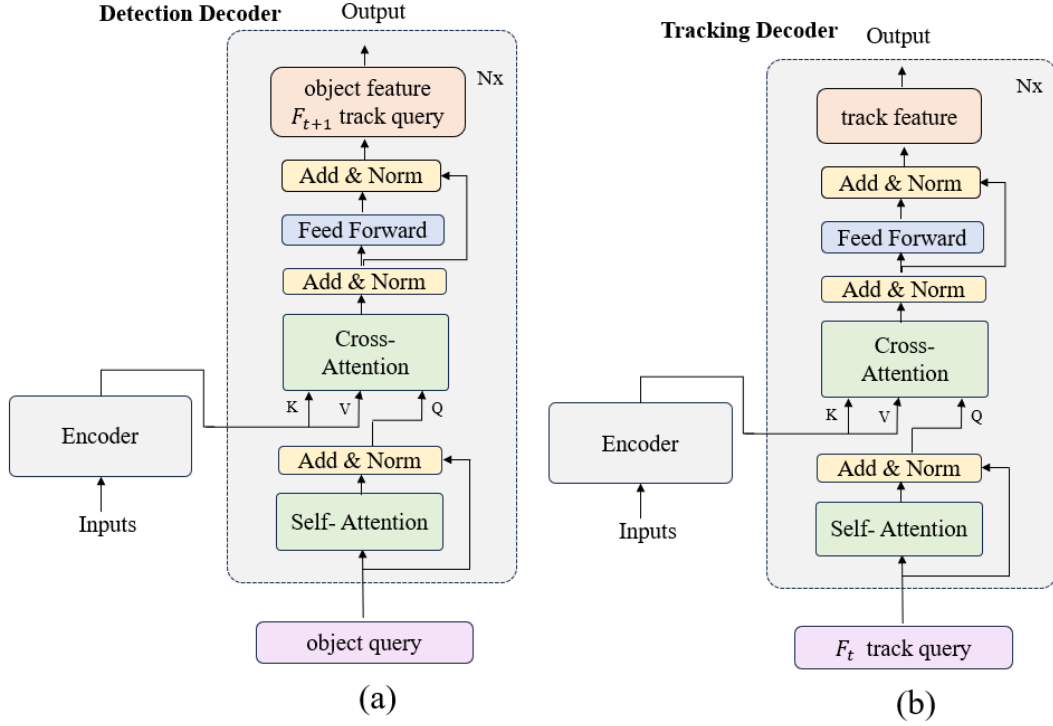
Tracking Decoder

The tracking process utilizes track queries, which are derived from the detected objects in the previous frame. These track queries preserve the appearance and positional information of objects detected in F_{t-1}. The tracking decoder as shown in Figure 3(b), identical in architecture to the detection decoder as shown in Figure 3(a), employs these track queries to associate objects detected in the previous frame with those in the current frame. It updates the positions of these objects and generates tracking boxes for each object in F_t. The output of the tracking decoder consists of a set of bounding boxes that indicate the tracked objects' positions in the current frame, linking them to the detections from the previous frame as illustrated in Figure 4.

Figure 4 *Overview of Object Detection and Object Tracking*
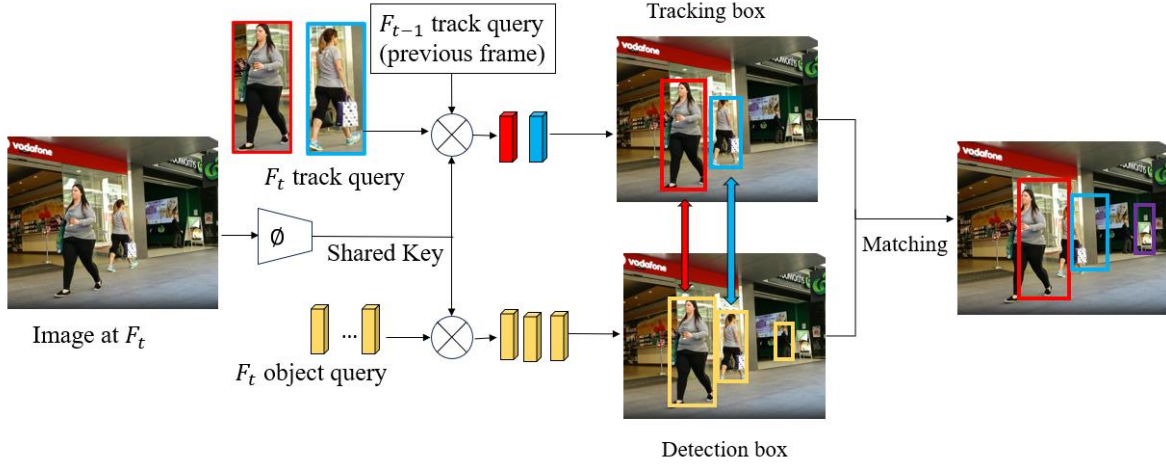
In Figure 4, the image feature maps act as a shared key. This key represents specific regions within the image that correspond to the features of an object. These features are crucial for determining the relevance of this object to other objects within a sequence. The "object query" refers to the representation of the object that the model is focusing on or interested in at a particular moment. The attention mechanism uses these keys (feature maps) and queries (object representations) to determine which parts of the image are most relevant to the task at hand.

Matching

The matching model associates detected objects in the current frame with tracked objects from the previous frame. This association is based on the bounding boxes and the feature similarities between the frames. The final output consists of the detected and tracked objects, where each tracked object is linked to its corresponding detection in the current frame. The model outputs the updated trajectories for all objects, which are continuously refined as the video progresses. To match detection boxes and tracking boxes, the Hungarian algorithm is used based on Intersection over Union (IoU) similarity.

Training Loss
Loss Function

The training of the model involves a combination of loss functions to train the model. The loss function consists of two main components: a classification loss for detecting the presence of objects and a bounding box regression loss for accurately predicting the locations of the objects.

Classification Loss

Classification loss measures the model's ability to correctly identify objects. Equation (5) defined the calculation of classification loss (Singh & Príncipe, 2010).

$$L_{cls} = -\alpha_t (1 - p_t)^\gamma \log(p_t) \tag{5}$$

In this equation, p_t represents the model's predicted probability for the correct class. The parameter α_t serves as a weighting factor to balance the significance of positive and negative examples. Meanwhile, γ is a focusing parameter that reduces the loss for well-classified examples, making the model focus on challenging cases.

Bounding Box Regression Loss

For bounding box regression, the researcher used a combination of L1 loss and Generalized Intersection over Union (GIoU) loss to evaluate the difference between the predicted bounding boxes

and the ground truth boxes. The L1 loss specifically quantifies the absolute difference between the predicted and actual bounding box coordinates. It is defined as the average absolute error across all bounding boxes, where the loss is computed as the sum of the absolute differences between each predicted bounding box and its corresponding ground truth, divided by the total number of bounding boxes. The L1 loss for bounding box regression (Zhai et al., 2020) is defined in equation (6):

$$L_{L1} = \frac{1}{N} \sum_{i=1}^{N} |y_i - \hat{y}_i| \tag{6}$$

In this context, y_i represents the ground truth bounding box, $\hat{y}_i$ denotes the predicted bounding box, and N is the number of bounding boxes.

Generalized Intersection over Union (GIoU) Loss

The GIoU loss (Cao, 2021) is defined in equation (7):

$$L_{GIoU} = 1 - \frac{|Intersection|}{|Union|} + \frac{|C-U|}{|C|} \tag{7}$$

In this formula, |Intersection |$Intersection$| represents the area of overlap between the predicted and ground truth bounding boxes, while |$Union$| denotes the total area covered by both boxes combined. The term |C| refers to the area of the smallest enclosing box that contains both the predicted and ground truth boxes, and |U| corresponds to the area of the union of the two boxes. The GIoU loss incorporates these elements to provide a more comprehensive measure of the alignment between the predicted and ground truth bounding boxes.

Overall Loss Function

The overall loss function used for training is a combination of several components, as represented in equation (8).

$$L = L_{cls} + L_{l1} + L_{GIoU} \tag{8}$$

In this formulation, L_{cls} referred to the classification loss, L_{l1} denoted the loss associated with bounding box regression. Lastly, GIoU represented the Generalized Intersection over Union loss. Together, these losses guide the training process to optimize both object classification and bounding box accuracy.

Experimental results
Datasets

The MOT17 dataset is a widely recognized benchmark for evaluating the performance of multi-object tracking (MOT) algorithms. As a publicly available dataset, MOT17 serves as a valuable resource for researchers to develop and improve their algorithms. It comprises a collection of video sequences with annotated bounding boxes, where the primary objective is to track multiple objects, typically pedestrians, across frames. Experiments were conducted on the pedestrian-tracking dataset MOT17. The researcher utilized the standard split of the MOT17 dataset, which included a training set and a validation set. The MOT17 dataset consisted of seven training sequences and seven test sequences, each representing a distinct video clip featuring people navigating various environments, such as streets, squares, or other public spaces. The dataset was specifically designed to offer diverse and challenging scenarios for testing multi-object tracking algorithms. The training sequences were provided with ground truth annotations, indicating the trajectories of objects, while the test sequences were supplied without ground truth annotations. The evaluation of the test set was performed by submitting the results to the MOT Challenge website. The MOT17 test set included 2,355 trajectories spread across 17,757 frames. Trajectories represented the paths or sequences of positions that objects (such as people) follow over time as they move through different frames in a video.

Evaluation Metrics

To evaluate the performance of this proposed method, the researcher utilized the widely recognized MOT metrics set for quantitative assessment. The primary metric is Multiple-Object Tracking Accuracy (MOTA), which measures overall tracking performance. Identity Switches (ID Sw) quantify the number of instances where an object's identity is mistakenly assigned to another object. This issue arises when the tracker loses track of an object and subsequently re-detects it, leading to the assignment of a different ID. The Identity F1 Score (IDF1) represents the harmonic mean of precision and recall for object identity, offering a balanced evaluation of how effectively the tracker assigns identities to objects. Multiple Object Loss (ML) measures the frequency with which an object is incorrectly associated with another object or fails to be associated with any object at all; a lower ML value signifies better tracking accuracy. Finally, Missed Targets (MT) counts the instances where an object goes undetected by the tracker, with a lower MT value indicating superior object detection accuracy.

Implementation Details

The researcher utilized the ResNet-50 architecture as the backbone of the network. ResNet-50 is a widely-used convolutional neural network known for its depth and ability to learn complex patterns, which enhances model robustness and generalization. To further improve generalization and prevent overfitting, data augmentation techniques were incorporated such as random horizontal flipping, random cropping, scaling, and resizing of input images. These techniques artificially expand the size and diversity of the training dataset by applying random transformations to the images. The AdamW optimizer, initialized with a learning rate of 2.0×10^{-4}, was employed to guide the model's learning process. The model was trained for 100 epochs.

Comparison

The performance comparison between the proposed method and other state-of-the-art methods on the MOT17 dataset is summarized in Table I. The proposed method achieved a Multiple-Object Tracking Accuracy (MOTA) of 71.0, surpassing all other methods listed, indicating a superior overall tracking performance. While this study's Identity F1 Score (IDF1) of 63.8 is slightly lower than SUSHI (71.5), it still reflected a robust balance between precision and recall in identity assignment.

In terms of Missed Targets (MT), this method successfully tracked 1,038 targets, which is among the highest, second only to NCT, which tracked 1,092 targets. This demonstrated the method's strong ability to maintain object tracking across sequences. Additionally, this method had a relatively low number of Multiple Object Losses (ML) at 464, which is among the lowest, although NCT achieved an even lower ML of 399. This further highlighted the method's tracking consistency.

Regarding Identity Switches (ID Sw.), this study's method recorded 4,113 switches, which, although not the lowest, showed a reasonable performance when considering the complexity of maintaining consistent object identities. Overall, this study's method demonstrated a leading performance in MOTA and a strong balance across other key metrics, making it highly effective in addressing the challenges posed by the MOT17 dataset.

Table 1 *Comparison of the Proposed Method and Other Methods Evaluated on MOT17 (Arrows Indicating Low or High Optimal Metric Values)*

Method	MOTA ↑	IDF1 ↑	MT ↑	ML ↓	ID Sw. ↓
TADN (Psalta et al., 2024)	54.6	49.0	528	711	4869
IQHAT (He et al., 2022)	58.4	61.8	568	829	1261
UnsupTrack (Karthik et al., 2020)	61.7	58.1	640	760	1864
SUSHI (Karthik et al., 2020)	62.0	71.5	801	741	1041
MPTC (Stadler & Beyerer, 2021)	62.6	65.8	627	750	4074
UTM (You et al., 2023)	63.5	65.1	881	635	1686
Hugmot (Wan et al., 2021)	64.8	62.8	738	645	2102
BYTE_Pub (Wan et al., 2021)	67.4	70.0	730	735	1331
OUTrack_fm_p (Liu et al., 2022)	69.0	66.8	885	464	4472
NCT (Zeng et al., 2023)	69.5	68.5	1092	399	4919
PixelGuided (Boragule et al., 2022)	69.7	68.4	903	615	3639
Proposed method	**71.0**	**63.8**	**1038**	**464**	4113

Note. The range for Multiple-Object Tracking Accuracy (MOTA) scores is 0–100; model accuracy is being reported.

Conclusion

In this study, the challenge of Multi-Object Tracking in complex environments was addressed by proposing a Compact Model Adjustment approach that enhanced the efficiency of transformer-based models. The results demonstrated that incorporating trainable rank-decomposition matrices into transformer architecture is an effective strategy for balancing model complexity and performance. By leveraging data from both the current and previous frames, this study's approach improved the model's ability to track objects over time, thereby addressing some of the critical challenges associated with MOT in dynamic and complex environments. The performance of the model was comparable to state-of-the-art techniques, highlighting the potential of this approach for real-world applications where computational resources may be limited.

Despite the promising results, this study's approach has limitations. This method is applicable only after the full model has been trained, limiting its use in scenarios where training from scratch is required. Future work should focus on extending the CMA approach to incorporate multi-camera setups or integrating 3D tracking capabilities to enhance the model's robustness in scenarios with significant occlusions or complex interactions between tracked objects.

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Strategic Positioning Behavior and the Inter-Granger-Causality of Alternative Securities Investments in Thailand: A Study

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Abstract

In this study the strategic positioning behavior of Thai investors from 1997 to 2022 was evaluated in order to explore the deterministic variables of why they might prefer to invest in either money markets or mutual funds/bonds, relative to equity market investments. Using factor analysis and publicly available financial data to answer these questions, it was discovered that attractive yields and the tradeoff of risk-return were essential factors that led to such investment behavior. Using a cointegration Autoregressive Distributed Lag method, an Error Correction Model, and Granger causality to verify these findings, dividend yield and risk-return tradeoff were the only predicted causes. The multiplier effects of marginal propensity to invest and equity market investment turnover in Thailand are catching up in terms of economic development in other Association of Southeast Asian Nations. These findings point to a need for further innovative development of Thai equity and alternative investment markets.

Keywords: *Thailand, market capitalization, alternative securities investments, ASEAN*

Introduction

This study investigated how Thailand, a founding member of the Association of Southeast Asian Nations (ASEAN-5), has progressed economically and industrially. It has been thought that the 1997–1998 Asian financial crisis originated due to the dwindling position of the Baht, even though Panahi (2016) argued that it was caused by the contagion effects of crony capitalism and a pegged-exchange rate system.

The World Bank in Thailand (2024) reported that Thailand is a development success story in the implementation of its Sustainable Development Goals. Siwapathomchai et al. (2023) reported that the country is adapting to global trends through what is referred to as *cultural soft power*. This includes the adoption of virtual entertainment, tourism, and an avant-garde cyber lifestyle. Wahyauni et al. (2013) discovered that Thailand has a higher rate of success in spite of its modest economy. Yet despite the encouraging economic progress in Thailand, ASEAN-5 equity market indices as of June 8, 2024 revealed a relatively low index for the Stock Exchange of Thailand (SET) at 1274, compared to those of Malaysia (1574), Singapore (3198), the Philippines (6433), and Indonesia (7129) (WSJ Markets, 2024). Why was it so low? The securities investment behavior of Thai people in general is herewith the subject of this observation.

Alpha Southeast Asia (2020) reported that Thailand's USD 4.96 billion in initial public offerings (IPO) in primary equity markets in 2020 was second only to China (USD 65.6 billion). Yasyi (2023) reported that this was indeed a big step for Thailand, probably in order to catch up with the SET's relatively low market index compared to those of its ASEAN-5 neighbors. However, secondary market transactions in 2023 were remarkably high at USD 757.8 billion, double the USD 353.7 billion average of transactions during 2013–2020 before the COVID-19 pandemic.

Thailand securities transactions from 2013 to 2020 indicated that mutual funds as reported by the Association of Investment Management Companies (AIMC) and bond investments as reported by the Thai Bond Market Association (ThaiBMA) recorded high compounded annual growth rates (CAGR) of 63.2% and 38.3%, respectively, which greatly exceeded the equity transactions at 10.5%, as revealed in the Stock Exchange of Thailand's statistics. Please see Table 1 for details.

