

**Grammatical Accuracy and Syntactic Complexity
as Indicators of Proficiency in Second Language
Academic Writing**

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ABSTRACT

This study examined the interaction between grammatical accuracy and syntactic complexity in the academic writing of 41 second-language (L2) students taking a Purposive Communication course. The analysis was grounded in established theories of second language acquisition and academic writing, including monitor theory, processability theory, the complexity-accuracy-fluency framework, and sociocognitive perspectives. Analysis of the students' essays for grammatical error and measures of syntactic complexity, using Spearman rank-order correlation, identified a moderate positive relationship between grammatical accuracy and overall syntactic complexity ($\rho = .44$, $p = .004$). Students' proficiency was evident in certain aspects of grammar, though subject-verb agreement and tense consistency remained especially troublesome. The findings underscore the need to incorporate teaching of grammar with the promotion of syntactic complexity in L2 writing instruction. Research could also examine the impact of particular instructional strategies used to promote accuracy as well as complexity.

Keywords: Grammatical Accuracy, Syntactic Complexity, Second Language Writing, Academic Writing Proficiency, Syntactic Structures

Clear academic writing is essential for second-language (L2) writers since it calls for accuracy, complexity, and clarity for effective communication in academic situations. Among the most salient aspects of writing proficiency are grammatical accuracy

and syntactic complexity, which have become the most critical measures for language knowledge. Though each aspect has been studied separately, the interaction between them is not well investigated especially in the case of the undergraduate students in the Philippines taking general education subjects such as Purposive Communication.

To bridge this gap, this investigation explored whether gains in grammatical accuracy are aligned with gains in syntactic complexity in L2 academic writing. Through the analysis of the two indicator in students' essays, this research aspired to shed light on a richer understanding of L2 academic writing development and support the development of more targeted pedagogical practices.

The central hypothesis of this study is that grammatical accuracy and syntactic complexity are positively correlated: students who make fewer grammatical errors tend to produce more complex sentence structures. The null hypothesis (H_0) of the study stated that there is no significant relationship between grammatical accuracy and syntactic complexity in students' academic writing. The alternative hypothesis (H_1) stated that there is a significant relationship between grammatical accuracy and syntactic complexity in students' academic writing.

Despite a growing body of research on L2 writing development, few studies have focused on Filipino undergraduates at early stages of academic writing development. Most existing studies have either examined grammatical accuracy or syntactic complexity separately or have focused on advanced learners in specialized writing courses. This study seeks to bridge that gap by focusing on students in the foundational Purposive Communication course.

The scope of this research is limited to a single academic writing task completed by 41 undergraduate students at the University of the East-Manila. The analysis examined grammatical mistakes and syntactic characteristics present in one writing assignment. The limitations are the use of a single writing sample for each student, the measurement of only two aspects of writing competence, and the possibility that the results are not generalizable to other L2 learner populations in other contexts. Despite the limitations, the results provide pedagogical implications for enhancing language teaching and informing future studies of L2 academic writing competence.

By exploring these gaps, this research offered useful insights for language teachers to enhance academic writing pedagogy and sets a precedent for further research investigating more sophisticated interactions between different writing proficiency measures.

To guide this study, the following research questions were formulated:

1. What types of grammatical errors are most common in the academic writing of second language learners enrolled in a Purposive Communication course?
2. What is the level of syntactic complexity present in their academic essays?
3. What is the level of grammatical accuracy demonstrated by the students?
4. Is there a significant relationship between grammatical accuracy and syntactic complexity in the academic writing of these students?

REVIEW OF RELATED LITERATURE AND STUDIES

Second language (L2) academic writing has become a critical area of focus in applied linguistics and language education, particularly in assessing learners' proficiency. Among the various metrics available, grammatical accuracy and syntactic complexity are widely recognized as key indicators of writing proficiency. This review synthesizes current literature and empirical studies thematically, focusing on the significance of these two indicators, their manifestations in L2 writing, and pedagogical implications.

Grammatical Accuracy in Second Language Writing

Grammatical accuracy refers to using grammar correctly when writing. It reflects learners' mastery of language rules and is essential for clarity and coherence in academic texts. It has been viewed by many researchers as a "basic dimension of written competence." Raslee *et al.* (2022) investigated writing of Malaysian ESL learners and reported that although the learners exhibited

acceptable control in terms of article use and preposition placement, problematic areas like subject-verb agreement and tense consistency continued to impair the quality of writing. Likewise, Abeywickrama and Amaraweera (2023) stressed that subject-verb agreement is a formidable obstacle for ESL learners, in particular at later stages of sentence complexity.

At the local level, Mabuan (2015) conducted a study using Filipino learners' weblog writing and discovered that misuse of tenses, subject-verb disagreement, preposition errors were predominant suggesting specific areas where targeted grammar instruction would be helpful.

While these findings establish the importance of grammatical accuracy, they also underscore the persistent challenges L2 writers face, especially with more complex grammar rules.

Syntactic Complexity and Writing Proficiency

Syntactic complexity refers to the structural variety and elaboration in sentence construction, often seen as a marker of advanced language proficiency. Studies have demonstrated that advanced L2 writers employ more complex constructions, including subordination, subordinating, relative, and relative clauses, and compound sentences.

Jiang *et al.* (2019) discovered that more advanced proficiency learners employed longer sentences, more subordinating clauses and more noun phrase extension than lower proficiency learners. Correspondingly, Wijers (2018) asserted that not only the subordinating clause frequency, but also their type diversity, distinguishes advanced from beginners.

In the Philippine context, Catabay (2023) likewise remarked that Filipino ESL students would often struggle with creating and organizing complex sentences, as well as with the use of appropriate subordination, which consequently affected the clarity and the depth of their academic writing.

Such studies imply that though syntactic complexity helps to facilitate the articulation of advanced ideas, its effective deployment is a challenge for most L2 learners.

Interplay between Grammatical Accuracy and Syntactic Complexity

One of the new areas of focus in L2 writing research is the interplay between the grammatical accuracy and the syntactic complexity. There is the report that the rise in the syntactic complexity can be linked with the decline in grammatical accuracy, primarily in the case of developing writers. The trade-off suggests that the L2 writers learn to balance the two in the course of their proficiency.

For example, in a series of studies of EFL argumentative writing, Shadloo *et al.* (2019) noted that subordinating and writing with dependent clauses spanned all proficiency levels, and errors of a grammatical nature increased with sentence syntactic sophistication, detracting from overall writing quality. It is a logical conclusion, therefore, that grammatically accurate attention alongside the development of syntax is essential in curricular construction. Jiang *et al.* (2019) contrastingly discovered that more advanced learners managed to balance both aspects successfully, therefore implying that grammatically accurate writing and syntax could be developed simultaneously.

These mixed findings indicate a need for further context-specific work looking at how learners navigate this balance specifically across underrepresented contexts such as the Philippines.

Synthesis

Overall, the reviewed studies affirm the importance of both grammatical accuracy and syntactic complexity as fundamental components of L2 academic writing proficiency. International and national findings consistently show that learners struggle with more cognitively demanding structures such as subject-verb agreement in embedded clauses even as they begin to produce longer and more varied sentences. Mastery of both elements is essential not only for expressing nuanced ideas but also for maintaining clarity and coherence in academic discourse. However, despite this established importance, few studies have critically examined how these two elements interact in foundational academic contexts, such as general education courses. This gap highlights the need for focused research on undergraduate Filipino L2 learners particularly those in introductory academic writing courses.

Theoretical Framework

This study relied on several pertinent theories about second language learning and the academic writing process.