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Table 1 *Comparison of Investments in Thai Securities in 2023 and From 2013–2020*

TRANSACTIONS (USD Billions, except for CAGR)	2023	From 2013 to 2020	
		Average	CAGR%
Equity transaction (actual)	757.9	353.7	10.5%
Alternative investments:			
Bank deposits (actual)	502.7	510.2	5.3%
Mutual funds (actual)	151.5	123.8	63.2%
Money market (estimate)	3461.0	2052	1.2%
Bonds (actual)	478.6	369.1	38.3%

Source. World Bank in Thailand (2024)

Equity Investments

Thailand's equity market, which consists of the primary and secondary markets at the SET, was founded on April 30, 1975. It is ASEAN's third largest exchange after the Indonesia Stock Exchange (IDX, market capitalization of USD 760.3 billion as of 2023) and the Singapore Stock Exchange (SGX, market capitalization of USD 428.1 billion as of 2023). The SET and the Market for Alternative Investment (MAI) have 885 listed companies, with a total market capitalization of USD 577.9 billion as of 2023. As of the end of 2023, the market makers in the primary equity market in Thailand were Bangkok Bank, Kasikorn Bank, Siam Commercial Bank, and Thanachart Bank. Thailand topped IPO financing during the period from 2019–2021 in spite of the pandemic; please refer to Figure 1.

Figure 1 *Selected ASEAN Countries' Initial Public Offering Amounts From 2019–2021*
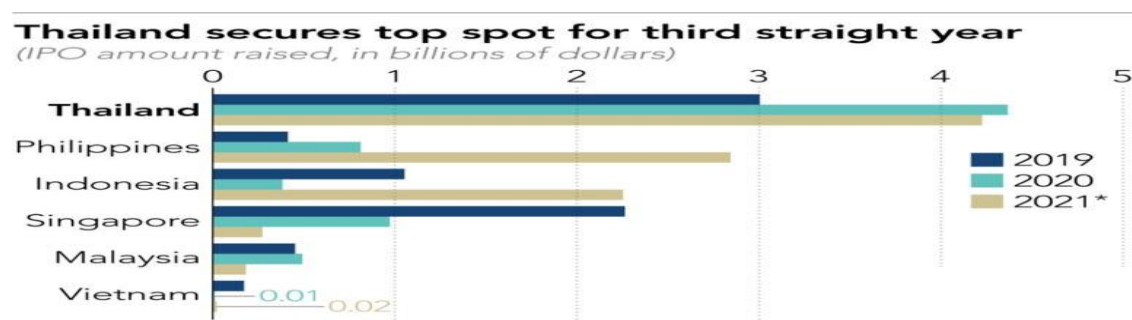
Source. Southeast Asia IPO Capital Market (2021)

Primary Market Equity Investments

Companies can raise additional equity funds in primary markets with the help of an intermediary underwriter who guarantees the availability of the initial public offering. The stock is then listed in the stock exchange where secondary market activities take place. Yuda (2021) reported a giant IPO that involved PTT Oil and Retail (formerly the Petroleum Authority of Thailand), known today as PTT Public Company Ltd., a fully integrated gas and oil business. This 54 billion Baht IPO took place on December 6, 2001, and was underwritten by a bank syndicate led by Merrill Lynch Phatra Securities.

Secondary Market Equity Investments

On the listing date, PTT raised funds through an IPO and rights issue, which were traded on the SET and MAI. Some investors earn capital gains or incur losses when they sell stock. The last secondary market valuation for transactions before the pandemic was 33,343 billion Baht, or USD 1,119 billion, as of December 2020. After the pandemic, the SET recorded transactions valued at 25,919.0 billion, or USD 757.9 billion, as of December 2023.

Alternative Securities Investments

Four alternatives for Thai investors are herewith discussed: Fixed income bank deposits, mutual funds, money markets, and bond investments.

Bank Deposits

This investment consists of bank checking, savings, and time deposits which are subject to investors' risk-averse sentiments as well as the yield curve; this is one alternative to equity investments. Duarte et al. (2022) reaffirmed that if interest rates on deposits increase, investors leave equity markets and invest in these deposits, and vice versa. Bordo and Haubrich (2024) confirmed how the yield curve works in terms of consumer spending. They noted that the largest banks in Thailand such as Bangkok Bank, Kasikorn Bank, Krungthai Bank, Siam Commercial Bank, and the Government Savings Bank had total fixed income deposits of USD 502.7 billion in 2023.

Mutual Fund Investments

Before the pandemic, average mutual funds from 2013–2020 stood at USD 123.8 billion. In 2023, total funds reached USD 151.5 billion, or around 30.3% of Thailand's GDP. The top three fund management companies by net asset value market share were Kasikorn Asset Management (1.17 trillion Baht), SCB Asset Management (973 billion Baht), and BBL Asset Management (759 billion Baht). Net asset value is the difference between total assets minus liabilities in terms of current market prices. In Thailand, mutual funds are categorized into fixed income, equity, balanced funds, property, infrastructure, and others. Cavelli (2018) and Karmali (2024) reported participation by high-net-worth Thai investors in these funds, with wealth of at least USD 548 billion (Vaidya et al., 2024).

Money Market Investments

Money market investments include foreign exchange investments and other securities investments such as commercial paper (private and government securities); they consist of spot, forward, swap, and option. Individual investors normally choose spot money (USD, €, ¥, £, or others) for investments; the latter options are used by banking and non-banking business entities for hedging and speculative purposes. With estimated foreign exchange transactions of USD 3,461 billion in 2023, the Bank of Thailand's foreign currency reserves of USD 254.6 billion were turned over some 13.6 times. Its International Monetary Fund's real foreign exchange rate index was 115 at the end of the first quarter of 2024 (2010 = 100). ASEAN, the US, and China are Thailand's largest trading counterparts, with trade surpluses of 10.3%, 10.5%, and -9.4%, respectively (refer to Table 2).

Table 2 *Thai Balance of Trade, International Reserves, and Forex Trading (2023)*

Description	Balance of Trade	Export	Import
	(In USD Billions)		
Total Exports and Imports*	-5.1	284.6	289.7
ASEAN	10.3%	16.9%	6.6%
United States	10.5%	17.2%	6.7%
China	-9.4%	15.9%	25.3%
Hong Kong	3.9%	3.9%	0.0%
Japan	-2.1%	8.7%	10.8%
European Union	0.9%	7.7%	6.8%
International reserves*	254.6		
Estimated forex trading*	3461.0		
Real forex rate index (%)**	115.0		
Reserves (months of import)**	10.5		
Forex trading turnover (x)**	13.6		

Source. World Bank Group (2024) and Trading Economics (2024)

Bond Investments

Even though bond investments belong to the category of fixed income investments, it is more advisable to classify them separately due to specific traits of how their yield curves behave (McKay and Peters, 2019), i.e., negotiability, market price basis, longer maturity, different yields, etc.

Table 3 *Outstanding Thai Bonds for 2020–2023 (Billions)*

TYPE OF BOND	2023		2022	2021	2020
	USD*	Baht	Baht	Baht	Baht
National government	231	7,970	7,236	6,344	5,581
Treasury bills	12	430	535	540	439
State enterprises	30	1,046	1,038	1,016	927
State agencies	65	2,231	2,403	2,898	3,365
Corporate bonds	138	4,754	4,488	4,201	3,547
Foreign bonds	2	83	82	71	82
∑ bonds outstanding	479	16,514	15,782	15,070	13,941

Source. 2023 Bond Market Highlights (2024); **Baht/USD = 34.50*

Literature Review

The literature on strategic positioning behavior of securities investment seems limited, particularly pertaining to Thai investment styles, even though evaluations were published analyzing other contexts. This observation focused on several underlying theories, and a conceptual framework of the strategic positioning of Thailand securities investments was developed.

Underlying Theories

The theories explaining how the underlying economic indicators work are related to the framework adopted in this study.

Competitive Position (CP). Keynesian economics theorized that consumer motives, brand reputation, and product differentiation are the main factors that increase transactions and improve business profitability (Rua & Santos, 2022), as well as through perfect competition (Hayes, 2008). Porter (1985) originally introduced the concept of competitive advantage. For profitability, the specific yield level and capital gain are mentioned as imperative yardsticks that reinforce competitive advantage (Maury, 2018; Blinder, 2024).

Industry Position (IP). For investments, the weight factor determines the best composition of the Markowitz efficient frontier theory (Anderson and Goldsmith, 1997). The modern portfolio theory postulated by Markowitz (1952) capitalizes on the optimality of investment positions, which is a trade-off between a comfortable level of profitability and the lowest level of covariance. Index and transaction growth are the relevant yardsticks to measure the business industry position at any point of time (Jiang & Wu, 2023).

Financial Position (FP). The liquidity process and transaction multiplier effects are among the most effective yardsticks for measuring financial position; Naik (2021) recommended them to determine business direction. Carre and Klossner (2024) found them more effectively implemented by financial institutions, and proposed an investment multiplier to further determine improved financial position (Kosov et al., 2022).

Stability Position (SP). The other geometric side of the y axis is the stability of transaction volume and lesser price or return volatility as a measure of risk. Liu et al. (2023) found that the relationship between sustainability and financial stability could be better explained by using the Chinese financial market's Environmental, Social, and Governance index on returns on investment for equity, bonds, interbank, and money market investments, rather than using the existing stock index.

Research Problem Questions, and Hypothesis

In this study the securities investments in Thailand are described by answering the main problem identified and three research questions. The main problem was: As the second largest ASEAN economy (GDPppp = USD 1.304 trillion) after Indonesia (GDPppp = USD 3.589 trillion), "*what securities other than equity investments are preferred by Thai investors?*"

Research Question 1: What factors influence Thai investors' securities investment decisions?

Research Question 2: How are alternative securities investments strategically positioned in lieu of equity investments in Thailand?

Research Question 3: Did MCAP, $CAP_{G\&L}$, and DIVY Granger-predict MPSto and MPI?

The H_0 of the question was: MCAP, $CAP_{G\&L}$, and DIVY didn't Granger-predict MPSto and MPI; H_1 is shown below.

$$\Delta y_t \text{ (MPSto) and } \Delta y_t \text{ (MPI)} = a_0 + \Sigma \beta_{1i} y_{t-i} + \Sigma \beta_{2i} MCAP_{t-i} + \Sigma \beta_{3i} CAP_{G\&L\ t-i} + \Sigma \beta_{4i} DIVY_{t-i} + \Lambda ECM_{t-1} + e_t$$

where,

Δy_t **(**MPSto) = Marginal propensity of stock turnover

Δy_t **(**MPI) = Marginal propensity to invest in securities markets

a_0 = Intercept

$\beta_{1i} y_{t-1}$ = Coefficient of y, value in the period *t* and before *t*

The same with those for $\beta_{2i} MCAP_{t-i\ (market\ capitalization)} + \Sigma \beta_{3i} CAP_{G\&L\ t-i\ (primary\ market\ capital\ gain/loss)} + \Sigma \beta_{4i} DIVY_{t-i\ (dividend\ yield)}$ (*short-run equilibrium*)

ΛECM_{t-1} = The Λ of the error correction model generates the values that determine the long-run equilibrium in Equity Capital Markets. (*long-run equilibrium*)

e_t = vector of error terms.

Conceptual Framework

The conceptual framework of the study indicates how equity investments moderate Thai securities investments such as fixed income bank deposits, mutual funds, money market investments, and bonds (see Figure 2).

Figure 2 *Framework of Equity and Alternative Investments*
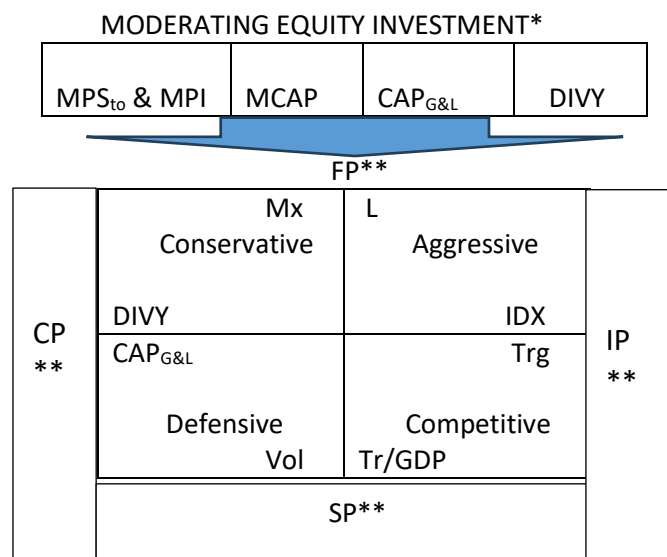
Source. Matrix model was adapted from David (2023)

*Based on Δy_t (MPSto) and Δy_t (MPI) = $a_0 + \Sigma \beta_{1i} y_{t-i} + \Sigma \beta_{2i} MCAP_{t-i} + \Sigma \beta_{3i} CAP_{G\&L\ t-i} + \Sigma \beta_{4i} DIVY_{t-i} + \Lambda ECM_{t-1} + e_t$

**CP = competitive position, IP = industry position, FP = financial position, and SP = stability position

The inter-linkages between moderating equity investment and alternative securities investment were demonstrated by the MPS$_{to}$ and MPI, with the Mx, CAP$_{G\&L}$ and DIVY in the moderating equity and alternative securities investments.

Research Methodology

In this section, data gathering and analysis are considered. A combination of factor analysis was used to assess the strategic positioning of Thai alternative investments and inter-Granger ability to predict MPSto and MPI. Before assessing behavioral characteristics, the cointegration of equity markets after the Asian financial crisis (1997 to 2022) was tested and analyzed for its inter-Granger-predictiveness.

Data Gathering and Analysis

The study data collected were time series panels of Thai investment indicators during the period from 1997 to 2022, particularly for the target variables of Δy_t (MPSto) and Δy_t (MPI), and other independent variables like MCAP, CAP$_{G\&L}$ and DIVY. They were gathered from the World Bank, Bank of International Settlements, and local websites (Stock Exchange of Thailand, Bank of Thailand, Association of Investment Management Companies, and Thai Bond Market Association). For the perceptional ratings on the strategic positioning of securities investment, a Delphi opinion from two economists at the Bangkok Bank in Manila was solicited. The ratings were recorded on a scale from 1 to 10 (1 = *Strongly Unfavorable*; 2 = *Unfavorable*; 3 = *Somewhat Unfavorable*; 4 = *Slightly Unfavorable*; 5 = *Neither Favorable nor Unfavorable*; 6 = *Slightly Favorable*; 7 = *Somewhat Favorable*; 8 = *Favorable*; 9 = *Strongly Favorable*; and 10 =-*Extremely Favorable*).

Factor Analysis. The first and second questions were answered by using factor analysis, applying XLStat software. Hair et al.'s (2010) factor analysis model's mathematical formulation is as follows: $\chi_i = \lambda_{i1}F1 + \lambda_{i2}F2 + \dots \lambda_{in}Fn + \varepsilon_i$ for i = 1, 2, … n,
where
χ_i = Observed variables, which refers to the investments under review,
λ_{ij} = Factor loadings (weight that relates each factor or F),
F_j = Common factors or latent variables with j = 1, 2, … n, and
ε_i = Errors or any unique factors.

Cointegration Analysis. The third research question was answered by conducting a cointegration analysis using an autoregressive distributed lag (ARDL) for short-run Thailand securities investments cointegration, and Equity Capital Markets to measure the speed of adjustment back to long-run equilibrium after the Asian financial shock. A software package (E-Views) was used to analyze the cointegration equations (Figure 3).

Figure 3 *Cointegration's Prerequisites Heading for ARDL, ECM, and GRANGER*
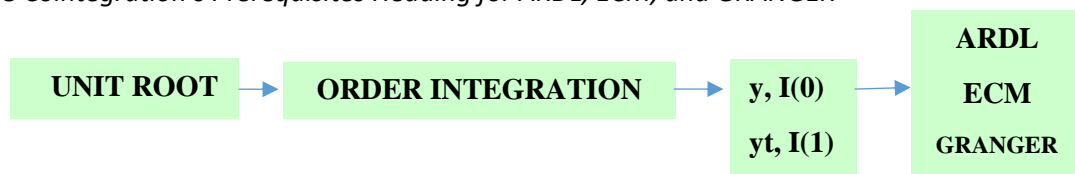
Shrestha and Bhatta (2018) confirmed that unless the order of integration does not have any unit root or is expressed as I(0), the method of vector autoregressive or VAR should not be used in the co-integration analysis. Instead of a VAR test (Johansen, 2020), the hypothesis was determined through the ARDL, ECM and the Granger-causality relationship to test their predictive power.

Results and Discussion

The factor analysis and cointegration results of alternative securities investments are discussed.

First Research Question–Factors That Influence Thai Investment Decisions

The factors that influenced investments in Thai securities (Table 4) showed that volatility of return, transaction multiples, yield, and liquidity were valued as the highest investment preferences.

Table 4 *Correlation Matrix of Thailand Alternative Securities Investments*

Factors	Tr Growth Trg	INDEX IDX	Yield DIVY	Gain CAP$_{G\&L}$	Multiplier Mx	Liquidity L	%GDP Tr/GDP	Volatility Vol
Trg	**1.000**	-0.448	0.180	-0.874	-0.585	-0.998	-0.153	0.970
IDX	-0.448	**1.000**	0.788	0.238	0.941	0.398	0.327	-0.396
DIVY	0.180	0.788	**1.000**	-0.393	0.588	-0.230	0.399	0.253
CAP$_{G\&L}$	-0.874	0.238	-0.393	**1.000**	0.511	0.872	-0.347	-0.964
Mx	-0.585	0.941	0.588	0.511	**1.000**	0.537	0.040	-0.604
L	-0.998	0.398	-0.230	0.872	0.537	**1.000**	0.156	-0.965
Tr/GDP	-0.153	0.327	0.399	-0.347	0.040	0.156	**1.000**	0.092
Vol	0.970	-0.396	0.253	-0.964	-0.604	-0.965	0.092	**1.000**

Source. XLStat Summary Statistics, August 15, 2024

Bank Deposit Investment Multiples and Volatility of Return

Transaction multiples and volatility of investment return were perceived by Thai investors as important decision points. Correlation *was* .970 for volatility and .941 for transaction multiples, which indicated that the Δ transaction growth and Δ index growth increased, respectively, according to the coefficient correlation. Due to the mechanism of the yield curve, preference for liquidity and capital gains were statistically evaluated as an inverse-type of investment.

Mutual Fund Yields (r = .987)

Compared to a 4.0% average dividend yield for equity investments, Thai investors considered relatively lower yields for money market and bond investments at 3.6% p.a. and 3.0% p.a., respectively, from the standpoint of faster liquidity. Bank deposits were also a favorite investment.

Money Market Investments (r = -.841)

The negative coefficient of -.841 clearly indicated an inverse relationship with money market investments, which meant that the law of the yield curve worked in Thailand. Thus; if US Dollars, Euros, or other stronger currencies generated good capital gains, then Thai investors would definitely divest from equity markets. Money market transaction for various purposes, by individual Thai investors totaled USD 14.421 billion/day before the COVID-19 pandemic, which was comprised of US Dollars (USD 13.548 billion/day), Euros (USD 1.150 billion/day), Yen (USD 0.793 billion/day), and other currencies, including cross-border USD transactions (1.460 billion/day)–see Figure 4 for details.

Figure 4 *Diagram of Thai Investors' Preference Factors*
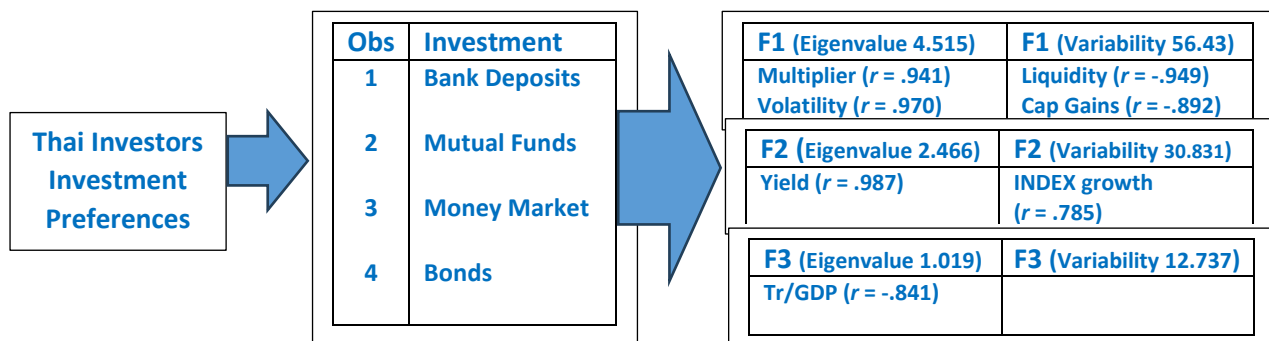
Source. Three main factors (F1 to F3) were analyzed using XLStat software to determine Thai investment preferences when compared with equity investments.

Bond Investments

Out of a total of 16.5 trillion Baht, or USD478.6 billion in 2023, the largest trading volume was in government bonds (11.7 trillion Baht, or USD338.5 billion), with relatively lesser transactions in corporate bonds (4.8 trillion Baht) and foreign bonds. Thai investors generally invest in these bonds through their commercial banks, which function as money market agents.

With the Kaiser criterion, Eigenvalues of factors F1 to F3 had values of > 1.0, indicating that the factors explained more variance than a single observed variable; i.e. F1's Eigenvalue of 4.515 > 1.0, F2's Eigenvalue of 2.466 > 1.0, and Eigenvalue of 1.019 > 1.0. This implied that the factors were worth retaining and reliable. In addition, Barlett's test of sphericity yielded a significant result ($p < .001$).

Second Research Question–Strategic Positioning of Thai Securities Investment

To analyze the strategic positioning of alternative securities, the perceptional rating of each type of alternative investment was assessed in terms of why it was chosen instead of equity investments. Based on David's (2023) strategic positioning thought, a four-quadrant positioning matrix was used and modified in terms of investment-relevant contexts. Based on their Competitive, Industry, Financial, and Stability Positions, indicators for alternative securities and equity investments were derived and computed, and are shown in Table 5, including their 10-scale perceptional assessment.

Table 5 *Alternative Securities Investments' Strategic Positioning Indicators and Analysis*

S.P.	FACTOR	EQUITY	DEPOSIT	M F *	M M	BONDS
CP	Yield level (%) – DIVY	4.0%	1.4%	none	3.6%	3.0%
CP	Gain prospect (%) – CAP$_{G\&L}$	4.1%	None	8.6%	1.2%	3.0%
IP	Transaction growth (%) – Trg	10.5%	0.053%	5.3%	1.2%	38.3%
IP	Index growth (%) – IDX	1.6%	5.3%	8.9%	1.2%	3.4%
FP	Transaction multiplier – Mx	2.150	0.438	0.150	0.008	-2.108
FP	Liquidity prospect – L	lesser	Highly	adequate	Highly	adequate
SP	Transaction/GDP (%) – Tr/GDP	77.5%	111.6%	26.9%	2.8%	127.7%
SP	Return volatility – Vol	0.144	0.005	0.086	0.048	0.863

PERCEPTION**	IP (+)	IP (+)	CP (-)	CP (-)	FP (+)	FP (+)	SP (-)	SP (-)
	Trg	IDX	DIVY	CAP$_{G\&L}$	Mx	L	Tr/GDP	Vol
Bank deposits	2	8	6	10	6	10	3	2
Mutual funds	7	9	10	2	5	7	8	9
Money markets	4	5	5	5	2	9	9	6
Bonds	9	3	5	3	1	6	2	10
Sum of (∑)	22	25	26	20	14	32	22	27

Source. World Bank and Global Economy statistics, and Bangkok Bank team in Manila;
*MF = Mutual Fund. MM = Money Market; **A 10-scale rating described in the methodology.

The outcomes of the XLStat factor analysis are reflected in the strategic positioning matrix shown in Figure 5. Observation 1 (bank deposit investments) is positioned in the defensive quadrant. Observation 2 (mutual fund investments) is positioned in the aggressive quadrant. Observation 3 (money market/foreign exchange currency investments) is positioned in the defensive quadrant, and Observation 4 (bond investments) is positioned in the competitive quadrant.

Figure 5 *Strategic Positioning of the Thais' Investments*
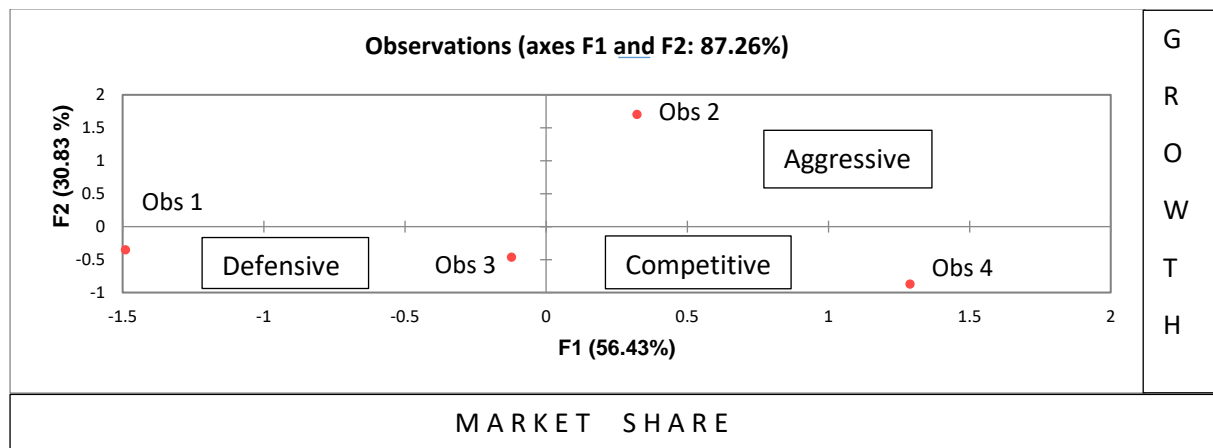
Third Research Question–Inter-Granger-Causality of Strategic Positioning

In order to answer the third research question, the control investment group, which was the time series of Thailand's equity market variables, was evaluated in terms of their inter-Granger-causality, but only after testing that the equation was cointegrated.

By means of the unit root test and inter-Granger-causality, the pattern of the cause-and-effects of why Thai investors invested in securities markets was considered in the third research question. The analysis shown in Table 6 reveals a mixture of the order at level I(0) and at first difference I(1), with most *p*-values significant at the .05 level.

Table 6 *Unit Roots Analysis of Thailand Equity Investments (1997-2022)*

VARIABLE	Augmented Dickey-Fuller			Phillips-Perron (P.P.)			INTEGRATION
	ADF	Sig = 5%	*p*	P.P.	Sig = 5%	*p*	ORDER
MPSto	-8.923	-3.622	.000	n/a	n/a	n/a	I(1)
	n/a	n/a	n/a	-5.680	-3.603	.000	I(0)
MPI	-5.407	-3.603	.001	-4.510	2.986	.002	I(0)
MCAP	-4.729	-3.603	.004	-4.728	-3.603	.005	I(0)
MPSto	-8.923	-3.612	.000	-5.680	-3.603	.000	I(1), I(0)
$CAP_{G\&L}$	-6.289	-3.612	.000	-6.559	-3.612	.000	I(1)
DIVY	-4.368	-3.612	.010	-4.246	-3.612	.014	I(1)

This implies that compliance with the stationarity rule for all variables gave rise to a good level of cointegration in the investment indicators at integration orders I(0) and I(1). MPSto (*F*-Bound = 21.415) and MPI (*F*-Bound = 21.891) had the highest ratios of explained from unexplained variance, with a comfortable level of integration order 1 I(1), which were all greater than 3.380 order of I(1). For the asymptotic *n* = 1000, the 25-year period under observation reflected critical *t*-values of -8.849 and -9.402 for the orders of integration of I(0) and I(1), respectively.

Long and Short Run Cointegration

The analysis demonstrated strong cointegration, particularly for the Thai marginal propensity to invest (MPI) and marginal propensity of stock turnover (MPSto). The *F*-values of 21.891 and 21.415, respectively, were much larger than the orders of integration I(0) and I(1), which were also reinforced by the related *t*-values of -9.402 and -8.849. This indicated that Thai investors were not only actively involved in securities investments in the short run, but also in the long-run. The ECM equation for long-run investment (*MPI – (-41.6 MCAP – 0.056 CAP$_{G\&L}$ – 0.360 DIVY – 0.226 MPSto)* confirmed this relationship, as well as the diagnostic stability of both variables that were located within the 0.05 upper and lower bounds (refer to Figure 6).

Figure 6 *Diagnostic Stability Chart of the Targeted MPSto and MPI*
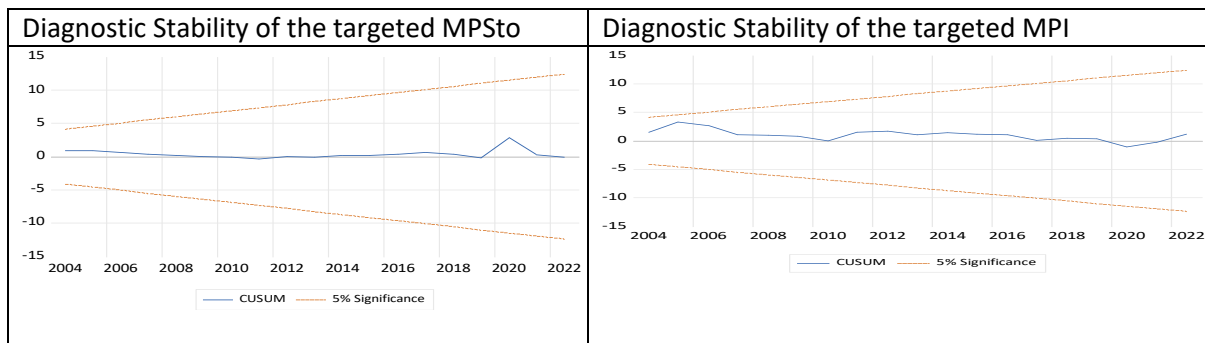
The above cointegration shows the power of Granger-predictiveness of DIVY, or yield earned from equity secondary markets, and CAP$_{G\&L}$ or capital gains earned from equity primary markets. For lag times of 4 to 6 years, the predictor power of the primary and secondary yields strongly influenced the propensity to invest in equity markets (MPSto *p*-value = .000), and MPI to invest in alternative securities (MPI *p*-value = ranging from .001 to .002). Equity markets had a 4.0% average yield during the period from 1997 to 2022.

Thai investors also considered mutual fund investments that earned 8.6% per annum on average. Some examples were Kasikorn Dividend Stock Fund (KDSF), Bualuang Top Tier Fund (BTTF), Krungsri Thai Equity Fund (KTEF), UOB Smart Asia Pacific Equity Fund (UOB-SAPEF), SCB Dividend Stock Plus (SCBDP), and others.

Summary of Findings, Implications, and Conclusion

The following findings, implications, recommendations, and conclusion are based on the securities investment patterns adopted by Thai and foreign investors from 1997 to 2022.

Summary of Findings

The present findings are different from previous research findings on the strategic positioning of Thailand's alternative securities investments, particularly in terms of investment preference factors and the cointegrated predictiveness of MPSto and MPI. For example, Songyoo (2012) explored the optimal positioning of Thai spot and future markets, and the Thailand Capital Market (2022) investigated the competitiveness of Thailand's capital market. However, these studies did not address individual investors' strategic positioning of their alternative investments. They addressed themes that differed from those addressed by the present observation on strategic positioning.

1. Factor analysis showed Thai investors' preferences as follows:
   a. Bank deposits were preferred when equity investments and return volatility didn't satisfy their expectations, and
   b. Mutual fund investments were preferred when dividend yields and stock index growth in equity investments didn't satisfy expectations, while liquidity, capital gains prospects, and transaction volume as a percentage of GDP indicated an inverse relationship with those of equity investments.
2. Factor analysis also revealed the following strategic positioning of securities investments, if equity investment outcomes didn't satisfy expectations:
   a. To aggressively invest in mutual funds, as seen in Observation 2,
   b. To competitively invest in bonds, as seen in Observation 4, and
   c. To defensively invest in bank deposits and foreign exchange currencies, as seen in Observations 1 and 3, respectively.
3. In terms of diagnostic stability, the cumulative sums of the two targeted MPSto and MPI indicated a good level of cointegration with strong degrees of diagnostic stability.

Implications and Recommendations

The only implications which might require attention by the Thai government would be to develop the following securities investments more innovatively in the country:

1. Build up the SET and MAI to better compete with neighboring ASEAN-5 countries by increasing the number of listed companies.
2. Expand the country's third party bank deposit funding so that it is more competitive.
3. Tap more Thai high-net-worth investors and foreign investors to invest in Thai mutual funds.
4. Maintain and, if possible, step up foreign exchange transactions to beef up the country's real economy.
5. Evenly develop the private sector's equity trading by increasing corporate bond financing, not just for government financing, but for the private sector.

Conclusion

This study showed a convincing rise in Thailand's marginal propensity of stock turnover and marginal propensity to invest during the period from 1997 to 2022. The time is right for Thailand to focus on innovative development of equity and alternative investments.

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Health Literacy and Antibiotic Use Behavior
Among Working Age People in Muak Lek District, Saraburi Province

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Abstract

This cross-sectional study investigated the levels of health literacy, antibiotic use behavior, and their relationships among working age people in Muak Lek Sub-district, Muak Lek District, Saraburi Province. The research instrument was a self-administered health literacy and antibiotic use behavior questionnaire that was completed by 352 respondents. Cronbach's alpha coefficient test produced reliability scores for these two question groups of .98 and .92 respectively. Data were analyzed using descriptive statistics and Pearson's correlation coefficient. The study's results revealed widespread usage of antibiotics by working age people, most of whom had moderate levels of health literacy. Health literacy was positively, but weakly, related to proper antibiotic use behavior at the .001 level of statistical significance ($r = .268, p < .001$). Working age people with low levels of health literacy were found to misuse antibiotics; however, rational use of such medications is important since incorrect use of drugs may have negative effects on health. This study provides data about antibiotic usage patterns to support public health professionals and relevant agencies in developing future preventive strategies.