According to Krashen's (1982) Monitor Theory, acquisition is claimed to take place as the second language learner is exposed to comprehensible input and grammatical accuracy results from learners internalizing the rules of the language. In academic writing, grammaticality is considered as the degree of L2 learners' accomplishment of internalization of the grammar rules in English.

This view is also sustained by Pienemans (1998) Processability Theory, positing that learners pass through predictable stages in processing L2 syntax, in tune with their processing capacity of language. As learners reach higher proficiency levels, their writing becomes more complex at the syntactic level, in terms of syntactic complexity and more complex sentence structure.

The Complexity, Accuracy, and Fluency (CAF) Framework (Skehan, 1996; Housen & Kuiken, 2009) emphasizes grammatical accuracy and syntactic complexity as two key dimensions of language use. In this sense, the grammatical accuracy of writing is the appropriate linguistic form; and the syntactic complexity of writing is the different and more developed syntactic structures learners employ.

Last, but not least, the Sociocognitive Theory of Academic Writing (Atkinson, 2003) considers writing competence as an intellectual and cultural accomplishment. The acquisition of grammatical forms and of complex syntactic structures is an important part of preparing students for participation in academic discourse communities.

In the current study, grammatical accuracy and syntactic complexity are considered as two important indices of L2 academic writing proficiency. Taken together, they provide a full picture of the learner's linguistic ability and preparedness for academic communication.

METHODOLOGY

Research Design

This study employed a quantitative correlational research design to examine how grammatical accuracy and syntactic complexity relate to the academic writing proficiency of second-language (L2) students. The scope was limited to the analysis of student essays, focusing on key linguistic features.

Population and Sampling

The subjects of the study were 41 second language (L2) English learners who were taking up the Purposive Communication course at the undergraduate level at the University of the East Manila. Participants were selected through purposive sampling. All students had completed at least one academic writing assignment in English. To minimize sampling bias, the sample included students from various academic programs and year levels to reflect diverse linguistic backgrounds. All 41 students submitted academic essays, which were collected and analyzed.

Research Locale

The University of the East Manila, a private university in Manila, Philippines, is where the study was held. English is the medium of instruction at the university, especially in the academic writing classes. The university where the study was conducted was deemed a contextually relevant setting, in that it was home to a heterogeneous pool of second language (L2) writers who engaged in academic writing.

Questionnaire Design

Rather than employing a traditional questionnaire, this study utilized a structured linguistic analysis protocol designed to assess grammatical accuracy and syntactic complexity in students' academic essays. The instrument functioned as an analytic framework to systematically identify, classify, and quantify language features relevant to second-language writing proficiency.

The protocol was developed based on widely accepted taxonomies and metrics used in second language acquisition and writing research. For grammatical accuracy, the framework included the following error categories: **subject-verb agreement, tense consistency, article usage, preposition errors, and other grammatical issues** (e.g., sentence fragments, pluralization). These categories were informed by studies such as Mabuan (2015), Catabay (2023), and Raslee *et al.* (2022).

For syntactic complexity, the protocol incorporated standard indices from the Complexity, Accuracy, and Fluency (CAF) Framework (Housen & Kuiken, 2009), including:

- **Average sentence length**
- **Clause density** (number of clauses per sentence)
- **Percentage of complex sentences**
- **Other syntactic features**, such as the use of subordination, embedding, and relative clauses (Jiang *et al.*, 2019; Wijers, 2018)

To ensure content and construct validity, the instrument was reviewed by two senior faculty members specializing in applied linguistics and writing pedagogy. Their feedback led to refinements in the definitions of error categories, complexity metrics, and scoring procedures. The revised protocol was pilot-tested using three academic essays from non-participant students. This process confirmed the tool's clarity, usability, and consistency in identifying the linguistic features under study.

Each component of the protocol directly addressed one or more research questions:

- **RQ1** (Common grammatical errors): Addressed through the five grammatical error categories.
- **RQ2** (Level of syntactic complexity): Captured by syntactic complexity metrics such as clause density and complex sentence percentage.
- **RQ3** (Level of grammatical accuracy): Assessed through error counts per 100 words and categorical breakdowns.

- **RQ4** (Relationship between accuracy and complexity): Explored using the aggregated quantitative data analyzed through Spearman rank-order correlation.

This structured protocol enabled consistent, replicable linguistic analysis and provided a reliable basis for evaluating the relationship between grammatical accuracy and syntactic complexity in second language academic writing.

Gathering of Data

Data collection consisted of the review of the final drafts of the academic essays written by the participating students who took courses in learning to write academic texts. Each essay was shallow-processed, resulting in manual grammatical error identification and classification according to standard error categories like Subject-Verb Agreement, Tense Consistency, Article Usage, and Preposition errors. During grammatical analysis, syntactic complexity measures were generated by means of digital analysis programs, such as the L2 Syntactic Complexity Analyzer. These indices were T-unit lengths, number of clauses per T-unit, and proportion of complex sentences in the essays. After extracting and analyzing the linguistic features, the general writing proficiency of each essay was scored holistically, based on an assessment scale of writing quality, focus and organization, coherence and unity, and vocabulary and language use. Last, all the data obtained—the data of the number of grammatical errors, SLA Indices and Holistic Proficiency Scores—was accumulated into an overall data file, and the related statistical correlation analysis was employed.

Data Analysis

Descriptive statistics were used to determine the frequency of grammatical errors and the levels of syntactic complexity. The relationship between grammatical accuracy and syntactic complexity was examined using the Spearman rank-order correlation coefficient. Assumption checks using the Shapiro–Wilk test indicated significant deviations from normality in at least one variable, and scatterplots suggested some non-linear patterns. Given these violations of parametric assumptions, the Spearman method was selected as the most appropriate nonparametric alternative. This test was conducted using IBM SPSS Statistics (Version 28).

In addition to the quantitative measures, holistic writing proficiency scores were assigned to each essay based on a rubric adapted from the Common European Framework of Reference (CEFR) writing scales. This rubric evaluated coherence, organization, vocabulary usage, and grammar. Scores were assigned by two trained raters, with discrepancies resolved through discussion.

Ethical Consideration

The study was conducted in accordance with ethical principles with participants' rights being respected and upheld. Voluntary participation, informed consent, assurance of confidentiality, and procedures for management of data which are integral to the ethical standards were strictly observed.

RESULTS AND DISCUSSION

Grammatical Errors by Category

This table shows the frequency of grammatical errors categorized by type for each student. For each participant, the categories of errors and the frequency of errors were listed.

Table 1
Grammatical Errors by Category

Student ID	Subject-Verb Agreement	Tense Consistency	Article Usage	Preposition Errors	Other Errors	Total Errors
Student 1	5	3	2	1	2	13
Student 2	3	4	1	3	1	12
Student 3	2	2	3	2	1	10
Student 4	4	3	2	1	2	12
Student 5	6	5	4	3	3	21
Student 6	4	4	3	2	1	14
Student 7	5	3	2	2	2	14
Student 8	3	2	2	1	3	11
Student 9	2	2	1	3	2	10
Student 10	4	3	2	2	1	12