Keywords: *Health literacy, antibiotics use behavior, working age*

Introduction

Health Literacy refers to intellectual and social skills that enable individuals to access health information, to understand how to analyze, evaluate and manage themselves, and to be able to provide health advice to individuals, families and communities (Wattanakul et al., 2020). According to Nutbeam's theory (2008), health literacy consists of six dimensions:
  (a) access to health information and health services skills (Access);
  (b) knowledge and understanding (Cognitive Skills);
  (c) health information communication skills (Communication Skills);
  (d) decision-making skills;
  (e) self-management skills; and
  (f) media literacy skills.

Health literacy encourages individuals to maintain good health, adopt desirable behaviors for taking care of their own health, and help support health operations (Sørensen et al., 2012). It focuses on learning the benefits of information and technology so that they can care for their own health correctly. The 2022 Social Situation Report for Saraburi Province found that the population aged 26–59 years was the largest group, accounting for 50.31% of the total population (Ministry of Social Development and Human Security, Saraburi, 2022). This group is at higher risk of using drugs for self-treatment than other groups. A lack of health literacy may result in undesirable antibiotic use behavior, resulting in more severe illnesses or drug resistance (Papka & Laohasiriwong, 2018).

Antibiotics are drugs that inhibit the growth of microbes such as bacteria or kill them through various biochemical processes, such as inhibiting the synthesis of bacterial proteins, inhibiting the formation of cell walls, interfering with the function of cell membranes, or inhibiting the synthesis of genetic material within bacteria (Khoka & Jitjamnong, 2021). The discovery of antibiotics in 1928 was a great achievement for mankind because it helped save millions of lives from bacterial infections.

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Since humans learned to treat diseases using antibiotics, the survival rate of patients with bacterial infections has markedly increased (American Chemical Society, 1999).

Antibiotics are continuously being developed, improved, and produced to better treat various illnesses and respond to new diseases. However, bacteria have adapted to survive, resulting in antibiotic resistance (Khoka, 2020). Antibiotics that were effective in the past have become ineffective, or their effectiveness has been reduced. The development of drug resistance in bacteria is due to the irrational and excessive use of antibiotics, such as using drugs without proper indication, without evidence supporting their efficacy, where the risk of harm outweighs the benefits, or without considering their cost-effectiveness and affordability. Other factors that may lead to this problem include lacking awareness of the problem of drug resistance, skipping steps when using drugs, or using the wrong dose, the wrong method, the wrong frequency, or the wrong duration when taking antibiotics (Chongtrakul, 2015). Antibiotic resistance in bacteria is occurring faster than new antibiotics can be produced, making it an important global public health problem (Hutchings et al., 2019).

The impact of antibiotic resistance worldwide shows that approximately 700,000 people die from drug-resistant infections per year. If this problem is not resolved quickly, the death toll from drug resistance is projected to rise to 10 million by 2050 (Department of Health, 2023). In Thailand, a preliminary study found that approximately 88,000 people are infected with drug-resistant bacteria per year, with approximately 38,000 deaths per year resulting in annual economic losses of up to 40 billion Baht (Department of Health, n.d.). The problem of irrational antibiotic use is found at all levels of Thai health care facilities, with 25%–91% of cases involving the use of antibiotics for diseases not caused by bacteria (Thai Health, 2017). For example, private hospitals prescribe antibiotics for upper respiratory tract infections for children and general patients more often than government hospitals. Data from the National Health Security Office indicate that in treating upper respiratory tract infections, only 3% of about 900 hospitals prescribed antibiotics appropriately, and not exceeding standard dosages (Ministry of Public Health and Ministry of Agriculture and Cooperatives, 2017).

A survey assessing knowledge about antibiotics and usage behavior among 27,762 Thai people aged 15 years and above revealed that 7.9% of respondents aged 15 years or over had used antibiotics, with 70.3% of those antibiotics being obtained from hospitals, 26.7% from pharmacies, and 3.0% from other sources (Chanvatik et al., 2019). It was found that Thai people's knowledge about antibiotics was low. The most common misunderstanding was that antibiotics could treat diseases caused by viruses, and only 17.8% had received advice about the appropriate use of antibiotics (Yana & Chaisombut, 2021).

A survey by the Center for Monitoring and Development of Pharmaceutical Systems on antibiotic use behavior among 1,855 respondents was conducted in 2018 (Center for Drug Monitoring and Development, 2021). The findings indicated that behaviors contributing to antibiotic resistance included self-purchased antibiotics, self-purchasing antibiotics prescribed by healthcare professionals after using up the initial prescription, stopping antibiotic use when symptoms improved without completing the prescribed course, and mimicking the antibiotic use of others. These factors have been found to be significant causes of antibiotic resistance (Phengsuphap & Saeng-Angsumali, 2018).

Currently, only a limited number of research studies in Thailand have addressed antibiotic use and health impacts resulting from antibiotic resistance. Therefore, the present researchers were interested in studying health and antibiotic literacy among working age people in Muak Lek District, Saraburi Province. This study aimed to investigate antibiotic usage behavior and assess the impacts of antibiotic resistance. Such research could contribute data for use by public health professionals and relevant agencies in planning and implementing future preventive strategies against antibiotic resistance.

Research Objectives

1. To study health literacy among working age people in Muak Lek Sub-district, Muak Lek District, Saraburi Province.

2. To study the antibiotic use behavior among working age people in Muak Lek Sub-district, Muak Lek District, Saraburi Province.

3. To study the relationship between health literacy and antibiotic use behavior among working age people in Muak Lek Sub-district, Muak Lek District, Saraburi Province.

Research Hypothesis

A high level of health literacy is associated with proper antibiotic use behavior among working age people in Muak Lek Sub-district, Muak Lek District, Saraburi Province.

Definition of Terms

1. *Health literacy* refers to intellectual and social skills that guide the motivation and ability of individuals to access, understand, and use information in a way that promotes and maintains their own health on an ongoing basis, according to Nutbeam's (2000) six dimensions.

2. *Correct antibiotic use behavior* refers to the appropriate use of antibiotics under the advice and supervision of a doctor or public health official according to the 5R principles: the right person, the right disease, the right amount, the right method, and the right time.

3. *Working age* refers to the population of residents aged between 15 and 59 years who live in Muak Lek Sub-district, Muak Lek District, Saraburi Province.

Research Conceptual Framework

An analytical cross-sectional approach was adopted in this study. The researchers applied Nutbeam's (2000) health literacy framework, consisting of six aspects, as a conceptual framework to study health literacy and antibiotic use behavior among working-age people in Muak Lek Sub-district, Muak Lek District, Saraburi Province, as illustrated in Figure 1.

Figure 1 *Conceptual Framework of the Research*

Independent Variables

Six Dimensions of Health Literacy

1. Access Skills

2. Cognitive Skills

3. Communication Skills

4. Decision-Making Skills

5. Self-Management Skills

6. Media Literacy Skills

Dependent Variable

Antibiotic Use Behavior
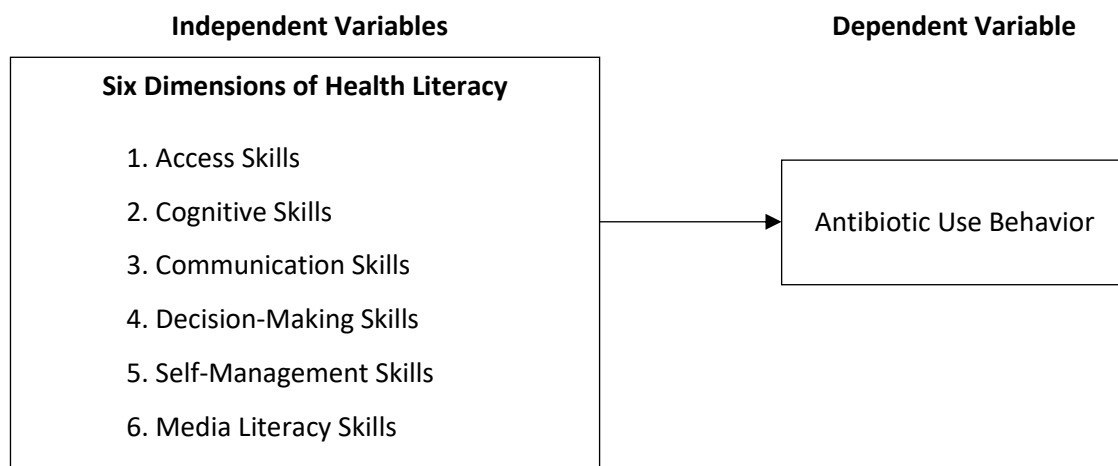
Population and Sample

The population used in this research was working age people aged 15–59 years who lived in Muak Lek Sub-district, Muak Lek District, Saraburi Province, totaling 4,164 people.

The sample chosen consisted of 352 working-age people aged 15–59 years in Muak Lek Sub-district, Muak Lek District, Saraburi Province. The sample size was calculated using the ready-made table of Krejcie and Morgan (1970), and a Multi-Stage sampling method was used as follows:

1. Proportional stratified sampling was used, consisting of three sub-district health promotion hospitals: Hin Lap Sub-district Health Promotion Hospital, Lang Khao Sub-district Health Promotion Hospital, and Sao Noi Sub-district Health Promotion Hospital, which served populations of 1,128, 901, and 2,135 individuals, respectively.

2. Convenience sampling was used for each of these groups. The number of samples in the areas served by the three health promoting hospitals in Hin Lap Subdistrict, Lang Khao Subdistrict, and Sao Noi Subdistrict totaled 96, 76, and 180 people, respectively.

The number of samples collected from the subdistrict health promotion hospitals in Muak Lek Sub-district, Muak Lek District, Saraburi Province is presented in Table 1.

Table 1 *Working age Population and Samples Size Classified by Locations* (N = 4,164, n = 352)

Level	District	Institution	Population	Sample Size
1		Hin Lap Subdistrict Health Promoting Hospital	1,128	96
2	Muak Lek	Lang Khao Subdistrict Health Promoting Hospital	901	76
3		Sao Noi Subdistrict Health Promoting Hospital	2,135	180
		Total	**4,164**	**352**

The inclusion criteria characteristics for the sample in this research study were as follows:

1. People aged 15–59 years who had lived in the area for at least 6 months.

2. People who had experience using antibiotics.

3. People who were mentally alert, could communicate in Thai, and were willing to participate in the research study.

Research Instrument

A self-developed research instrument was used, and it was pilot tested on a sample of 30 individuals. This self-administered questionnaire assessed health literacy and antibiotic use behavior among working age individuals in Muak Lek Sub-district, Muak Lek District, Saraburi Province. The questionnaire consisted of three sections as follows:

Part 1: Personal information, consisting of nine multiple-choice questions, including gender, age, marital status, education level, occupation, experience of using antibiotics in the past 6 months, history of drug allergy, number of times receiving advice on antibiotic use, and the sources used for seeking knowledge.

Part 2: Health literacy questions, consisting of 35 items, were developed by the researchers by applying Nutbeam's health literacy concepts (2000) and concepts from the literature review. The six dimensions included: (a) access skills: 5 items, (b) cognitive skills: 6 items, (c) communication skills: 6 items, (d) decision-making skills: 6 items, (e) self-management skills: 6 items, and (f) media literacy skills: 6 items. The questionnaire items utilized a 5-level Likert scale as follows: 5 = *the most*, 4 = *a lot*, 3 = *moderate*, 2 = *a little*, and 1 = *the least*.

Results Interpretation: Overall health literacy was divided into three levels according to Bloom's (1968) criteria as follows:

1. A score range of 140–175 points meant High Health Literacy.

2. A score range of 105–139 points meant Moderate Health Literacy.

3. A score range of ≤ 104 points meant Low Health Literacy.

Interpretation of each item: Health literacy had six dimensions: Dimension 1 had 5 items, and Dimensions 2–6 had 6 items each. The scores for each dimension were divided into three levels according to Bloom's (1968) criteria as follows:

For Dimension 1:
- A score range of 20–25 points meant High Health Literacy.
- A score range of 15–19 points meant Moderate Health Literacy.
- A score range of ≤ 16 points meant Low Health Literacy.

For Dimensions 2-6:
- A score range of 24–30 points meant High Health Literacy.
- A score range of 18–23 points meant Moderate Health Literacy.
- A score range of ≤ 17 points indicated Low Health Literacy.

Part 3: Antibiotic use behavior questions: The researchers developed 15 items based on the literature review. The questions were answered using a 4-level Likert scale as follows: 4 = *always*, 3 = *often*, 2 = *rarely*, and 1 = *never*.

Interpretation: The antibiotic use behavior level was divided into 3 levels according to the criteria of Bloom (1971) as follows:

- A score range of 48–60 points meant Good Antibiotic Use Behavior.
- A score range of 36–47 points meant Moderate Antibiotic Use Behavior.
- A score range of ≤ 35 points meant Poor Antibiotic Use Behavior.

Validity of the Instrument

The content validity was checked by three experts. The item-objective congruence (IOC) index needed to be between .60 and 1.00. The reliability was tested with 30 respondents having similar characteristics. The Cronbach's Alpha Coefficient was calculated; a score of .98 was obtained for the health literacy questions, and .92 for the antibiotic use behavior questions.

Respondent Protection and Data Collection Procedure

This research study was approved by the Human Research Ethics Review Committee of Asia-Pacific International University, number AIU.RO. 08/2022. Data was collected using a convenience sampling method, with village health volunteers (VHVs) serving as data collectors. The researchers provided explanations and instructions regarding the questionnaire to ensure understanding. Subsequently, the VHVs collected data from the participants, who signed informed consent forms as part of the research process. Participants retained the right to withdraw from the study at any time with no negative consequences, and all collected data were kept confidential, with the source of the information anonymized. The findings are presented in aggregate form only, and utilized solely for educational and research purposes.

Research Results

The demographic profile of respondents in this study was recorded in nine main sections: gender, age, marital status, educational level, occupation, experiences in using antibiotics in the past 6 months, history of drug allergy, number of times receiving advice on antibiotic use, sources for and knowledge seeking. Frequency and percentage results are shown below in Table 2.

Table 2 *Demographic Profile of Respondents: Muak Lek Sub-district, Muak Lek District, Saraburi Province* (n = 352)

Personal Information	Number	Percentage
1. Gender		
Male	127	36.1
Female	225	63.9
2. Age (Years) ($\bar{x}$ = 39.6, *SD* = 12.9, Min = 15, Max = 67)		
15 – 28 years old	94	26.7
29 – 41 years old	86	24.4
42 – 54 years old	126	35.8
55 – 67 years old	46	13.1
3. Marital Status		
Single	121	34.4
Married	192	54.5
Widowed	22	6.3
Divorced	6	1.7
Separated	11	3.1
4. Educational Level		
Never been in school	11	3.1
Primary education	102	29.0
Secondary education	123	34.9
Vocational Certificate, Higher Vocational Certificate	74	21.0
Bachelor's degree	40	11.4
Higher than a Bachelor's degree	2	0.6
5. Occupation		
No occupation	62	17.6
Farmers	39	11.1
Trade/Personal business	78	22.2
Employee	155	44.0
Government service/state enterprise	18	5.1
6. Experience in using Antibiotics in the Past 6 Months		
1–2 times	233	66.2
3–4 times	86	24.4
5 times or more	33	9.4
7. History of Drug Allergy		
No allergy	323	91.8
Have had an allergy	29	8.2
8. Number of Times Receiving Advice on Antibiotic Use		
Never	58	16.5
1–2 times	171	48.6
3–4 times	75	21.3
5 times or more	48	13.6
7. Sources Used for Seeking Knowledge		
Line, Facebook, YouTube, etc.	249	70.7
Telephone	58	16.5
Radio	9	2.6
Newspapers/brochures/advertising sheets	36	10.2

The personal data indicated that a majority of respondents were female (63.9%), aged between 42–54 years (35.8%), married (54.5%), had obtained a secondary education (34.9%), were employed (44.0%), had used antibiotics within the past 6 months (66.2%), were not allergic to drugs (91.8%), had received advice on using antibiotics 1–2 times (48.6%), and sought knowledge about antibiotics through online media such as LINE, Facebook, YouTube, etc. (70.7%).

The levels of health literacy across all six domains are presented, including the means, standard deviations, and interpretation of health literacy levels for each item, and as an overall assessment; please see these findings in Table 3.

Table 3 *Health Literacy Levels Among Working Age Respondents* (n = 352)

Health Literacy	Mean	Standard Deviation	Health Literacy Level
Dimension 1 Access Skills	19.15	3.32	Moderate level
Dimension 2 Cognitive Skills	22.74	3.90	Moderate level
Dimension 3 Communication Skill	21.86	3.91	Moderate level
Dimension 4 Decision-Making Skills	22.47	3.72	Moderate level
Dimension 5 Self–Management Skills	22.56	3.79	Moderate level
Dimension 6 Media Literacy Skills	21.16	3.98	Moderate level
Overall Health Literacy	129.99	18.77	Moderate level

The overall level of health literacy was found to be at a moderate level (Mean = 129.99, *SD* = 18.77). When considering health literacy by individual dimension, it was found that the level of health literacy for each dimension was at a moderate level.

The level of proper antibiotic use behavior and interpretation of results are shown in Table 4.

Table 4 *Proper Antibiotic Usage Behavior of Respondents* (n = 352)

Behavior	Mean	Standard Deviation (*SD*)	Antibiotic Use Behavior Level
Correct Antibiotic Use Behavior	38.87	7.69	Moderate level

The study's findings showed that the level of proper antibiotic use behavior among working-age people in Muak Lek Sub-district, Muak Lek District, Saraburi Province was at a moderate level (Mean = 38.87, *SD* = 7.69).

The correlation results between health literacy and antibiotic use behavior are shown in Table 5.

Table 5 *Relationship between Overall Health Literacy and Proper Antibiotic Use Behavior* (n = 352)

Overall Health Literacy	Appropriate Antibiotic Use Behavior		
	r	*p*-value	Relationship Level
Overall Health Literacy	.268	< .001*	Weak relationship

Note. Weak = .00 to .30; Moderate = .31 to .70; Strong ≤ .71.

The study's results showed that health literacy had a positive but weak relationship with appropriate antibiotic use behavior (*r* = .268), which was statistically significant at the .001 level.

The relationship between health literacy and antibiotic use behavior is shown in Table 6.

Table 6 *Relationship between Health Literacy and Proper Antibiotic Use Behavior by Dimension* (n = 352)

Health Literacy	Appropriate Antibiotic Use Behavior		
	r	*p*-value	Relationship Level
Dimension 1 Access Skills	.086	.107	-
Dimension 2 Cognitive Skills	.213	< .001*	Weak relationship
Dimension 3 Communication Skills	.234	< .001*	Weak relationship
Dimension 4 Decision-Making Skills	.183	.001*	Weak relationship
Dimension 5 Self–Management Skills	.245	< .001*	Weak relationship
Dimension 6 Media Literacy Skills	.347	< .001*	Moderate relationship

Note. Weak = .00 to .30; Moderate = .31 to .70; Strong ≤ .71.

The relationships between health literacy and appropriate antibiotic use behavior of working age people in Muak Lek Sub-district, Muak Lek District, Saraburi Province by dimension showed that Cognitive Skills, Communication Skills, and Self-Management Skills were positively but weakly related to proper antibiotic use behavior (*r* = .213, .234, and .245), significant at the .001 level. Media Literacy Skills was the dimension with the highest score (*r* = .347), revealing a moderate relationship to antibiotic use behavior. Decision-making skills were positively but very weakly related to proper antibiotic use behavior (*r* = .183) at the .01 level. Access to health information and health services skills (Access Skills) was very weakly related to proper antibiotic use behavior (*r* = .086) at a level that was not statistically significant (.107).

Discussion

The findings obtained revealed that respondents' overall health literacy was at a moderate level (Mean = 129.99, *SD* = 18.77). When considering each dimension of health literacy separately, it was found that the level of health literacy for all dimensions was also at a moderate level. The level of proper antibiotic use behavior was also at a moderate level (Mean = 38.87, *SD* = 7.69). These results were consistent with the findings of Koonlawong (2021), who studied knowledge about antibiotics and the self-care behavior of individuals with upper respiratory tract infections, acute diarrhea, open wounds from accidents, and self-care behavior when a patient was sick at Thung Fon Hospital. It was found that the sampled group had a moderate level of overall health literacy knowledge (Mean = 7.77, *SD* = 2.87) and a moderate level of proper overall antibiotic use behavior (Mean = 27.4, *SD* = 3.54). These findings were also consistent with the study of Yilmaz and Kil (2018), who studied individuals' health literacy levels and their knowledge and practices with respect to rational drug use. It was found that participants had a moderate level of health literacy, and there was a negative but significant relationship between age and health literacy scores.

The relationship between health literacy and proper antibiotic use behavior showed a positive but weak relationship (*r* = .268) that was statistically significant at the .001 level. Cognitive, communication, and self-management skills also had weak positive relationships with proper antibiotic use behavior (*r* =.213, .234, and .245), respectively. The relationship between media literacy scores and proper antibiotic use was slightly stronger (*r* = .347). Decision-making skills were positively related to proper antibiotic use behavior at a low level (*r* = .183), which was consistent with the study of Nunkong (2023) who studied the relationship between rational drug use literacy and drug use behavior among people in Kantang District, Trang. Her findings showed a low but positive correlation between the understanding of labeled drugs and drug packets with drug use behavior that was statistically significant at the .01 level (*r* = .428 and *r* = .424). For rational drug use literacy, awareness of advertising media and the choice to purchase and use drugs was very weakly, but positively correlated with proper drug use behavior at the .01 and .05 levels, respectively (*r* = .180 and *r* = .106). These results were also consistent with the study of Nopasert et al. (2022), who studied health literacy and health behavior of the 45–59 year-old working age group in Phayuha Khiri District, Nakhon Sawan Province.

This analysis of the relationship between health literacy and appropriate health behavior levels indicated weak to moderate statistically significant correlations (*r* = .183 to .347, *p* < .001). These results were consistent with Elkhadry and Tahoon's (2024) cross-sectional study of health literacy and its association with proper antibiotic use and knowledge of antibiotics among the Egyptian population, which showed inadequate levels of health literacy. A strong positive link was found between scores of antibiotic knowledge and health literacy (*r* = .876; *p* = .001)

Conclusion

From this study of health literacy and proper antibiotic use behavior among the working age group in Muak Lek Sub-district, Muak Lek District, Saraburi Province, it was found that the sampled respondents possessed moderate levels of health literacy and appropriate antibiotic use behavior. Furthermore, a positive correlation was found between health literacy and proper antibiotic use

behavior, both of which were still at a weak to moderate level. Additional studies have demonstrated that enhancing health literacy can be an effective strategy for improving proper antibiotic use behavior among working age individuals. Therefore, it is imperative to promote health literacy, thus mitigating the risks associated with inappropriate antibiotic use.

Suggestions for Applying Research Results and for Future Research
    1. This research data could be used as a basis for studying health literacy about other drug groups and other drug use behaviors.
    2. Research and development of innovative ways to enhance health literacy, change health behaviors, determine strategies, and design development guidelines to promote health literacy regarding proper antibiotic use should be conducted so that working aged people can use antibiotics effectively, efficiently, and with the highest safety.
    3. Further studies should be conducted on health literacy and proper antibiotic use behavior in other population groups, such as the elderly.

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The Influence of Perceived Entrepreneurial Self-Efficacy on Entrepreneurial Intentions: A Case Study of College Students in Guangxi, China

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Abstract

In Guangxi, China, the proportion of college students who start their own businesses is very low, so this study investigated the relationships between their perceived entrepreneurial self-efficacy and entrepreneurial intentions. Four dimensions of entrepreneurial self-efficacy were examined, namely, opportunity identification, innovation and change, risk tolerance, and relationship coordination. A survey was distributed to students at 15 universities in Guangxi from the sophomore year to the graduate level, and 2,131 valid responses were received. The results showed positive and significant ($p < .01$) relationships involving students' entrepreneurial intentions linked to self-efficacy, namely, opportunity identification efficacy, risk tolerance efficacy, and relationship coordination efficacy, with adjusted R^2 of .299, .404, and .318 respectively. Studying the factors that influence students' entrepreneurial intentions may provide theoretical support for optimizing entrepreneurial policies, creating entrepreneurial environments, and reforming entrepreneurial education.

Keywords: *Self-efficacy, entrepreneurial intentions, college students, Guangxi, China*

Introduction

College students' entrepreneurial ventures not only stimulate the economy, but also promote employment and increase tax revenue. For these reasons, many countries have introduced various policies to encourage college students to start new businesses. Research shows that college students' entrepreneurial undertakings have a higher success rate than those of entrepreneurs with lower educations (Liu, 2023). In recent years with the expansion of colleges and universities, the gross enrolment rate at Chinese universities has been close to 60%. Since 2014, enhancing the entrepreneurial ability and entrepreneurial intentions of college students has become a national policy directive.

According to the 2023 China College Student Employment Report (2024), also known as the Blue Book of Employment released by the McKinsey Research Institute, the proportion of college students in the Class of 2023 who started their own businesses was 2.5%, 0.2% higher than that of the Class of 2022 (2.3%), and 0.3% higher than that of the Class of 2021 (2.2%). The proportion of freshmen college students who started their own businesses was 2.1%, 0.3% higher than that of the previous class (1.8%). The proportion of senior college students who started their own businesses was 2.7%, 0.2% points higher than that of the previous class (2.5%). However, the gap between these figures and those in developed countries (around 10%) is still very large. Particularly serious is the fact that the proportion of entrepreneurship among college students in Guangxi is only about 1.5%, which is lower than the national average (2023 China College Student Employment Report, 2024).

To improve entrepreneurial activities among college students, their entrepreneurial intentions need to improve first, and entrepreneurial self-efficacy is one of the important factors affecting entrepreneurial intentions. A better understanding of how entrepreneurial self-efficacy influences college students' entrepreneurial intentions, along with entrepreneurial self-efficacy mechanisms, may help the government to optimize entrepreneurial policies, create an entrepreneurial environment, and reform entrepreneurial education.

Literature Review

Self-efficacy was first proposed by Bandura, a famous American psychologist, in 1977 (Bandura & Adams, 1977; Bird, 1988). "Self-efficacy is the degree of confidence an individual has in his or her

ability to use the skills he or she possesses to accomplish a certain work behavior." Self-efficacy stresses an individual's subjective awareness of behavior, and it has been proved to be effective in predicting the implementation of certain behaviors in many fields. Entrepreneurial self-efficacy has evolved from self-efficacy, which Boyd and Vozikis (1994) introduced into the study of entrepreneurial intentions; entrepreneurial self-efficacy is defined as "the strength of an individual's belief that he or she can succeed in a variety of entrepreneurial roles and accomplish various entrepreneurial tasks." Through empirical research, Chen et al. (2022) concluded that the relationship between entrepreneurial self-efficacy and entrepreneurial intentions can be accurately observed in risky and uncertain scenarios, which are suitable settings for entrepreneurship research.

Li (2022) argued that entrepreneurial self-efficacy is a multidimensional variable and, although there are different criteria for dividing it, there are actually two main perspectives. One perspective is based on the *content of entrepreneurial activities*, and the other is based on the *required entrepreneurial qualities and abilities*. As the entrepreneurial environment and the complexity of entrepreneurial processes themselves continue to change, the content of entrepreneurial activities and entrepreneurial competence requirements also change. So the dimensions of entrepreneurial self-efficacy therefore also continue to change. Luthans (2002) viewed the dimensions of entrepreneurial self-efficacy as follows:

(a) opportunity identification efficacy,
(b) innovation and change efficacy,
(c) risk tolerance efficacy, and
(d) relationship coordination efficacy.

Among these dimensions, opportunity identification efficacy refers to an entrepreneur's confidence in his or her ability to identify business opportunities and to provide products and services. Innovation efficacy refers to the entrepreneur's confidence in his or her ability to innovate and develop products, while risk tolerance efficacy refers to the belief that he or she can continue to complete entrepreneurial activities efficiently and effectively in uncertain environments. Finally, relational coordination efficacy refers to the entrepreneur's confidence in his or her interpersonal relationships during the entrepreneurial processes.

In terms of the opportunity identification dimension, previous studies have shown that college students with higher opportunity recognition ability are more likely to discover potential business opportunities, and thus to generate entrepreneurial intentions (Ma, 2013). Sun and Zhang (2014) emphasized the keen insight of entrepreneurs in spotting market opportunities. Among college students, those who are sensitive to market dynamics and able to quickly identify opportunities often exhibit higher levels of entrepreneurial self-efficacy. They believe that they have the ability to discover and seize valuable business opportunities, thereby driving the formation of entrepreneurial intentions.

Zhang (2022) found that if college students have a high sense of self-efficacy in innovation and change, they are more likely to challenge traditional concepts and introduce new business models, products, and services. This innovative spirit can stimulate their entrepreneurial enthusiasm, embolden them to try new entrepreneurial projects, and thus enhance their entrepreneurial intentions. The theory of risk, uncertainty, and profit emphasizes the entrepreneur's ability to bear risks. College students inevitably face various risks in the process of entrepreneurship, and those with higher risk tolerance and self-efficacy are more willing to bear the consequences of uncertainty, and bravely take the steps leading to entrepreneurship. They believe that they have the ability to cope with risks, thereby enhancing their entrepreneurial intentions.

When it comes to the mechanism of self-efficacy in the formation of individual entrepreneurial intentions, Thompson (2009) posited that opportunity perception can also affect an individual's cognition and assessment of their own entrepreneurial abilities, thereby influencing the generation of entrepreneurial intentions.

Zhang (2022) and Sun and Zhang (2014) explored the interrelationships between entrepreneurial

opportunity recognition ability, risk tolerance ability, and entrepreneurial intentions in relation to self-efficacy. They also examined how differences in cultural backgrounds or international environments may affect self-efficacy, and they found that these differences exerted a considerable impact on entrepreneurial intentions.

Based on the reasoning above, in this study entrepreneurial self-efficacy was adopted as the independent variable and entrepreneurial intentions as its dependent variable. The purpose of the investigation was to explore how self-efficacy affects the entrepreneurial awareness of Guangxi college students and what dimensions influenced entrepreneurial intentions, and what were the reasons for these effects? An additional aim of the research was to reveal the relationship between students' entrepreneurial self-efficacy and their entrepreneurial intentions in Guangxi, an economically underdeveloped and ethnic minority region in China. It may also provide a theoretical basis for further exploring effective ways to enhance college students' entrepreneurial self-efficacy and entrepreneurial intentions in the future.

Based on the above-mentioned concepts, combined with the research objective of studying the entrepreneurial intentions of college students in Guangxi universities, the following research model was constructed and four hypotheses were proposed.

Figure 1 *Research Model*
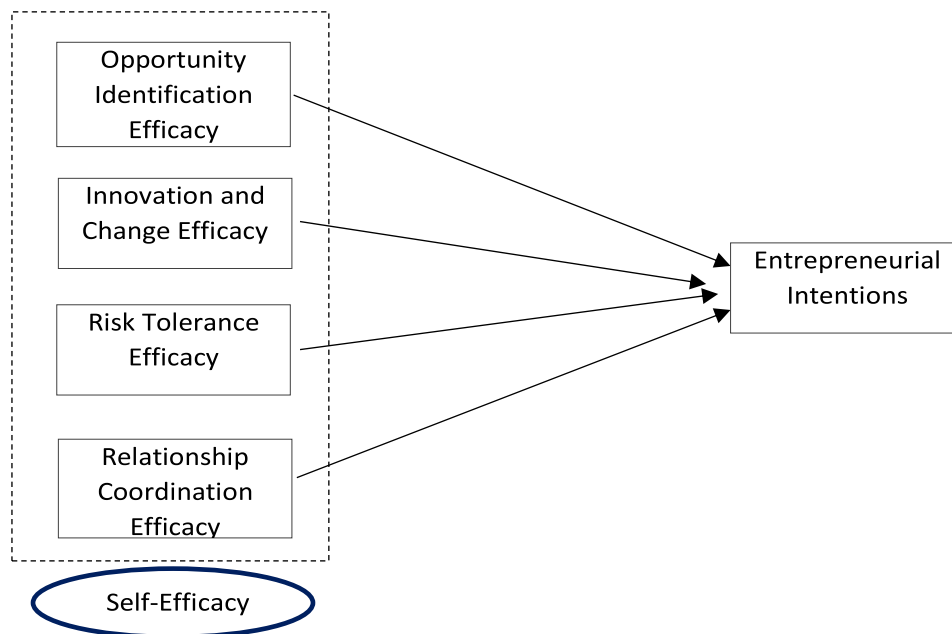
H_1: Opportunity identification efficacy has a significant positive effect on entrepreneurial intentions of college students.

H_2: Innovative change efficacy has a significant positive effect on entrepreneurial intentions of college students.

H_3: Risk tolerance efficacy has a significant positive effect on entrepreneurial intentions of college students.

H_4: Relationship coordination efficacy has a significant positive effect on entrepreneurial intentions of college students.

Methodology

Survey Instrument

The psychological capital measurement theory of Luthans et al. (2010) was used to divide entrepreneurial self-efficacy into the four previously mentioned dimensions, namely, opportunity identification efficacy, innovation and change efficacy, risk tolerance efficacy, and relationship coordination efficacy. A set of four questions was prepared for each dimension, for a total of 16

questions. For students' entrepreneurial intentions, questions were drafted in terms of entrepreneurial motivation, entrepreneurial attitudes, and subjective perceptions, for a total of four questions. All 20 measurement questions in the main part of the questionnaire were scored using a Likert 5-point scale, from 1 to 5 (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Average*, 4 = *Agree*, and 5 = *Strongly Agree*). The survey also included five questions about respondents' basic demographic information.

Reliability Testing

When testing survey items, a Cronbach's alpha coefficient greater than 0.70 is generally considered an acceptable level of reliability. Table 1 shows the Cronbach's alpha coefficient scores for each self-efficacy dimension and for entrepreneurial intentions.