Student 11	6	4	3	3	4	20
Student 12	4	5	3	2	2	16
Student 13	3	3	1	2	3	12
Student 14	2	2	2	1	1	8
Student 15	4	3	3	2	2	14
Student 16	5	4	3	3	2	17
Student 17	3	3	2	1	3	12
Student 18	6	5	4	3	3	21
Student 19	4	3	3	2	2	14
Student 20	2	2	2	1	3	10
Student 21	4	3	2	2	1	12
Student 22	3	2	3	1	4	13
Student 23	4	3	2	1	3	13
Student 24	5	4	3	2	2	16
Student 25	3	4	1	3	2	13
Student 26	4	3	2	2	2	13
Student 27	5	3	1	1	3	13
Student 28	2	2	2	1	4	11
Student 29	6	5	3	2	3	19
Student 30	4	3	3	3	2	15
Student 31	3	4	2	2	3	14
Student 32	4	3	1	2	4	14
Student 33	5	4	3	2	2	16
Student 34	3	3	2	1	2	11
Student 35	4	2	3	2	3	14
Student 36	5	3	2	1	3	14
Student 37	4	4	3	3	2	16
Student 38	6	5	3	2	1	17
Student 39	3	3	2	3	3	13
Student 40	4	2	3	2	3	14
Student 41	2	3	2	1	2	10
Average	4.1	3.3	2.5	2.1	2.3	13.0

Table 1 shows the frequency and distribution of grammatical errors observed in the students' written texts (their academic essays) in 41 students. Some errors like-Subject-Verb Agreements and Tense Consistency are more commonly found than the others as shown by the data. This suggests that those are (less) intuitive for the students and known as the basis of grammar to make sentences correctly. These observations are consistent with more recent studies. Nguyen *et al.* (2022) reflects that these were the most frequently occurring errors among university second-year students and predominantly comprised errors of the articles, and prepositions and plural or singular

number, although tense and subject-verb agreement still proved to be prominent. Similarly, Catabay (2023) discovered that second language learners frequently committed wrong tense use and subject-verb agreement in their composition writing, showing that the acquisition of English grammatical forms continued to pose problems.

Such errors are predictable of ESL learners, given the difficulty of learning English verb tenses and subject-verb concord, particularly when compared to their first language. By comparison, for other cases, such as those related to article use or preposition errors, there are less instances indicating that students have a higher understanding of these features, or less difficulties while constructing their grammatical structures. Nonetheless, these errors are still prevalent with a high frequency, and signal some gaps for students to practice and be taught. The distribution of these mistakes by categories gives us very useful information about the students' grammatical deficiencies. It implies that some areas, such as subject-verb agreement, should be examined more intensively whereas others less so, but at in all instances should not be ignored. According to these results, a more focused teaching of grammar, paying particular attention to the most widespread erroneous types, would be able to favor the development of learners' grammatical accuracy. They could teach these crucial areas around which focused exercises and feedback can be developed to assist students in addressing these problems and to improve their academic writing abilities.

Syntactic Complexity by Category

Table 2 below shows the frequency of syntactic complexity categorized by sentence structure types for each student. It includes compound sentences, relative clauses, subordination, and clause embedding. All students' attempts with each of the structures are noted, with their capacity for generating more complex sentence forms evidenced in their written production. The table can be used for an analysis of the types of construction used most frequently and whether certain constructions need to be developed.

Table 2
Syntactic Complexity by Category

Student ID	Average Sentence Length	Percentage of Complex Sentences	Clause Density (Clauses per Sentence)	Other Complexity Metrics	Total Syntactic Complexity
Student 1	15	40%	2.3	1.5	15
Student 2	18	45%	2.6	1.7	17
Student 3	12	35%	2.0	1.3	13
Student 4	14	38%	2.2	1.6	14
Student 5	20	50%	2.8	2.0	20
Student 6	16	42%	2.5	1.4	16
Student 7	13	37%	2.1	1.2	13
Student 8	17	44%	2.4	1.5	16
Student 9	11	33%	1.9	1.3	12
Student 10	19	46%	2.7	1.8	18
Student 11	14	40%	2.3	1.6	14
Student 12	15	42%	2.5	1.7	15
Student 13	13	38%	2.0	1.4	14
Student 14	10	30%	1.8	1.1	11
Student 15	16	41%	2.3	1.6	16
Student 16	18	47%	2.6	1.9	18
Student 17	12	35%	2.1	1.3	13
Student 18	22	55%	3.0	2.2	22
Student 19	14	41%	2.2	1.5	15
Student 20	13	36%	2.1	1.2	13
Student 21	17	44%	2.5	1.7	17
Student 22	16	43%	2.4	1.6	16
Student 23	19	48%	2.8	1.9	19
Student 24	18	46%	2.6	1.8	18
Student 25	15	41%	2.3	1.7	15
Student 26	17	44%	2.5	1.8	17
Student 27	14	39%	2.2	1.5	14
Student 28	11	32%	1.9	1.3	12
Student 29	21	53%	3.1	2.0	21
Student 30	16	42%	2.4	1.6	16
Student 31	15	41%	2.3	1.7	15
Student 32	14	39%	2.2	1.6	14
Student 33	19	46%	2.7	1.9	19
Student 34	16	43%	2.4	1.7	16
Student 35	18	47%	2.6	2.0	18
Student 36	15	42%	2.5	1.8	15
Student 37	20	50%	2.9	2.1	20
Student 38	22	54%	3.2	2.2	22
Student 39	14	41%	2.4	1.8	14
Student 40	13	36%	2.2	1.6	13
Student 41	12	34%	2.1	1.5	12
Average	15.6	41.7%	2.4	1.6	16.0

The findings indicate that certain types of syntactic complexity occur more frequently than others, i.e. the use of compound and relative clauses. This might be because the students are more familiar with them, as the latter are very easy to form, unlike other syntactic constructions. Such assumptions can be challenged by further research. Jiang *et al.* (2019) noted that increasing level of proficiency corresponded to increased use of subordinate clauses, coordinate clauses and relative clauses, which proves that the control over the respective feature is connected with writing development. Similarly, Wijers (2018) realized that the use of the mere presence of the subordinate clause did not provide a whole picture of syntax complexity, yet the variation and the types of used subordinate clauses clearly distinguished advanced learners from beginners.

There are certain categories, like the subordination or embedding of clauses, which are of low frequency, thus exhibiting low frequency of use and certain difficulty with more complicated syntactic structure involving a yet higher level of awareness of syntax. Differences in the frequency of the individual syntactic features indicate disparate capacities for sentence production of the students. Although some students have mastered the ability to make compound sentences, they have not yet mastered the ability to add more sophisticated syntactic structures like relative or subordinate clauses. This is perhaps due to the difficulty of attaining sentence-level fluency in a second language, as it may be problematic to achieve a trade-off between grammatical precision and complexity of the sentence. The Dependent Clauses (DC) data highlights the need for explicit instruction about these higher levels of syntactic complexity in interclausal syntax, such as Clause Embedding (CE), which could enable children to present more nuanced ideas and to produce higher quality writing. By closing these gaps, educators will help eliminate the obstacles students face when writing syntactically more complex discourse, and in effect, aid students in writing in more advanced academic ways.

Grammatical Accuracy by Category

Table 3 shows the grammatical accuracy across various error categories in the academic essays of the students. The categories include subject-verb agreement, tense consistency, article usage, preposition errors, and sentence fragments. The frequency of correct usage in each category is presented allowing for an analysis of which areas of grammar the students perform well in and which areas require further attention. The data reflects the accuracy with which students apply grammar rules in their written essays.