Table 1 *Reliability Analysis of Survey Instrument* (n = 2,131)

Variable	Cronbach's alpha
Entrepreneurial Intentions	.869
Opportunity Identification Efficacy	.754
Innovation and Change Efficacy	.713
Risk Tolerance Efficacy	.727
Relationship Coordination Efficacy	.704

The Cronbach's alpha score for Entrepreneurial Intentions was .869, indicating a very high level of internal consistency and reliability for measuring this variable (Chen, 2022). The coefficient for Opportunity Identification Efficacy was .754, reflecting a good level of reliability, and showing that the indicators for assessing this dimension were stable and consistent. For Innovation and Change Efficacy, the score was .713, indicating a certain degree of reliability. The Cronbach's alpha coefficient for Risk Tolerance efficacy was .727, implying that the measure had internal consistency and reliably reflected this dimension. For Relationship Coordination Efficacy, the Cronbach's alpha coefficient of .704 was also within the acceptable range of reliability.

Validity Check

Usually, a Kaiser–Meyer–Olkin (KMO) value greater than .70 means that the data suitable for factor analysis. As can be seen in Table 2, the KMO value for this study's data was .745, indicating that the sampling of the data was relatively good.

Table 2 *Kaiser –Meyer–Olkin and Bartlett's Tests*

KMO Value		0.745
Bartlett Sphericity Check	Approximate Chi-square	2198.245
	df	2127
	p-value	0.000**

Note. ** $p < .01$.

The result of Bartlett's test of sphericity are shown in Table 2; the level of significance was high (*p*-value = .000). This implied that there was a significant correlation between the variables, and so the original hypothesis that the variables were independent of each other should be rejected, thus supporting factor analysis.

Data Collection

The respondents were undergraduate students in their sophomore year or higher, including graduate students, who were enrolled at 15 universities in Guangxi, China. Data was collected using a web-based questionnaire (Questionstar). Respondents who were willing to respond to the survey constituted an anonymous convenience sample. A total of 3,051 questionnaires were received, and

after eliminating those that were invalid, a total of 2,131 questionnaires were usable.

Research Results

A total of 2,131 respondents' responses were included in this study. Demographic information about the group is shown in Table 3.

Table 3 *Respondents Demographic Statistics* (n = 2,131)

Project	Category	Number	Percent
Gender	Male	814	38.2
	Female	1,317	61.8
Class Level	Sophomore Students	388	18.2
	Junior Students	471	22.1
	Senior Students	848	39.8
	Graduate Students	424	19.9
Field of Study	Economics and Management	961	45.1
	Non-Economics and Management	1,170	54.9
Total	--	**2,131**	**100**

In terms of gender, females accounted for 61.8% of the respondents. Regarding class level, senior students constituted the largest group, reaching 39.8%. Concerning the field of study, slightly less than half were majoring in Economics and Management 45.1%, while those in Non-economics and Management majors accounted for 54.9%.

Table 4 below shows that the overall mean value of entrepreneurial intentions was 2.062, which was at a medium level.

Table 4 *Mean Values of Self-Efficacy Dimensions by Demographic Variable* (n = 2,131)

Variable / Average Value	Entrepreneurial Intention Efficacy	Opportunity Identification Efficacy	Innovation and Change Efficacy	Risk Tolerance Efficacy	Relationship Coordination Efficacy
Overall	2.062	2.142	2.021	1.834	2.031
Sophomore Students	1.752	1.821	1.945	1.714	1.753
Junior Students	1.942	2.103	2.024	1.984	1.945
Senior Students	2.212	2.241	2.139	2.023	2.210
Graduate Students	2.243	2.240	2.322	2.048	2.244
Male	2.126	2.211	2.214	1.988	2.122
Female	1.716	2.103	1.985	1.735	1.714
Economics and Management Majors	2.125	2.214	2.131	1.981	2.197
Non-Economic and Management Majors	2.003	2.048	1.987	1.731	1.878

From the perspective of class level, entrepreneurial intentions were lower for sophomores (1.752) and higher for seniors and graduate students (2.212 and 2.243, respectively), indicating that students' entrepreneurial intentions gradually increased in higher class levels. In terms of gender, male students (2.126) had higher scores than female students (1.716), indicating that their entrepreneurial intentions were relatively stronger. From the perspective of major, economics and management majors' scores (2.125) were slightly higher than those taking other majors (2.003), which may be

related to the curriculum and training that they were receiving.

An overall analysis reveals that for all four self-efficacy dimensions, the mean values of the indicators generally showed an upward trend as the class level rose, probably because students in higher class levels were richer in terms of knowledge and social experience. From the perspective of gender, the mean values of all indicators for male students were higher than those for female students, which may be related to gender traits and social expectations. As for field of study, the mean values of students in economics and management were higher than those of non-economic and management majors for all the indicators, which may be due to the differences in professional education and training modes.

Analysis of Variance (ANOVA)

The analysis of variance (ANOVA) results are presented in Table 5, and provide valuable insights that complement our understanding of the regression model.

Table 5 *Analysis of Variance (ANOVA)*

Model	Sum of Squares	df	Mean Square	F	Significance
Regression	90.458	4	89.222	342.201	0.000
Residual	52.887	2127	0.135		
Total	123.342	2131			

The *F* value was significant at the .000 level, indicating a highly significant relationship between the independent variables and the dependent variable. The remaining results suggest that the regression model explains a considerable amount of the variance in the data, and is a reliable predictor of outcomes.

Correlation Analysis

As may be seen in Table 6, the correlation coefficient between Opportunity Identification Efficacy and Entrepreneurial Intentions (Y) was .497, a significant positive correlation, suggesting that an increase in opportunity identification efficacy would likely lead to an increase in entrepreneurial intentions.

Table 6 *Pearson's Correlation Analysis*

Variable	Opportunity Identification Efficacy	Innovation and Change Efficacy	Risk Tolerance Efficacy	Relationship Coordination Efficacy	Entrepreneurial Intentions (Y)
Opportunity Identification Efficacy (X1)	1.00				
Innovation and Change Efficacy (X2)	.021**	1.00			
Risk Tolerance Efficacy (X3)	.005**	.004**	1.00		
Relationship Coordination Efficacy (X4)	.101**	.012**	.101**	1.00	
Entrepreneurial Intentions (Y)	.497**	.505**	.530**	.517**	1.00

*Note. * p < .05; ** p < .01*

The correlation coefficient for Innovative Change Efficacy was .505, which was also a significant positive correlation, indicating that increased innovation and change efficacy would have a positive impact on Entrepreneurial Intentions. The correlation coefficient between Risk Tolerance Efficacy and Entrepreneurial Intentions (Y) was .530, which implied that the higher the risk tolerance efficacy, the stronger the entrepreneurial intentions would be. The correlation coefficient for Relationship Coordination Efficacy and was .517, which also showed a significant positive effect on Entrepreneurial Intentions.

All the efficacy variables showed a significant positive correlation with Entrepreneurial Intentions (Y), with risk tolerance efficacy having the relatively strongest correlation. The correlations between the independent variables were all less than .20, or only weakly correlated.

Regression Analysis

The STATA17 software was used to conduct regression analysis on the relationship between the four dimensions of entrepreneurial self-efficacy and entrepreneurial intentions. Regression is based on correlation and examines specific relationships between independent variables and the dependent variable. Regression analysis is mainly assessed by significance values, and it is generally required that the probability of no relationship is less than .05, and the degree of fit is close to 1.00, which indicates a good fit. If the degree of fit is close to .00, this indicates a poor fit.

Table 7 shows that the B coefficient of Opportunity Identification Efficacy (X1) was .208, its $Beta$ was .345, the t-value was 4.231, and the p-value was less than .01, which indicated that Opportunity Identification Efficacy had a significant positive effect on Entrepreneurial Intentions. Since its Adjusted R^2 was .299, this indicates that the explanatory power of X1 on the dependent variable was 29.9%. This means that the higher the ability to identify entrepreneurial opportunities, the higher is the likelihood of forming entrepreneurial intentions, so H_1 was supported.

Table 7 *Relationship Between 4 Dimensions of Self-Efficacy and Entrepreneurial Intentions*

Independent Variable	Unstandardized Coefficient		Standardization Coefficient	t	Significance	VIF	R^2	Adjusted R^2	F
	B	Std. Error	$Beta$						
Opportunity Identification Efficacy (X1)	.208	.049	.345	4.231	.000**	1.589	.328	.299	*184.258*
Innovative Change Efficacy (X2)	.012	.056	.009	.214	.000**	3.124	.041	.035	*283.254*
Risk Tolerance Efficacy (X3)	.513	.041	.512	12.511	.000**	2.389	.404	.391	*158.415*
Relationship Coordination Efficacy (X4)	.134	.037	.311	3.622	.000**	1.589	.318	.302	286.148
Dependent Variable: Entrepreneurial Intentions (Y)					D-W Value: 1.857				

*Note. * $p < .05$; ** $p < .01$*

For Innovative Change Efficacy (X2), the p-value was less than .01 and the Adjusted R^2 was .035, indicating that the explanatory power of X2 on the dependent variable was only 3.5%. While H_2 was supported, Innovative Change Efficacy had a small effect on Entrepreneurial Intentions.

For Risk Tolerance Efficacy (X3), the p-value was less than .01, which showed a very significant and strong effect on Entrepreneurial Intentions. The Adjusted R^2 was .391, indicating that the explanatory power of X3 on the dependent variable was 39.1%, This means that the stronger one's sense of Risk Tolerance Efficacy, the more likely one will hold Entrepreneurial Intentions, so this hypothesis was supported.

For Relationship Coordination Efficacy (X4), the p value was less than .01, implying that Relationship Coordination Efficacy also was positively and significantly correlated with Entrepreneurial

Intentions. The Adjusted R^2 was .302, indicating that X4's explanatory power on the dependent variable was 30.2%. This indicated that individuals with a high level of self-efficacy in coordinating various relationships were more likely to develop an intention to start a business, so this hypothesis was also supported.

In summary, Risk Tolerance Efficacy appeared to be the most prominent dimension in explaining entrepreneurial intentions, followed by Relationship Coordination Efficacy and Opportunity Identification Efficacy, while Innovative Change Efficacy had relatively weak explanatory power.

Based on the analysis of the above data, the model shown in Figure 2 can be derived, along with the following equation: y = 0.208X1 + 0.012X2 + 0.513X3 + 0.134X4 + ε

Figure 2 *Model of the Relationship Between Self-Efficacy Dimensions and Entrepreneurial Intentions*
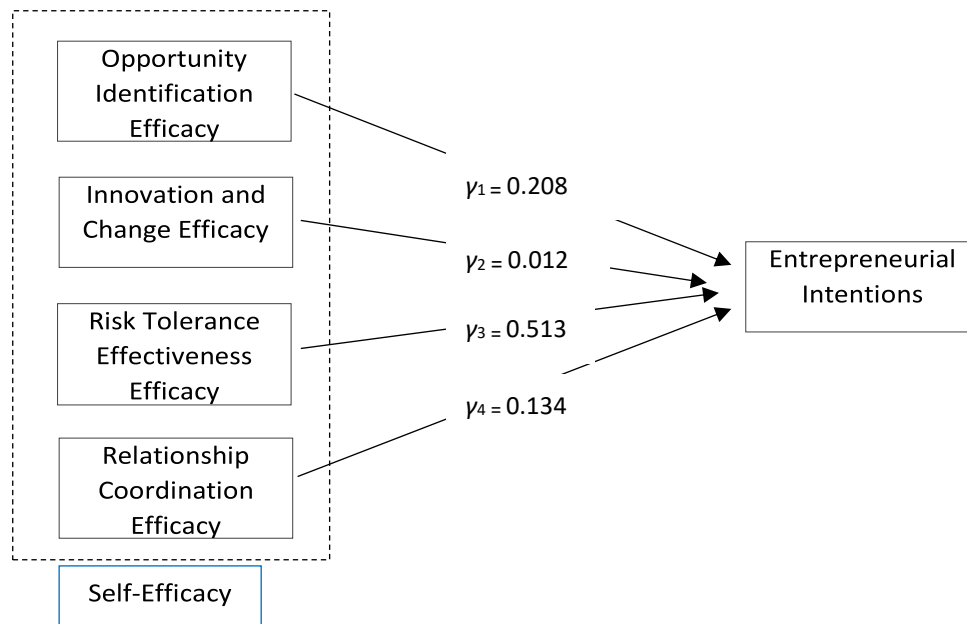
Discussion and Recommendations
Discussion

After empirical analysis, all four hypotheses proposed in this paper were supported, with Risk Tolerance Efficacy having the largest significant positive effect on students' Entrepreneurial Intentions. Opportunity Identification Efficacy and Relationship Coordination Efficacy also had significant positive effects on Entrepreneurial Intentions. These findings were similar to Boyd's (2021) results. Innovative and Change Efficacy also had a significant positive effect on entrepreneurial intentions, although the coefficient was lower and slightly different from Boyd's (2021) findings. This may be attributed to the following reasons: For many college students at the start-up stage, opportunity identification and risk tolerance may be the first challenges that they have to face, while innovative change may only become more important in later entrepreneurial development. It is also possible that college students are not sufficiently aware of and confident in their ability to innovate and change.

Recommendations

Based on an analysis of the empirical results, it is suggested that the guidance and nurturing of students should be strengthened in three areas–opportunity identification efficacy, risk tolerance efficacy, and relationship coordination efficacy.

Enhanced Opportunity Identification Efficacy: Attitudes and Abilities to Access and Use Information

It was found that entrepreneurial self-efficacy significantly affected the entrepreneurial intentions of college students studying in Guangxi universities. The stronger an entrepreneur's confidence and ability to identify opportunities the stronger their entrepreneurial intentions.

Opportunity identification, as the starting point of the entrepreneurial process, is the key link to stimulate entrepreneurial intentions. Without effective opportunity identification, entrepreneurial intentions and actual entrepreneurial behavior are difficult to achieve. Effective acquisition and use of information plays a fundamental role in this process. Only through comprehensive and accurate information collection and analysis can college students correctly identify and grasp market opportunities, and lay a solid foundation for entrepreneurial ventures.

Cultivating college students' sense of self-efficacy helps them to better identify entrepreneurial opportunities and enhances their information-processing ability, thus improving their entrepreneurial motivation and intentions. A proactive attitude towards information acquisition and effective information analysis can help college students improve their sensitivity and judgement of market opportunities. Through systematic education and practical training, college students can continuously enhance their ability to integrate and apply information.

Enhanced Risk Tolerance Effectiveness, Risk Perception, and Risk Management

The stronger an entrepreneur's belief in sustained and effective completion of entrepreneurial activities in an uncertain environment the stronger the entrepreneurial intentions. Risk is an unavoidable factor in the entrepreneurial process. Successful entrepreneurs must have the ability to identify, tolerate and effectively control risks. For college students in Guangxi, students with high risk tolerance efficacy were more inclined to start their own businesses, but the lack of adequate knowledge regarding entrepreneurial risk often leads to entrepreneurial failure.

Enhancing the development of risk-tolerance efficacy is crucial for college students' entrepreneurial ventures. Through simulated entrepreneurial environments and case analyses, such practice can help students to hone their risk identification and management skills. Such an educational approach would not only help students to be well-prepared during the early stages of entrepreneurship, but also to remain calm and rational when encountering risks during the entrepreneurship process, thus improving their success rate.

Enhanced Relationship Coordination Efficacy and Interpersonal Communication/Coordination Skills

The more confidence that entrepreneurs have in their interpersonal relationship skills during the entrepreneurial process the stronger their entrepreneurial intentions. Good interpersonal relationships are not only an important condition of entrepreneurial success and a prerequisite for kindling entrepreneurial intentions, but they are also an entrepreneurial resource in their own right, and have a direct impact on start-up performance.

Therefore, Guangxi colleges and universities should cultivate college students' interpersonal communication and coordination abilities. Firstly, they should offer relevant courses in interpersonal communication, management communication, and public relations to guide students to correctly understand relationship networks and resources.

Second, focusing on transforming theory and practice, colleges and universities should build multi-level practice platforms on- and off-campus through cooperation with business enterprises, and establish new mechanisms for collaborative education between colleges and enterprises, institutes, and places. For example, introducing dual tutor systems, bringing entrepreneurs into classrooms, and establishing one-on-one entrepreneurship help systems would allow students to obtain practical knowledge and experience in innovation and entrepreneurship. The interaction between teachers, enterprise tutors and students would also provide valuable learning opportunities. At the same time, colleges should focus on integrating innovation and entrepreneurship education to cultivate students' professional qualities and abilities. Students need guidance to combine their professional interests with their classes, to bring their projects into the classroom, to turn their assignments into work, and to turn their work into products.

Third, such approaches would strengthen cooperation between universities and government agencies, broaden the platform and channels for information exchange, and promote information

communication and sharing. Strengthening students' interpersonal communication and coordination skills and making use of effective interpersonal networks would enhance entrepreneurial confidence.

Limitations and Suggestions for Further Study

The research content of this paper was constrained by various factors such as limited manpower and information, and so the following shortcomings need to be improved in future studies:

1. The sample in this paper was limited to college students in a particular region, and so it was not broad or representative enough, which may limit the generalizability of these findings. Future research should expand the sample size to cover students from different regions and types of colleges and universities in order to improve the generalizability and representativeness of the findings.