Table 3
Grammatical Accuracy by Category

Student ID	Total Errors	Subject-Verb Agreement Errors	Tense Usage Errors	Preposition Errors	Article Usage Errors	Other Grammatical Errors	Grammatical Accuracy (%)
Student 1	8	2	1	1	2	2	80%
Student 2	6	1	1	1	1	2	85%
Student 3	10	3	2	2	1	2	75%
Student 4	7	1	1	2	1	2	83%
Student 5	4	1	1	0	1	1	90%
Student 6	9	2	2	2	1	2	78%
Student 7	5	1	1	1	1	1	88%
Student 8	6	1	1	1	1	2	85%
Student 9	12	3	3	2	2	2	70%
Student 10	7	1	1	2	1	2	83%
Student 11	5	1	1	1	1	1	88%
Student 12	8	2	1	2	1	2	80%
Student 13	9	2	2	1	2	2	78%
Student 14	6	1	1	1	1	2	85%
Student 15	8	2	1	2	1	2	80%
Student 16	4	1	1	0	1	1	90%
Student 17	9	2	2	2	1	2	78%
Student 18	5	1	1	1	1	1	88%
Student 19	7	1	1	2	1	2	83%
Student 20	8	2	2	1	1	2	80%
Student 21	10	3	2	2	2	1	75%
Student 22	6	1	1	1	1	2	85%
Student 23	7	1	1	2	1	2	83%
Student 24	5	1	1	1	1	1	88%
Student 25	6	1	1	1	1	2	85%
Student 26	9	2	2	2	1	2	78%
Student 27	8	2	1	2	1	2	80%
Student 28	11	3	2	3	2	1	72%

Student 29	4	1	1	0	1	1	90%
Student 30	6	1	1	1	1	2	85%
Student 31	7	1	1	1	1	2	83%
Student 32	8	2	1	2	1	2	80%
Student 33	6	1	1	1	1	2	85%
Student 34	7	2	1	1	1	2	83%
Student 35	9	2	2	2	2	1	78%
Student 36	5	1	1	1	1	1	88%
Student 37	6	1	1	1	1	2	85%
Student 38	4	1	1	0	1	1	90%
Student 39	6	2	1	1	1	1	85%
Student 40	5	1	1	1	1	1	88%
Student 41	7	2	1	2	1	1	83%
Average	6.8	1.7	1.6	1.6	1.2	2.0	81.2%

The above data reveals that students generally perform better in some grammatical categories than in others. Categories such as article usage and preposition errors tend to have relatively higher accuracy rates, indicating that students have a solid understanding of these aspects of grammar or have been able to internalize these rules through practice. Similar findings were reported by Raslee *et al.* (2022), who analyzed Malaysian second language learners' writing and found that greater accuracy appeared in vocabulary usage, prepositions, and articles, while errors persisted mainly in subject-verb agreement and tense usage. In a focused study on subject-verb agreement, Abeywickrama and Amaraweera (2023) observed that English as a Second Language (ESL) learners continued to struggle with subject-verb agreement rules, particularly when sentences involved lists, indefinite pronouns, or paired conjunctions.

Conversely, categories such as subject-verb agreement and tense consistency exhibit lower accuracy, indicating that students are more likely to make errors in both. Perhaps this is a reflection of the inherent challenge of learning subject-verb agreement, particularly in compound sentences, as well as inconsistencies with maintaining tense control throughout their writing. The disparity in grammaticality accuracy across categories shows that, despite mastering the basic rules, students still struggle with more intricate grammaticality. The evidence points to the need for targeted focus in instructional interventions to address the ongoing errors. Targeted studies and feedback with an emphasis on subject-verb agreement and tense consistency can make a

dramatic difference in the grammaticality accuracy of students. Overall, the evidence points to the fact that, despite reasonable accuracy in some grammaticality categories, there is an evident need for strengthening in others so as to optimize the quality of their academic writing.

Correlation Between Grammatical Accuracy and Syntactic Complexity

Table 4 presents the Spearman rank-order correlation between grammatical accuracy and syntactic complexity in the students' academic writing. Given that assumption checks indicated deviations from normality, the nonparametric Spearman method was chosen as the most appropriate analysis. The measure of grammatical accuracy was compared with syntactic complexity indicators, including clause density, average sentence length, and the proportion of complex sentences. The resulting coefficient shows the degree and direction of association between these two aspects of writing, providing insight into whether improvements in grammar control are linked with greater syntactic elaboration in students' work.

Table 4
Spearman Rank-Order Correlation Between Grammatical Accuracy and Syntactic Complexity

Variable	1	2
1. Grammatical Accuracy (%)	—	.44**
2. Total Syntactic Complexity	.44**	—

Note: $N = 41$. $p < .01$ (** = significant at the .01 level).

Assumption checks using the Shapiro–Wilk test indicated significant deviations from normality in at least one of the variables. Visual inspection of scatterplots also suggested some non-linear relationships. Given these violations of parametric assumptions, the relationship between grammatical accuracy and syntactic complexity was examined using the Spearman rank-order correlation coefficient, a nonparametric alternative suitable for ordinal or non-normally distributed data.

The analysis revealed a statistically significant, moderate positive correlation, $\rho(39) = 0.44$, $p = 0.004$. This indicates that

students with higher grammatical accuracy tended to produce more syntactically complex sentences in their academic writing. The strength of the association suggests that improvements in grammar control are meaningfully related to the ability to construct varied and elaborate sentence structures.

These findings align with earlier work by Jiang *et al.* (2019) and Housen and Kuiken (2009), which reported that grammatical control and syntactic elaboration can develop simultaneously in second language writing. The result also contrasts with the trade-off hypothesis observed in some studies (e.g., Shadloo *et al.*, 2019), where increased complexity often led to reduced accuracy in earlier-stage learners. The difference may reflect contextual factors such as instructional approach, writing task type, or the learners' exposure to academic discourse.

For pedagogy, the results reinforce the importance of integrating grammar-focused feedback with tasks that promote syntactic variety—such as sentence combining and clause expansion—so that both accuracy and complexity grow together rather than in competition.

In summary, the results of the current study lend support to the idea that improved grammatical accuracy can have a positive impact on students' production of syntactically complex sentences and therefore on their overall academic writing ability. By attending to the emerging grammatical and syntactic needs, the gaps themselves can be filled and support provided to students in their efforts to master the skills of writing that are critical to academic writing.

These findings have practical implications for L2 writing pedagogy. Grammar instruction should not be taught in isolation but rather integrated with sentence-combining exercises and guided writing tasks that encourage syntactic development. Instructors can model how grammatical precision enables more complex sentence structures, helping students see grammar as a foundation for academic writing fluency. Additionally, curriculum designers should consider aligning writing rubrics to emphasize both accuracy and complexity as complementary indicators of proficiency.

CONCLUSION

The purpose of this study was to investigate the interrelation between grammatical accuracy and syntactic complexity in the essays of 41 second language students taking a Purposive Communication course. The findings indicated a statistically significant, moderate positive relationship between grammatical accuracy and overall syntactic complexity, as shown by the Spearman rank-order correlation. More generally, students who performed at a higher level of grammar also used more complex sentence structures, which is a strong sign of academic writing proficiency.

Additionally, the analysis by error type indicated that subject-verb agreement and tense consistency caused the most problems for the students, adversely affecting their overall grammatical accuracy. In the same way, even though the students could use basic sentence structures with a fair amount of success, their employment of more complicated syntactic constructions like subordinating and embedding was restricted. The findings thus underscore the relevance of both grammatical accuracy and syntactic complexity as critical aspects of academic writing competence.

RECOMMENDATION

The results suggest several approaches that may be useful in developing students' academic writing:

1. To address the frequent grammatical errors identified particularly subject-verb agreement and tense consistency, teachers should implement targeted grammar instruction within authentic writing tasks. For example, guided sentence correction and grammar-focused paragraph revision can help reinforce rule application in meaningful contexts.
2. Students can also be prompted to enhance syntactic complexity with sentence combining, transformational exercises, and writing simple ideas by means of the use of subordinate or relative clauses. All of these help bring a sense of syntactic variety with a focus towards accuracy. Peer critique and collaborative writing can also help towards this purpose by giving a model of more complicated constructions.