2. This paper was a cross-sectional study, and so it cannot fully reveal the dynamic process of the impact of opportunity identification efficacy, innovation change efficacy, risk tolerance efficacy, and relationship coordination efficacy on entrepreneurial intentions. Future research could adopt a longitudinal design to track these relationships dynamically, in order to reveal changing trends and causal relationships.

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Perceptions of Change Management Among Filipino Leaders in Multinational Educational Institutions: A Multiple Case Study

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Abstract

Perceptions of change management strategies were explored among Filipino educational leaders working in multinational institutions in Thailand and the United Arab Emirates (UAE). The views of three leaders were examined through a multiple case study approach. A participant from Thailand emphasized resilience and strict adherence to policy within a challenging cultural context. Contrastingly, another Thailand participant spoke of the need for empathetic leadership and proactive acceptance of change, while the participant from the UAE viewed change management as a comprehensive framework necessitating leadership as its driving force. The findings revealed that while a leader may focus on maintaining consistency amid policy changes, leaders may also advocate for an adaptive and supportive environment. This research indicated the critical need for culturally sensitive leadership and adaptive strategies in managing change, offering new insights into the interplay between leadership styles and change management in diverse educational settings. Furthermore, the findings challenge existing theories by highlighting the success of varied approaches to change management in different cultural contexts. The importance of empathy and flexibility in effective leadership was also accentuated.

Keywords: *Change management, Filipino educational leadership, multinational institutions*

Introduction

Globalization has reshaped the modern world, influencing economies, cultures, and institutions on a global scale. It has created interconnected systems that transcend national borders, encouraging the flow of ideas, innovations, and talent across countries (Jin, 2023; Zalli, 2024). These rapid exchanges have not only impacted businesses and governments, but they have also transformed the educational sector. de Wit et al. (2017) contend that educational institutions, in particular, have become key players in this global landscape as they respond to the demands of internationalization by becoming multinational environments that reflect and engage with the complexities of a globalized society.

Literature (e.g., de Wit et al., 2017) indicates that multinational educational institutions could be characterized by their operations across multiple countries and their integration of diverse cultural perspectives within their frameworks. For example, institutions could have campuses, branches, or partnerships in more than one nation, or offer education through global online platforms (Altbach & Knight, 2007). Furthermore, these institutions have also engaged in extensive global collaboration, including partnerships with other educational entities, research projects, and exchange programs. They have also adapted their curricula and policies to align with international educational standards, accommodating their global stakeholders' diverse backgrounds and expectations (Lemana et al., 2024).

In addition to these characteristics, multinational educational institutions are distinguished by their diverse workforces, which encompass an eclectic range of nationalities and cultural backgrounds. Research (e.g., Alsharari, 2018; Lemana et al., 2024; Sipe et al., 2024) has indicated that this diversity among faculty and staff significantly enhances academic environments by integrating varied cultural perspectives and professional experiences. It can be opined that the presence of a heterogeneous team contributes to a more inclusive and enriching educational setting, where multiple viewpoints and pedagogical approaches are engaged actively. This view is supported by Gay (2015), who posited

that diversity not only supports an institution's mission to foster global competencies among students, but also facilitates the development of a culturally responsive curriculum.

As evidenced by multiple studies (e.g., Lemana, 2022; Sumalinog, 2022; Ulla, 2021; Uytico & Abadiano, 2020), Filipino educators hold a significant presence among the different nationalities represented in multinational educational settings. The experiences of these educators has been explored, documenting how they have perceived and adapted to the demands of working in these environments. Nevertheless, beyond such challenges, Rogayan's (2018) study has highlighted that Filipino educators are often valued for their strong work ethic, adaptability, and collaborative approach. Moreover, the recent study of Macapagong et al. (2023) conducted in the United States of America expounded on how Filipino teachers are known for their resilience and ability to adapt quickly to new cultural contexts, which enables them to integrate effectively into diverse educational settings. Additionally, the same research study emphasized that Filipino educators place importance on building strong interpersonal relationships and fostering a supportive work environment, which helps them navigate the complexities of working in a foreign country, such as the USA.

Previous studies have delineated how Filipino educators have encountered significant challenges in cross-cultural environments, including cultural differences, language barriers, and variations in educational philosophy. A study by Lemana (2022) revealed that Filipino teachers in the United Arab Emirates have often faced difficulties adapting to different cultural norms and practices, which can impact their effectiveness and job satisfaction. Language barriers further complicate their communication ability and engagement with students and colleagues (Macapagong et al., 2023; Ulla, 2021).

In spite of these challenges, Filipino educators have navigated their roles abroad through a combination of resilience and resourcefulness. Uytico and Abadiano (2020) found that Filipino educators employ various strategies to overcome these obstacles, such as seeking more professional development opportunities, building stronger support networks, and constantly adapting their teaching methods to fit the local context better. Modesto (2020) opined that Filipinos' ability to overcome challenges and thrive in diverse educational settings speaks to their significant contributions as global educators.

Despite extensive research on Filipino educators' experiences teaching abroad—including their adjustments, challenges, and coping mechanisms (Lemana, 2022; Sereni & Yanto, 2021; Sumalinog, 2022; Ulla, 2021; Uytico & Abadiano, 2020)—a gap in the literature remains regarding Filipino educational leaders who work in multinational contexts. One recent such study was that of Adams and Velarde (2021), who examined leadership in culturally diverse international schools in Malaysia, focusing on how leaders navigated this environment. This qualitative study identified key leadership styles, such as instructional and transformational leadership, using data from interviews, observations, and document analysis.

Nevertheless, a notable gap exists in understanding how change management is perceived by educational leaders operating in environments characterized by multiple nationalities and cultural diversity. As Robert and Maher (2015) have pointed out, perception shapes how leaders understand, interpret, and approach organizational situations that may encompass change management.

In the words of Phillips and Klein (2023, p. 1), "change management is …planning, developing, leading, evaluating, assessing, supporting, and sustaining a change implementation." Contextualized in educational parlance, change management refers to the methods and approaches used to guide educational institutions and organizations through periods of change, whether those changes are in response to internal developments, external pressures, or broader societal shifts (Tang, 2019). The importance of change management in the current state of multinational educational settings cannot be overstated. As educational institutions continually face new challenges—ranging from technological advancements to shifts in educational policies and global trends—effective change management has become crucial for maintaining organizational stability and ensuring the successful implementation of new initiatives (Cameron & Green, 2019; Tang, 2019). A study by Moşteanu (2024) emphasized the crucial role of leadership in guiding organizations through crises, as well as the

importance of collaborative efforts and continuous adaptation. She also advocated for ongoing monitoring and dynamic risk management to ensure that businesses remain stable and resilient, since adaptability plays a crucial role in ensuring organizational continuity and stability amidst constant change.

The multiple-case study approach used by Stake (2013) was adopted in the present study, in order to explore the perceptions of three Filipino educational leaders outside of the Philippines regarding change management. Pursuing this study is vital because educational leaders in such diverse environments have change management perceptions that are not adequately described by current research. The findings will contribute to the academic discourse on leadership and change management and have practical implications for educational institutions striving to navigate the complexities of internationalization and cultural diversity. Thus, the current study was pursued to address the following question: How do Filipino educational leaders abroad perceive change management in their roles within multinational educational institutions?

Methodology
Design
This study employed a qualitative research design focused on exploring and understanding the meanings that individuals or groups attribute to social or human problems (Creswell & Creswell, 2017). A multiple-case design approach was utilized. According to Stake (2013), a multiple-case study approach allows researchers to delve into a phenomenon and to uncover commonalities and differences among several cases.

Participants and Contexts
Participants were chosen through purposive voluntary sampling, a non-probability sampling technique where individuals self-select to participate in a study based on their interests and willingness (Murairwa, 2015). The main author posted a call for participants on various social media platforms, including LinkedIn, Facebook, Instagram, and X over the course of one month (i.e., June 2024). To qualify, prospective participants of any age or gender must meet the following eligibility criteria: Currently holds a leadership or management position in any educational institution (kindergarten, elementary, secondary, undergraduate, postgraduate) outside of the Philippines; has been in this position for at least one year; and willing to participate in a series of onsite or online interviews. After one month, three volunteers responded and were verified to be eligible participants.

Instrument
A researcher-constructed semi-structured interview guide was used to collect the data needed for the study, and this instrument was reviewed and validated by three external qualitative experts. The interview guide was structured into two parts: In the first part background information collected on the participants, including their educational and professional experiences, in order to provide context for their responses. The second part focused on exploring how Filipino educational leaders understood the concept of change management within their institutions. This section included questions to uncover their interpretations and views on what change management entails in a multinational context.

Data Collection
Individual in-depth interviews were conducted to collect data. The main author conducted face-to-face interviews with participants based in Thailand, while the participant from UAE was interviewed via the Google Meet platform. Each interview lasted between 45 to 60 minutes and was conducted in English. Additional correspondence was conducted as needed through Google Meet and email in order for the participants to clarify and elaborate on their responses in certain areas.

Ethical considerations were strictly adhered to in this study. Participants were provided with a consent form detailing the study's purpose, their rights as participants, and assurances of

confidentiality. They were told that their participation was voluntary and they could withdraw from the study at any time without adverse consequences. Moreover, to ensure the accuracy and credibility of the data, respondent validation was employed; after the interviews, transcripts were sent to participants for verification. This allowed them to review their responses and make any necessary corrections or additions.

Data Analysis

The data analysis was guided by Stake's (2013) multiple case study framework, which facilitated a thorough examination of both the unique aspects of individual cases and common themes that emerge across cases. A detailed within-case analysis was conducted initially for each participant. This step involved coding the interview transcripts, identifying significant statements, and organizing these statements into thematic categories relevant to the research question. By treating each case as a comprehensive entity, the study captured specific contexts of the participants to provide a deep understanding of their individual perspectives on change management. Following within-case analysis, cross-case analysis was performed to identify patterns and themes that emerged across all cases. This comparative analysis was instrumental in uncovering broader insights and commonalities that might not have been apparent when examining each case in isolation. This helped to surface thematic connections and divergences of how Filipino educational leaders perceive change management in cross-cultural settings.

Results and Discussion
Case A: Filipino Educational Leader in Thailand 1 (FilEdLTh1)
Background and Character

The first participant, referred to as FilEdLTh1, was a 50-year-old male from Iloilo, Philippines. He held a Bachelor of Arts in Theology and History, a Master's in Ministry (Intercultural Studies), and a Master's in School Management. He currently is enrolled in a doctoral program in Educational Governance, and he heads the English Language Department at a Thai university. He is responsible for overseeing the progress of students learning English as a foreign language (EFL) during their first and second years when English courses are mandatory. He cares for the needs and monitors the progress of about 3,000 students per semester and manages almost 50 multinational EFL lecturers within the department. His duties include curriculum oversight, faculty management, and ensuring the quality of language education within the department.

Change Management Perceptions

Theme 1: Adaptation to Organizational Culture. Participant FilEdLTh1 perceived change management in a foreign environment as a task dealing with organizational cultural differences. He noted that as a middle manager, he was not a decision-maker, but needed to adjust to the university management's goals and processes, which were influenced by local cultural norms. Hence, to him, cultural adaptation played a significant role in change management, driving him to align his actions with the specific cultural context of Thailand.

> Number one is in terms of culture, but that is one of the main things here because you are working in a foreign environment, where you are not actually the 'implementer' or the policy maker, but you are just a middle manager, that whatever is the goal and aspiration of the one that you are working with in terms of the culture, you have to adjust with it, the way they do things, the way they run things, so there are some cultural differences, that is number one.

Theme 2: Adjustment to Academic Standards and Practices. Participant FilEdLTh1 also described change management as a key to addressing differences in academic expectations and standards. He

compared the grading systems and academic achievements from his previous experiences with his current workplace, noting the need for adaptation in measuring academic success.

> Number two is in terms of academics because there might be similarities between doing. For example, previously, there were some students who were aiming for a Bachelor's Degree, and now, we still have students who are aiming for a Bachelor's Degree, but in terms of academic pursuit, there are differences.

To illustrate these differences in academic pursuit more concretely, FilEdLTh1 provided an example.

> We are used to having the concept that if you are an A1 student, basically, you get a score of 90, but here, you only get a score of 80, then you got an A1 student, you will be called an A1 student. So you see the difference between that one, in doing so, you have to adjust; passing is 75, here passing is 50.

He took the time to observe and understand the grading practices in the host country, including how academic performance is evaluated and categorized. Rather than resisting or imposing familiar standards, FilEdLTh1 adjusted his mindset to align with the host institution's criteria for academic excellence and passing thresholds.

Theme 3: Guidance of Cultural Values in Navigating Policy Shifts and Organizational Changes. Another prominent theme in his response was the challenge of dealing with sudden or unexpected policy changes. He discussed how policies, especially those related to promotion and compensation, could shift without prior notice, causing uncertainty for staff. He said,

> "There are differences and changes in policies. Sometimes, you will be surprised that new policies are coming up. Surprisingly, you don't know, it seems that they are after the teachers or whatever."

Further, he opined, "my cultural values emphasize fairness and equality, which guide me to uphold policies and ensure that everyone is treated impartially, regardless of any personal biases." For him, this commitment to fairness and adherence to established policies is central to effective change management practices, as it helps to create a structured and consistent environment for implementing change.

Theme 4: Inevitable Curriculum Transformation. Participant FilEdLTh1 described change management as being characterized as an openness to inevitable transformation of the curriculum, recognizing that educational systems must continually evolve in response to shifting societal, technological, and cultural demands. He recalled a moment when the university he worked for decided to overhaul its curriculum to incorporate more technology and digital tools, something that was long overdue, but also met with some resistance from faculty members.

> I remember when we were first introduced to the idea of integrating more technology into our teaching methods. But as a leader, I believed change was not only necessary, but it was also an opportunity to enhance our curriculum and better prepare students for the future. I had to embrace the idea that change is inevitable. I encouraged my colleagues to see it not as a threat but as a chance for growth…Students became more engaged, and the curriculum felt more relevant to their needs…being open to change and transformation was crucial for the sustainability of the institution and the success of our students.

Theme 5: Facing Teacher Resistance to Change. Another key theme was facing teacher resistance to change, which FilEdLTh1 attributed to factors such as comfort zones, differing teaching backgrounds, and personal teaching values. He noted that change management involves understanding that some teachers resisted changes in the curriculum and system due to reluctance to leave familiar practices, or an inability to quickly adapt to new methods.

The comfort zone of teachers is one of the factors of resistance in terms of change... some teachers are just comfortable implementing what they are used to... we come from different backgrounds and different perspectives, and we have our own teaching values and strategies.

Theme 6: Resilience and Responsibility. Participant FilEdLTh1 emphasized that his Filipino background contributed to his resilience and strong sense of responsibility. He felt that being Filipino had instilled in him a robust work ethic and the ability to handle challenging situations with perseverance. Despite facing skepticism or criticism, he believed that his cultural values of resilience and dedication enabled him to manage change effectively and lead with a sense of duty.

In terms of being a leader, it doesn't mean that it is by nationalities in my own perspective. It doesn't mean that we are Filipinos, then we are not capable of leading out. As I see, we are more resilient in terms of responsibilities in whatever context that we are brought into. What I told him is that I am in this position; because I am in this position, I have the responsibility that is given to me and mandated for me to do accordingly. So, whatever is given to me, I will do. Whatever I give to you, you need to follow.

These findings carry significant implications for the field of educational leadership, particularly within multinational contexts. This goes beyond superficial adjustments, requiring a profound engagement with and adaptation to local cultural norms and practices. Moreover, the findings highlight the necessity for skill in adapting to policy changes—an essential quality for leaders navigating the often unpredictable landscape of international education systems. The ability to adapt to policies in response to unforeseen changes is vital for maintaining organizational stability (Boylan, & Turner, 2017).

Furthermore, the study revealed the complexities of curriculum management and resistance, emphasizing the need for strategic approaches to managing both curriculum transformations and resistance from staff. The findings also aligned with contemporary literature on change management and educational leadership, which explains how one leader's view of change shapes directions for change management implementation (Cameron & Green, 2019; Phillips & Klein, 2023; Tang, 2019).

Case B: Filipino Educational Leader in Thailand 2 (FilEdLTh2)
Background and Character

The second participant, referred to as FilEdLTh2, was a 39-year-old Bisaya-Filipino from Zamboanga del Norte, Philippines, who identified as queer. He held a Bachelor of Arts in English, a Master of Arts in English Language Teaching, and a Doctor of Communication, and was currently pursuing a PhD in Language Education. For the past four years, FilEdLTh2 has been the head of research at a Thai university, managing the research publications and output of around 90 faculty members. His primary responsibility was ensuring that each faculty member publishes at least one research article. To support this, his office provided a range of research-related activities, including training sessions, workshops, conferences, webinars, and mentorship programs, offering comprehensive support for research publications.

Change Management Perceptions

Theme 1: Remaining Steadfast in One's Role. This participant perceived change management as the ability to remain steadfast in one's roles and responsibilities while adapting to shifts in institutional leadership and policies. He emphasized that change is constant and inevitable, and as a leader, one must be prepared to accept and navigate these changes while ensuring the continuity of their tasks. Furthermore, FilEdLTh2 believed that regardless of external changes, such as shifts in leadership, it is crucial to maintain a consistent focus on one's role and responsibilities. His perception of change management involves aligning personal duties with institutional goals, even amid transitions.

Change management for me has something to do with how you adapt with the changes in your institution or your organization. For instance, I am the head of research; I have to make sure that even if there is a change in leadership, whether it's the president or the dean of the school, my task remains the same. My task is to ensure that all the goals attributed to my position are achieved by the end of the year, regardless of who is in charge at the top.

Theme 2: Acceptance and Proactivity Toward Change. Participant FilEdLTh2 also viewed change management not as something to resist, but to accept and embrace. He emphasized the importance of fostering a positive mindset toward change, understanding that it is the only constant factor within an organization, and that leaders should support this process. He perceives change as an essential part of organizational growth and development. Instead of resisting it, FilEdLTh2 encourages proactive acceptance of change and believes in guiding his team through the transition.

Change management is something we should not resist but instead accept, because change is the only thing in the world that is constant. It's important for leaders to help their teams see this, to help them understand that change is part of the process, and it's not something to be afraid of. We must accept it and adapt quickly so that we can keep moving forward and achieving our goals, even if the environment around us is shifting.

Theme 3: Empathetic Leadership and Cultural Understanding. Respondant FilEdLTh2 attributed his effectiveness in change management to his empathetic approach and cultural understanding. He believes that his ability to sympathize with and understand the challenges faced by his faculty members is enhanced by his Filipino background, which values empathy and support. This empathetic leadership style, rooted in his cultural upbringing, helped him connect with his team and address their needs effectively.

I am an emphatic leader, I am able to sympathize and I understand, because this is my culture. Because this is how we were raised back in the Philippines. We should be able to learn to feel what the people are also feeling, we have to understand them and I think these are the things, the qualities that I also have and that makes me a good leader for my faculty members.

When asked if he had ever faced discrimination as a Filipino educational leader in Thailand, FilEdLTh2 responded unequivocally, "I have never." He further explained, "I think it's not about me being a Filipino, I don't believe there is an issue there." He emphasized that his nationality had not hindered his effectiveness, asserting, "I think they follow me regardless of my nationality. I think I would also believe that if you are a leader, you should also be a model." This response highlighted FilEdLTh2's belief that his leadership qualities and actions, rather than his cultural identity, were the key factors in his positive reception and effectiveness in his role.

His perspective on change management highlights the importance of adaptability to institutional changes and maintaining focus on core duties despite external shifts. Studies have shown that adaptability has been considered crucial for ensuring continuity and stability within the organization amidst constant change (Moşteanu, 2024). Additionally, FilEdLTh2 viewed change as an inevitable and integral part of organizational growth, advocating for acceptance and proactivity toward change. This was aligned with contemporary views on change management that posit change as a catalyst for development rather than a disruptive force (Skarin & Nilsson, 2022). Likewise, the emphasis on empathy and support reflects a broader trend in leadership research that recognizes the importance of emotional intelligence and cultural sensitivity in managing diverse teams (Phillips & Klein, 2023).

This participant asserted that his nationality had not impeded his effectiveness challenges the notion that nationality (i.e., Filipino) alone determines leadership success. Instead, his experience suggests that leadership qualities, such as empathy and adaptability, are more influential in shaping leadership outcomes. These insights align with existing literature on change management and educational leadership, and provide a nuanced understanding that challenges traditional views on the role of cultural identity in leadership (Tang, 2019).

Background and Character

The third participant, FilEdLUAE, was a 31-year-old male Ilonggo-Filipino from Sultan Kudarat, Philippines. He held a Bachelor's degree in elementary education, as well as a Master's and a PhD in curriculum design, development, and supervision. He occupied three key roles at his school in the United Arab Emirates, which offers a British curriculum. First, as Head of the Primary School since 2020, he was responsible for implementing the curriculum and ensuring that it aligned with the British Curriculum. His duties included overseeing the curriculum's execution, ensuring that their multinational teachers adhered to the framework, and he has also addressed teacher and student behaviorial issues. Additionally, he collaborated closely with other school leaders for inspections. Since 2021, he served as the Head of Assessments, overseeing the implementation of assessment policies, and ensuring that teachers are properly guided and compliant. He also analyzed internal and external data, ensuring that teachers were informed about their own and their students' performance, subsequently informing their teaching practices. Lastly, he was the Head of School Activities, responsible for managing all school events and overseeing their planning and execution within the institution.

Change Management Perceptions

Theme 1: Change Management as a Comprehensive Framework. Participant FilEdLUAE conceptualized change management as an overarching guide for a manager's functions within institutional operations. He viewed change as an integrative process across various domains, including teaching, assessments, and administrative procedures, thereby ensuring coherence and alignment with organizational objectives. He said:

> "So, I think it's the process that describes the changes in implementation in the internal and external processes. So, anything that you do internally and externally are considered as change management."

Theme 2: Resistance as an Inherent Challenge in Change Implementation. Participant FilEdLUAE identified resistance as a pervasive challenge inherent in the process of change management. He acknowledged that resistance may manifest among different stakeholders, including teachers, staff, and administrators, and that resistance poses significant obstacles to the successful implementation of change initiatives. He said:

> "The challenges could be the resistance of the teachers, of the staff to changes... Some are open, some are not and this is also a challenge..."

When asked to provide specific examples of resistance, he described how the transition from paper-based to online assessments and the revision of the admission process faced considerable pushback from various stakeholders within the school. According to him, this resistance stemmed from concerns about the financial implications, data redundancy, and the reliability of the new methods.

> We used to have our paper-based assessment/admission assessment, and that changed to online... there's resistance because the school administration has to pay for the fees... which data will I be using; will it be the old data, will it be the admission data? Many people... are resistant to the changes because they think that this change will be difficult or will not be effective until proven.

Theme 3: Innovative Leadership as the Catalyst for Change. Participant FilEdLUAE perceived innovative leadership as the primary catalyst in driving and managing change within the institution. He emphasized that the introduction of innovations by leaders, particularly those who disrupted established practices, could be met with resistance. However, he also underscored the critical role of leadership in aligning change initiatives with the school's vision and ensuring their effective implementation.

There comes in a new principal, a new leader whom we are under with and then this leader introduces a new change... many people... are resistant to the changes because they think that this change will be difficult or will not be effective until proven.

Theme 4: Cultural Sensitivity and Respectful Engagement. This leader (FilEdLUAE) emphasized the importance of respect and cultural sensitivity in his leadership approach. As a Filipino leader working in a multicultural environment, he practiced cultural sensitivity by acknowledging and valuing the opinions of others, regardless of their background. This respectful engagement fosters an open and supportive environment for change, allowing for constructive discussions and feedback.

I think that being a Filipino, we always have to think about the pros and cons when making decisions and we always listen to the people… Respect. I respect their opinions and I respect their suggestions. That is why I always welcome people in my office, staffs in my office to have a discourse with me.

For him, cultural sensitivity helps in managing change by fostering an inclusive environment where diverse perspectives are valued and respected. When leaders practice cultural sensitivity, they create a space where individuals feel comfortable sharing their ideas and concerns, which is essential during periods of transition. By acknowledging and understanding the cultural differences within their teams, leaders can anticipate potential challenges, avoid misunderstandings, and adapt their communication and leadership styles accordingly.

Theme 5: Empathetic Leadership and Supportive Environment. Furthermore, FilEdLUAE's approach to change management was marked by empathy and support for his staff. He understood the difficulties associated with change and made efforts to empathize with the teachers' struggles. His open-door policy and willingness to engage in friendly discussions with staff created a supportive atmosphere where employees felt valued and heard.

I always tell the teachers that 'I know, I understand and I know your struggles because I was also once a teacher'…What happens is they follow, but they are welcome to come to the office and have a friendly conversation about what they think. As observed, this openness reduces resistance to change, as staff members are more engaged and feel that their opinions and concerns are acknowledged, making it easier for the organization to implement new strategies or processes.

In his view of change management as a guiding framework, he stressed the importance of a unified approach that aligns curriculum implementation, assessments, and administrative processes with the institution's broader goals towards promoting smooth transitions and effective change management. This perspective is aligned with Cameron and Green's (2019) argument that change management requires a holistic approach across all operational areas.

Participant FilEdLUAE identified resistance as a key challenge in the change management process, particularly during transitions such as shifting from paper-based to online assessments. This resistance, driven by concerns over financial costs and the reliability of new methods, underscores a common barrier to implementing change initiatives. This finding supported Warrick's (2023) emphasis on the necessity of addressing and managing resistance to achieve successful change implementation.

A critical implication of these results is the role of innovative leadership as a driver of change. Participant FilEdLUAE's experience indicates that effective leadership is crucial for aligning change initiatives with institutional goals and overcoming resistance, reinforcing Tang's (2019) view that leadership is central to managing change and ensuring successful execution of new strategies. A brief summary of similarities in the three cases is presented in Table 1.

Table 1 *Cross-Case Analysis: Similarities*

Theme	Case A	Case B	Case C
Adaptability to Change	Leaders must adapt to changing institutional contexts.	Adaptability to shifts in leadership and policies.	Change management as an overarching framework, requiring adaptability.
Role of Leadership	Leadership is crucial to guide change, align policies.	Leadership is viewed as a key driver of change.	Leadership is the primary catalyst for managing change.
Cultural Sensitivity	Essential for effective change management.	Empathetic leadership enhanced by cultural understanding.	Cultural sensitivity is critical in a multicultural environment.
Empathetic Leadership	Empathetic leadership facilitates effective change management.	Leadership effectiveness attributed to empathy and cultural understanding.	Demonstrated empathy and supportive leadership.

The analysis revealed a consistent emphasis on the importance of adaptability to change, the role of leadership, and cultural sensitivity across all the cases. All three leaders recognized that effective change management required flexibility in adapting to institutional changes, whether they pertained to leadership, policies, or operational frameworks. This agrees with literature findings that leaders need to be both strong and adaptable to navigate transitions and align with organizational goals (Boylan & Turner, 2017; Moşteanu, 2024). Additionally, cultural sensitivity and empathetic leadership are common threads, with all cases highlighting that understanding and respecting diverse cultural contexts enhances change management effectiveness. Mun et al. (2020, p. 1) even claimed that "teacher deficit views, inequitable identification of policies and practices, and differential access to resources to explain the dearth of traditionally underserved learners in gifted programs across the nation." Such deficits can be remedied by culturally relevant leadership. A brief summary of differences in the three cases is presented in Table 2.

Table 2 *Cross-Case Analysis: Differences*

Theme	Case A	Case B	Case C
Change Management Framework	Emphasis on cultural understanding and policy flexibility.	Change management viewed as dynamic and structured.	Change management seen as an overarching framework integrating various domains.
Resistance to Change	Not explicitly discussed.	Significant challenge, particularly with new assessment methods.	Resistance is recognized but is part of a broader framework.
Focus on Specific Areas	Focused on curriculum and policy alignment.	Focused on adapting to institutional changes, guiding teams through transitions.	Emphasized management of curriculum, assessments, and activities.
Personal Experience of Discrimination	Not applicable.	No discrimination reported, focus on leadership qualities.	Not explicitly addressed; focus is on empathy, cultural sensitivity.

The differences highlighted variations in how change management is perceived across cases. The Case A participant focused on the role of cultural understanding and flexibility in policy, without explicitly addressing resistance or the framework for managing change. Case Bs participant emphasized the dynamic nature of change and the structured approach to managing it, with a notable focus on the challenge of resistance, particularly in transitioning to new methods. In contrast, Case C participant viewed change management as a comprehensive framework that integrates various aspects of institutional operations, with a broader focus on managing curriculum, assessments, and activities.

The personal experience of discrimination was also notably absent in Case C, unlike in Case B, where it was explicitly addressed in terms of the leader's perception. This indicated that while personal experiences of discrimination or perceived barriers may impact some leaders, the focus in Case C was more on empathetic and culturally sensitive leadership practices rather than personal challenges. These differences highlight diverse perceptions of change management among educational leaders. While there is a shared emphasis on adaptability, leadership, and cultural sensitivity, the specific focus areas and experiences of resistance or discrimination vary, reflecting the unique contexts and challenges faced by each leader.

Conclusion

In this study, perceptions were explored regarding change management strategies among Filipino educational leaders in multinational contexts, specifically focusing on two cases in Thailand and one in the United Arab Emirates. These leaders consistently highlighted the importance of aligning their management practices with local cultural norms and values and they suggested that effective change management was deeply intertwined with understanding and respecting the cultural context. Another shared theme was the challenge of managing resistance to change. All leaders noted that resistance is an inherent aspect of implementing change, whether it stems from discomfort with new policies or changes in academic or assessment practices. In terms of differences, Participant FilEdLTh1 focused on resilience and policy adherence, while both participants in Thailand emphasized empathetic leadership and proactive change management, with the participant in the United Arab Emirates viewing change as a comprehensive framework driven by leadership.

These findings contribute to the broader discourse on change management in multinational educational institutions by demonstrating that while cultural adaptation and resistance management are universal challenges, the approaches to addressing them can vary significantly. The insights obtained in the study have practical implications for educational leadership, suggesting that leaders in multinational settings must develop a deep cultural understanding, embrace change proactively, and address resistance effectively. Future research could explore how these themes apply in other contexts, and further refine strategies for managing change in diverse educational environments.

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SUBMISSIONS
Unsolicited manuscripts are welcomed. Submissions must be in the form of completed articles; partially completed articles are not considered.
Articles published elsewhere will not be considered. Full manuscripts of abstracts published in any form will be considered, but editorial judgment will be exercised to accept or reject.
The journal's policy is not to reconsider an article that has been rejected by its referees. Papers that primarily feature negative results are also unlikely to be accepted, as are those which focus on promoting a concept by selectively choosing positive results.
Papers rejected by the editorial team are not open to reconsideration. Rejection may be based on a number of considerations including relevance, interest to readers, timeliness, adoption of a writing style that is considered offensive or partisan political, outside the space considerations stipulated by the journal, or failure to follow the specified guidelines.

Human Behavior, Development and Society (HBDS) Author Guidelines

Here are some general guidelines for preparing and submitting articles to *HBDS*.

1. Manuscripts for Submissions
1.1. Manuscripts should be no less than 8 and no more than 12 pages in length.
1.2. Manuscripts should be written in correct and standard academic English.
1.3. Manuscripts should be single-spaced.
1.4. Manuscripts should use Calibri font size 11.
1.5. Manuscripts should contain minimal formatting (bold and italics commands are acceptable).
1.6. Manuscripts should not contain editorial controls of any kind.
1.7. Manuscripts should also contain a 150-200 word abstract of the article. Provide at least three keywords, but do not exceed seven.

2. Suggested Referencing Format
2.1. In order to maintain a consistent look for *Human Behavior, Development and Society*, use of the American Psychological Association (APA) publication guidelines is mandatory. For details, please see the APA Publication Manual (7th edition).
2.2. *HBDS* follows the APA guidelines for endnotes (preferred), in-text citations and references.
2.3. Referencing Samples: Please refer to http://www.apastyle.org/ for questions about referencing, and serialization in the APA format.

3. Submissions Procedure
3.1. Manuscripts submitted to *HBDS* must not have been previously published elsewhere or under review for publication in other journals.
3.2. Manuscripts must adhere to the journal guidelines; failure to comply with these may result in the rejection of a submission.
3.3. Manuscripts must be submitted through the ThaiJo online submission system at https://so01.tci-thaijo.org/index.php/hbds; look for the HBDS web page.
3.4. Manuscripts should be submitted by no later than December 31 for the April issue, April 30 the August issue, and August 31 for the December issue. Nonetheless, even if a submission is received before the stated dates, and is accepted, the journal's Administrative Board reserves the right to decide on the publication date.

4. Review Process
4.1. Manuscripts will be checked for originality and prescreened by the editorial staff to see if their structure, content, and formatting complies with journal standards.
4.2. Manuscripts will undergo a double-blind review process conducted by at least 2 qualified independent peer reviewers who are external to authors' institutions, and knowledgeable in a relevant academic field. This process typically takes from 4–6 weeks, depending on peer reviewer response times.
4.3. Authors will be informed of reviewers' comments as soon as they are available.
4.4. Authors will be given up to 1 month to revise their papers (should that be necessary) and should return the revised version by the 1st of February/June/October (or earlier).

5. Numbers in APA Style
5.1 In general, round decimals to two places with the exception of p-values (three decimal places is the limit—$p < .01$ or $.001$). Percentages are expressed as whole numbers or to one decimal place.
5.2 Rounding rules: If the final number is 5 or more, add one to the last decimal place to be kept (1.565 becomes 1.57). If the number is less than 5, write the number with the required decimal places (2.344 becomes 2.34).
5.3 When a statistical expression cannot exceed the value of 1, then the number reported is NOT preceded by a zero (e.g., with p-values—$p < .01$, also applies to correlations, Cronbach's alpha).
5.4 Large numbers—use commas between groups of three digits in most figures of 1,000 or more.

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