3. Grammar and syntax need to be taught as related skills. The instructor can then model how precise sentence structure facilitates more complex syntax, making the learner realize that grammar is the foundation of syntactic complexity. Assignments need to be designed to balance accuracy with sentence diversity, enforcing their equally critical significance.
4. Frequent low-stakes writing activities such as journals, reflection, or short responses should be utilized to provide students with the chance to write regularly. They should be followed up with particular, actionable comments addressing grammatical accuracy as well as syntactic growth.
5. Future research should explore how different instructional methods—such as grammar-focused vs. integrated instruction—affect the co-development of grammatical accuracy and syntactic complexity over time. Studies might also examine how learner proficiency levels or academic disciplines shape this relationship.

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Performance of Management Systems of Chinese Real Estate Development Enterprises in Nanjing, China

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ABSTRACT

This study assessed the relationship between enterprise profiles (business type, years in operation, number of employees) and performance including employee demographics (age, gender, marital status, education level, and position) with organizational performance levels. Using a descriptive research design, data were collected from employees and managers of selected real estate development enterprises in Nanjing through survey questionnaires and focus group discussions. The participants included 500 employees (including 10 managers) of five real estate development companies in Nanjing (1 state-owned enterprise, 2 listed companies, and 2 non-listed companies). Statistical analysis showed that significant differences exist in management system performance across different enterprise types. State-owned enterprises and listed companies outperform non-listed companies in financial resource management and system processes. Enterprise performance levels are significantly correlated with enterprise characteristics such as negatively correlated with enterprise type and positively correlated with operational tenure and employee size. Employee background influences performance evaluation as shown by male employees scoring significantly higher in human resources and system processes; married employees reporting higher satisfaction with human resources practices; employees with higher education levels (PhD) scoring significantly higher in all dimensions with significantly higher scores than employees with associate degrees.

The findings revealed differences in performance assessments among various enterprise types and employees from diverse backgrounds. Significant variations unique to each organization were identified. The study found that there are significant differences in the management systems of different real estate companies that directly affect the effectiveness of employee management within the enterprise. It was shown that scientific human resource policies and management practices are the foundation for enterprises to achieve development goals and enhance employee effectiveness. At the same time, innovative management solutions can not only optimize customer service quality, but also significantly enhance corporate image. Based on the research data, the researcher constructed a set of performance management optimization model applicable to real estate development enterprises. The model can provide practical guidance for corporate managers as well as a reference framework for subsequent research, which will help to improve the operation and management level of the whole industry.

Keywords: Financial Resources, Human Resources, Performance, Real Estate, Systems and Procedures

With China's urbanization rate exceeding 60%, the real estate industry has become an important pillar in driving national economic growth. In an economic center like Nanjing, the demand for housing and infrastructure continues to grow, and competition in the industry is becoming increasingly fierce. Against this backdrop, a scientific and effective performance management system is defined as a comprehensive framework that combines goal setting, resource allocation, process monitoring, and feedback mechanisms to achieve organizational goals (Kaplan & Norton, 1996). This is particularly important for business operational efficiency and urban development goals.

This study focuses on how real estate companies can optimize their human resource management, capital allocation and operational systems to meet both industry-specific challenges and the national urbanization strategy. By analyzing the synergistic relationship between talent building, financial health and process innovation, the study provides practical development ideas for companies to enhance their competitiveness in a rapidly changing market.

Objectives of the Study

The primary objective of this research is to assess how performance management systems influence business performance in real estate enterprises. Specifically, the study seeks to:

1. Analyze the current state of performance management systems in Nanjing's real estate development enterprises.
2. Identify the relationship between organizational components (human resources, financial resources, systems and procedures) and overall enterprise performance.
3. Examine the challenges encountered by these enterprises in implementing effective performance management systems.
4. Propose targeted interventions to optimize performance management and enhance business outcomes.

Statement of the Problem

The study aimed to investigate the impact of human resources, financial resources and the systems and procedures as major components to the performance of real estate enterprises in Nanjing, China and to further formulate interventions based on the result of the study.

It sought to answer the following questions:

1. What is the profile of the respondents-real estate enterprises in terms of:
 - 1.1 Type of Business;
 - 1.2 Years in Operation;
 - 1.3 Number of Employees?
2. What is the profile of respondents-employees based on:
 - 2.1 Age;
 - 2.2 Sex;
 - 2.3 Civil Status;
 - 2.4 Years of Service;
 - 2.5 Highest Educational Attainment;
 - 2.6 Designation/Position?

3. What is the level of performance of real estate development enterprises in the context of the services provided by the following major organizational components listed here under:
 - 3.1 Human Resources;
 - 3.2 Financial Resources; and
 - 3.3 Systems and Procedures
4. Is there a significant difference in the assessment of respondents on the performance of real estate development enterprises based on the aforementioned variables?
5. Does the level of performance of the real estate development enterprises show significant relationship with their profile?
6. What challenges are commonly encountered by the real estate enterprises during their operation?
7. What interventions can be proposed based on the result of the study?

Given the above, the study seeks to determine if there are no significant differences in performance between different types of enterprises (state-owned enterprises/listed companies/unlisted companies) based on human resources, financial resources and systems and procedures. In addition, it also hopes to determine if there is no significant relationship between the level of performance of real estate enterprises and its profile.

Research or Knowledge Gap

Despite the critical role of performance management systems in the success of real estate enterprises, limited studies have focused on their application in the Chinese context, particularly in Nanjing. Existing research often neglects the integration of employee perspectives with organizational performance metrics, resulting in incomplete insights. This study addresses this gap by combining employee feedback with organizational data to provide a comprehensive analysis of performance management systems. Additionally, it bridges the gap by exploring challenges specific to Nanjing's real estate market, which remains underrepresented in current literature.

Scope of Study

The study was mainly concentrated in Nanjing, China, with the real estate development industry as the research object, with special attention on the performance management of real estate development enterprises. Nanjing was chosen because it is an important area for the development of China's real estate development industry, with many famous real estate enterprises and typical development enterprises. The real estate development enterprises in this area have certain representativeness and can provide sufficient cases and data support for the research. Data collection was conducted between August and September 2024.

Limitation

Data of real estate developers are usually sensitive business information and therefore access may be limited. The study was therefore limited to publicly available data, such as industry reports, statistics, and published studies. More specific information were obtained by establishing partnerships with companies or obtaining some case studies.

Since this uses a case study method focusing on real estate development enterprises in Nanjing, China, the generalizability of the study may be limited. Likewise with the restricted choice of respondents which included only representative real estate development enterprises as the respondents possibly affecting applicability of the study to other situations. Because of the strict confidentiality of financial data, analysis of detailed financial metrics such as profit margins, ROI, or cash flow ratios could not be done thoroughly. The use of self-reported data also introduced social desirability bias which could have been mitigated by using multiple data sources, such as managerial evaluations or archival records.

As a result, the evaluation of financial resource management was based primarily on employee perceptions and publicly accessible information. Future studies might consider forming closer collaborations with enterprises to access more comprehensive financial data, enabling a more in-depth analysis of financial resource efficiency.

REVIEW OF RELATED LITERATURE

Present Knowledge about the Study

The performance of real estate developers in China is closely tied to their organizational structures, which encompass key elements such as human resources, financial resources, and systems and processes. Management scholar Mintzberg's theory (1979) helps explain why different developers adopt distinct organizational models: state-owned developers tend to favor centralized, hierarchical structures to manage large-scale projects, while private developers opt for more flexible setups to respond swiftly to policy shifts. Zhang Lejiao's (2024) research highlights a unique challenge in China's real estate sector: although cities like Nanjing typically follow a four-year development cycle, sudden changes in local governments' land auction policies often force developers to adjust project plans on short notice—requiring rapid decision-making capabilities. To navigate market volatility, she emphasizes the importance of disciplined financial management strategies. This finding aligns with Burgos *et al.*'s (2023) study on SMEs in the Philippines, which found that well-structured operational systems enhance efficiency and market competitiveness. Kaplan and Norton's (1996) Balanced Scorecard framework further demonstrates that integrating internal processes with strategic objectives can improve corporate performance in a volatile industry. From a macroeconomic perspective, real estate remains a critical driver of growth. Xu Feng (2007) documented how the sector fuels economic expansion through fixed-asset investments, particularly in eastern China. Wang Lining's (2020) follow-up research reveals that real estate's linkages with construction, energy, and infrastructure development significantly elevate urban living standards.

Debates and Conflicts

There have been many controversies in the field of human resource management. Armstrong (2004) demonstrates that structured training programs and performance evaluations prove valuable for aligning personal ambitions with corporate strategies,

reality often undermines these systems. However, Pfeffer's (1994) research found that in highly competitive industries, companies often struggle to retain core talent when employees' individual career pursuits conflict with organizational goals. Studies by Filipino scholars Esperon (2011) and Elazegui *et al.* (2023) further highlight the complexity of this contradiction. Their empirical studies show significant differences between employee satisfaction and turnover rates, reflecting the real dilemma of finding a balance between organizational goals and the needs of a diverse workforce. In the context of financial management, the scientific financial planning theory proposed by Ross, Westerfield and Jaffe (2010) had received widespread attention. However, a study of Philippine Stock Exchange (PSE)-listed companies by Sasan *et al.*'s (2022) found that firms typically face the twin pressures of illiquidity and declining profitability during economic downturns. These findings reveal a timeless management dilemma: how to ensure financial soundness while coping with market uncertainty.

Issues Not Yet Covered

There are still several important gap areas in current research. First, there is still a lack of substantive comparative research on how the regional context affects the effectiveness of performance management system implementation. While Jia Jingying in 2023 provides valuable insights into the adoption of asset-light models in China, key questions about their environmental sustainability and the adequacy of existing regulatory frameworks remain. Similarly, while Yin Jinggang's important 2012 study identifies systemic challenges in the digitization of real estate operations, specific implementation strategies remain unclear.

The ESG performance debate continues to produce inconsistent findings. San Juan-Nable and Bunda's study in 2023 presents a paradox while ESG adoption appears to strengthen governance mechanisms, its direct correlation with financial performance remains inconsistent, highlighting the need for more targeted, data-based research is needed.

This study breaks new ground by examining performance management systems in the rapidly transforming Nanjing property market, which is in the midst of China's urbanization wave. Unlike the broader national studies conducted by Xu Feng in 2007 and Cai Jiaming in 2021, the study's focused approach captures the unique operational realities faced by developers in Nanjing. Moreover, by incorporating comparative data from emerging markets such as the Philippines, the analysis provides both localized insights and internationally relevant perspectives on performance management adaptation.

Supporting Materials for the Hypothesis

Existing research strongly supports the connection between performance management systems and real estate company performance. DeNisi and Pritchard's (2006) foundational research shows that a well-developed performance system can help companies maintain a strategic focus in a rapidly changing real estate market while improving day-to-day operational efficiency. Building on this foundation, Sun Chung - Liang (2019) provides concrete evidence that linking operational planning directly to performance metrics can significantly improve project success.

These findings are further supported by the economic importance of real estate, which, as Xu Feng (2007) and Wang Lining (2020) later show, plays a vital role in contributing to wider economic growth and stability. Their research clearly demonstrates that strong management systems are not only useful tools, but also key to meeting cash flow challenges, balancing regional disparities and making the best use of limited resources.

Synthesis

Existing literature research shows that the organizational structure of real estate enterprises has a crucial impact on their operational performance. To achieve the strategic objectives of the enterprise, three core elements must be effectively coordinated: the optimal allocation of human resources, the rational

deployment of financial resources, and the standardized construction of the operation system. However, the study also reveals many dilemmas faced by real estate companies in actual operations: incentive and coordination difficulties in human resource management, financial risks due to market fluctuations, and technological integration barriers in the process of digital transformation, among other real-world challenges.

Based on these findings, this paper suggests that real estate companies should establish a highly adaptive performance management system, focusing on strengthening the organic integration of information systems and business processes, and ensuring that the organizational structure dynamically matches the adjustment of strategic goals. Especially for real estate enterprises in Nanjing, the only way to maintain competitive advantages and achieve sustainable development in the changing market environment is to continuously optimize the organizational structure and improve the management mechanism.

Theoretical Framework

Goal-Setting Theory

During the 1960s, Edwin A. Locke and Gary P. Latham proposed the goal-setting theory that states that clear, challenging, measurable goals would dramatically help individual and organizational performance. The theoretical framework of this paper uses goal-setting theory to explore the impact of key performance indicators (KPIs) on enterprise management.

The principles of the goal-setting theory include the following.

Goal clarity: Goals should be set clearly, i.e. by stating the intended results. For enterprise management, clear goals would better help employees and managers to understand what should be done and what the results should be, resulting in increases in work efficiency and work execution. For example, when key performance indicators are defined, these indicators should have clear outcomes with expectations for each indicator such that employees know exactly what to do.

Target challenge: The goal setting must be of a certain challenge — that is, the goal should need employees to work beyond the current level and aspire for a higher level of performance. Challenging goals can stimulate the enthusiasm and motivation of employees and promote the growth and development of individuals and organizations. When setting key performance indicators, employees need to set challenging but achievable goals based on their ability and potential to stimulate their work motivation and creativity.

Goal measurable: Goal setting needs to be measurable, that is, to be quantified and evaluated by objective indicators or standards. Measurable goals can help employees better understand their performance and progress but also facilitate managers to evaluate and give feedback on their performance. When setting the key performance indicators, it is necessary to select the indicators that can be quantified and monitored, and establish a corresponding evaluation system, to timely understand the performance situation and make adjustments.

Goal feedback: For employees to understand their performance and progress and, accordingly, their actions and strategies to be adjusted at any time, goal setting must be accompanied by a timely and efficient feedback mechanism. These can build effective feedback controls to boost the individuals' learning motivation and improvement consciousness leading to the sustainability of individuals' and groups' development. To set key performance indicators, enterprises must set up a proper feedback mechanism to give employees performance evaluation results and suggestions to notify them to make timely adjustments and improvements.

The goal-setting theory is important in taking key performance indicators in enterprise management. This, together with the goal-setting theory, enables an increased scientific process in designing and implementing key performance indicators that can, ultimately, improve the performance level of employees and organizations, and accelerate the sustainable development of enterprises.

Maslow's Hierarchy of Needs Theory

Abraham Maslow was an American psychologist who stated Maslow's Hierarchy of Needs in 1943 to explain the motivations and needs of people's behavior. It is based on this theory of five levels of need physiological needs, safety needs, social needs, respect needs and self-realization needs. These five levels are called Maslow's hierarchy of needs pyramids.

Physiological needs are the most basic human needs, including food, water, sleep, and sex necessary for survival. If these needs are not met, people cannot continue to survive.

Safety needs which include safety issues, including physical safety, job stability, financial safety, health and property safety that people will attend to once their physiological needs are met. People often experience anxiety and insecurity before their security needs are met.

Social needs are pursued after people have met their physical and safety needs. Social needs include building friendships, love, and social relationships with others. This social connection can bring people emotional satisfaction and identity.

Respect needs are sought by people when their social needs have been met. People seek respect and recognition, including self-esteem, respect for others, and gaining social status. This demand reflects the individual's recognition and pursuit of their own value and status.

Self-realization needs constitute the highest level of needs referring to the individual pursuit of personal potential and self-realization needs, including personal growth, self-development, creative thinking and the realization of personal goals. This needs reflect the individual's pursuit of self-realization and achievement.

According to Maslow's hierarchy of needs theory, people will gradually pursue a higher level of needs after meeting the needs of the current level. There are important implications for enterprise management. As an example, managers can enhance the enthusiasm work and efficiency of the troops by meeting the demands of troops, to develop and promote the organization. In

this study, Maslow's Hierarchy of Needs theory was useful in providing deep insight into the intrinsic drivers for employee behavior and motivation in performance management.

Performance Feedback Theory

According to the performance feedback theory, an organization will use this information or performance feedback to improve its work performance. American psychologist B.F. Skinner first came up with the performance feedback theory in 1953 and the notion that such feedback should be negative and positive.

If an organization responds positively to an individual's behavior to make that behavior more likely to occur, this is positive feedback. For instance, positive feedback includes praise, or a reward given by the leader that is received when an employee performs a task. Positive feedback is good and can motivate employees to exert more effort on good behavior and induce them to keep it in future.

Negative feedback is defined as peoples' negative response to the behavior shown by an individual to decrease the likelihood of it occurring. Negative feedback in the form of an employee being given a rebuke and punishment for being late, even one day a week is an example. Negative feedback is used to correct or reduce bad behavior to correct a mistake or change behavior.

Performance feedback theory is typically used in performance management. Specific feedback that is timely, clear and specific to employees can help them understand their performance level, identify the areas in which they are excelling and those in need of correction and development of improvement plans to address the deficiencies. Performance feedback can not only promote individual learning and growth but also enhance employees' sense of belonging and satisfaction to the organization and improve the overall performance level.

The performance feedback theory was used to explain how employees can promote their performance by providing effective feedback. By analyzing the principle and action mechanism of performance feedback, it provided theoretical support for improving the effectiveness of performance management and provide guidance for practical work.

METHODOLOGY

The participants in this study included managers, department heads and junior employees of Chinese property development companies. Purposive sampling method was used to cover representatives of various types of enterprises, such as state-owned enterprises, listed enterprises and non-listed enterprises, with significant differences in management systems and enterprise performance within the city of Nanjing. The sample comprised all levels of personnel closely related to performance management, from management to ordinary employees. Eligible sample companies and individuals were screened based on pre-set criteria, focusing on sample units that could provide rich performance management practices and business operation data. Systematic research and data analysis of the selected sample focused on the different characteristics of different types of enterprises in terms of the operational effectiveness of performance management systems and corporate performance.

Research Design

A quantitative descriptive research method was used to analyze the operational effectiveness of management systems of real estate development enterprises in Nanjing. Correlation analysis was done between the nature of the enterprise (state-owned/listed/non-listed), the number of years of experience of the employees, the size of the enterprise and the operational performance at specific points in time.

Participants of the Study

The respondents included managers, supervisors, and employees from five real estate enterprises in Nanjing classified as

- 1 State-owned enterprise
- 2 Listed enterprises
- 2 Non-listed enterprises

Participants were selected using a purposive sampling technique to ensure representation across different enterprise types and organizational levels. A total of 500 respondents participated, distributed as follows:

Table 1
The Respondents of the Study

Name of Company	Managers/Assistants	Employees
Company A	2	125
Company B	2	112
Company C	2	99
Company D	2	78
Company E	2	76
TOTAL	10	490

Research Instrument

The research employed a self-constructed questionnaire divided into three parts:

Part 1: Profile of the enterprises and respondents (e.g., business type, workforce size, and years of operation).

Part 2: Assessment of performance management systems-, focusing on human resources, financial resources, and procedural systems.

Part 3: Identification of challenges faced by enterprises and potential interventions.

A 4-point Likert Scale was used for respondents to express their level of agreement with statements related to performance management and organizational performance.

Table 2
Likert Scale

Scale	Range	Verbal Interpretation
4	3.21 – 4.00	Strongly Agree (SA)
3	2.41 – 3.20	Agree (A)
2	1.61 – 2.40	Moderately Agree (MA)
1	1.00 – 1.60	Disagree (D)

Data Gathering Procedures

The data collection process involved three phases:

Preparation Stage:

1. Development of the questionnaire based on the study's objectives and prior literature.
2. Selection of participants and determination of sample size.
3. Creation of a detailed plan for data collection.

Implementation Stage:

1. Distribution of the questionnaire through the "Questionnaire Star" platform.
2. Monitoring of data collection to ensure high response rates and data quality.

Sorting Stage:

1. Cleaning and coding of collected data.
2. Conducting preliminary descriptive statistical analyses.

Data Analysis Procedures

The data analysis focused on quantitative methods, including:

1. Descriptive Statistics:

Analysis of respondent demographics (e.g., age, gender, and position).

Calculation of means, standard deviations, and distributions for key performance indicators.

2. Correlation Analysis:

Use of Pearson's correlation coefficient to assess the relationships between key performance indicators and enterprise performance metrics (e.g., profit margins, customer satisfaction).

3. Variance Analysis:

Application of One-Way ANOVA to compare performance metrics across state-owned, listed, and non-listed enterprises.

Post-hoc tests (e.g., Tukey test) to identify specific group differences.

Research Locale

The study focused in Nanjing, Jiangsu Province, a thriving economic hub with diverse real estate enterprises. Nanjing's unique mix of state-owned, listed, and private companies offered an ideal setting for examining varied performance management practices. The city's commitment to urban development and sustainability further enriched the study's context.

Ethical Considerations

This study was reviewed by the Ethical Review Committee of the University of the East in August 2024. Participants were briefed about the study's objectives and assured of their voluntary participation. Consent forms highlighted data confidentiality and participants' right to withdraw. Data was anonymized and stored securely to protect participants' privacy. Findings were used solely for academic purposes.

RESULTS AND DISCUSSION

1. Enterprise Profiles

Table 3
Enterprise Characteristics

Indicators	Option	Frequency	Percentage (%)
Form of business enterprise	State-owned enterprises	2	20
	Quoted company	4	40
	Private company corporation	4	40
	5 Years and below	3	30

Operating years	From 6 years to 15 years	4	40
	For 16 years and more	3	30
	In the annual range of 50-100 persons	2	20
Number of employees	of the 101-200 persons	2	20
	of 201 and more persons	6	60
Amount to		10	100

Table 3 shows an even mix of listed and private enterprises, while state-owned enterprises account for a smaller share. Most enterprises have operated for 6–15 years, indicating maturity and growth. The majority employ over 200 staff, reflecting a prevalence of large enterprises in Nanjing’s real estate sector. These results align with Zhang Lejiao’s (2024) findings that organizational size and structure significantly influence market adaptability.

2. Employee Profiles

Table 4
Summary of the Profile of the Respondents- Employees

Indicators	Option	Frequency	Percentage (%)
Age	Age 25 and below	93	18.6
	26-30 Years old	107	21.4
	31-35 Years old	92	18.4
	36-40 Years old	86	17.2
	41-45 Years old	69	13.8
	Age 45 and Above	53	10.6
Sex	Female	237	47.4
	Male	263	52.6
Marital Status	unmarried	174	34.8
	married	326	65.2

Seniority	One year and less	93	18.6
	2-5 Years	180	36.0
	6-10 Years	77	15.4
	11-15 Years	78	15.6
	16-20 Years	33	6.6
	20 Years and More	39	7.8
Highest Education	junior college	243	48.6
	baccalaureate	179	35.8
	master's degree	60	12.0
	doctorate	18	3.6
Position	staff	490	98.0
	manager	10	2.0
Amount to		500	100

Table 4 shows that the workforce is predominantly young and middle-aged (26–35 years). The balanced gender ratio and a high proportion of married employees (65.2%) suggest stability in employee demographics. Armstrong (2004) emphasized that aligning workforce characteristics with organizational goals improves performance, a finding consistent with these results.

3. Performance Evaluation

3.1 Human Resources

Table 5

Human Resources

Indicators	Average Value	Standard Deviation	Verbal Interpretation
The company provides a variety of training opportunities, including professional training and cross-functional training.	2.784	1.064	Agree
The company has a clear and regularly updated promotion mechanism.	2.798	1.099	Agree

The company provides comprehensive and competitive benefits for its employees.	2.800	1.084	Agree
The company maintains a low employee turnover rate, indicating a high retention rate.	2.734	1.076	Agree
The company provides a satisfactory working environment for its employees.	2.754	1.115	Agree
The company has a transparent and fair performance evaluation system.	2.764	1.102	Agree
The company actively promotes the corporate culture, and its employees highly recognize and participate in it.	2.746	1.043	Agree
The company has established a clear career development path for all employees.	2.754	1.071	Agree
The company has strict recruitment standards to ensure the quality of recruitment.	2.772	1.095	Agree
The company conducts regular employee satisfaction surveys to collect feedback.	2.726	1.130	Agree
The company promotes the work and life balance of employees through flexible work arrangement.	2.820	1.076	Agree
The company has a mentor program for career process.	2.722	1.122	Agree

The company provides international training and exposure opportunities.	2.798	1.062	Agree
The company also provides performance rewards in addition to the basic salary.	2.722	1.090	Agree
The company reasonably distributes the workload.	2.778	1.106	Agree
The company handles employee complaints through a transparent process.	2.774	1.076	Agree
The company has a structured induction training process.	2.842	1.073	Agree
The company supports the sustainable professional development of its employees.	2.758	1.107	Agree
Companies actively promote diversity and inclusiveness.	2.750	1.100	Agree
Encourage innovation and creativity.	2.700	1.114	Agree

Strongly Agree: 3.21 – 4.00, Agree: 2.41 – 3.20, Moderately Agree: 1.61 – 2.40, Disagree 1.00 – 1.60.

A key strength is shown with the structured induction training scoring the highest (mean = 2.842), indicating strong onboarding practices. Key weaknesses are shown by the following results. Encouraging innovation ranked lowest (mean = 2.700), revealing a need for enhanced creativity incentives. This finding aligns with Yin Jinggang's (2012) discussion of technological adaptability challenges in real estate systems, which highlights the difficulties enterprises face in integrating advanced technologies and fostering a culture of innovation. Yin (2012) noted that resistance to new systems and a lack of structured support for technological adoption often hinder innovation efforts. These barriers may explain the low innovation scores observed in this study, suggesting that real estate enterprises in Nanjing need to address these systemic challenges to improve their innovation capabilities. Elazegui *et al.* (2023) noted similar trends in structured training improving employee satisfaction, while Pfeffer (1994) stressed the importance of fostering innovation to remain competitive.

3.2 Financial Resources

Table 6

Financial Resources

Indicators	Average Value	Standard Deviation	Verbal Interpretation
The company uses capital effectively to maximize returns.	2.670	1.110	Agree
The company has taken effective cost control measures.	2.806	1.106	Agree
The company continues to achieve high profitability.	2.734	1.076	Agree
Maintain financial transparency through accurate and timely reporting.	2.674	1.102	Agree
Financial statements are audited regularly to ensure accuracy.	2.762	1.095	Agree
The company has achieved a reasonable asset-liability ratio.	2.704	1.080	Agree
The company manages financial risk through sound risk management practices.	2.724	1.107	Agree
The company has a scientific budget management system.	2.732	1.111	Agree
The company has a strong capital allocation strategy.	2.790	1.090	Agree
The company's financial resources are effectively allocated to support business growth.	2.780	1.083	Agree

The company maintains sufficient liquidity to meet its obligations.	2.748	1.073	Agree
The company's long-term financial planning is consistent with its strategic objectives.	2.762	1.068	Agree
The company makes investment decisions based on exhaustive financial analysis.	2.742	1.100	Agree
The company has developed a clear dividend distribution policy.	2.742	1.096	Agree
The company conducts regular financial audits to ensure compliance and accuracy.	2.690	1.099	Agree
The company provides financial non-financial managers.	2.744	1.068	Agree
The company regularly updates and corrects its financial forecasts.	2.734	1.083	Agree
The company has a high rate of return (ROI).	2.640	1.116	Agree
The company's financial management system is constantly being modernized.	2.688	1.109	Agree
The company uses financial data to make strategic decisions.	2.732	1.106	Agree

Strongly Agree: 3.21 – 4.00, Agree: 2.41 – 3.20, Moderately Agree: 1.61 – 2.40, Disagree: 1.00 – 1.60.

Key strengths are indicated by cost control measures (mean = 2.806) and capital allocation strategies (mean = 2.790) being highly rated. Key weakness is indicated by return on investment (mean = 2.640) receiving the lowest score. Sasan *et al.* (2022) highlighted cost management as a cornerstone for financial stability, echoing the strengths identified here. However, the lower ROI aligns with Rago *et al.* (2023), suggesting a need for better investment strategies.

3.3 Systems and Procedures

Table 7
Systems and Procedures

Indicators	Average Value	Standard Deviation	Verbal Interpretation
The company has a comprehensive and regularly updated workflow system.	2.740	1.088	Agree
The company's project management process is efficient and effective.	2.718	1.092	Agree
The company's quality management system is sound and well implemented.	2.780	1.080	Agree
The company's information system is advanced and supports business operation.	2.758	1.100	Agree
The company's procurement process is standardized and transparent.	2.752	1.101	Agree
The company optimizes logistics and supply chain management to improve efficiency.	2.702	1.115	Agree
The company's has strict production management to ensure high quality output.	2.744	1.079	Agree
The company provides complete and efficient after sales service.	2.724	1.089	Agree
The company's internal control is effective and regularly reviewed.	2.718	1.092	Agree
The company's safety management procedures are strict and followed.	2.808	1.100	Agree
The company effectively adopts and integrates new technologies.	2.706	1.070	Agree
The company has disaster recovery and business continuity plans.	2.666	1.103	Agree
The company ensures compliance with all relevant laws and regulations.	2.694	1.126	Agree
The company's customer data privacy and protection measures are strong.	2.690	1.114	Agree
The company has established a system to track and solve customer feedback.	2.630	1.115	Agree
The company's supplier relationships are managed through a formal evaluation process.	2.710	1.090	Agree
The company has a clear process for handling customer complaints.	2.636	1.131	Agree
The company encourages and implements ongoing process improvements	2.616	1.077	Agree
Cross-functional collaboration is promoted through integrated systems.	2.692	1.138	Agree
The company's IT infrastructure is maintained and is upgraded regularly.	2.738	1.115	Agree

Strongly Agree: 3.21 – 4.00, Agree: 2.41 – 3.20, Moderately Agree: 1.61 – 2.40, Disagree: 1.00 – 1.60.

Key strengths are shown by safety management (mean = 2.808) and quality control (mean = 2.780) rated as top-performing areas. Key weaknesses are shown by process improvement initiatives (mean = 2.616) and customer feedback systems (mean = 2.630) showing room for improvement. Hammer and Champy (2001) emphasized that effective systems improve efficiency. However, gaps in process improvements echo Yin Jinggang's (2012) observations of challenges in system optimization.

The results of the assessments of comprehensive human resources (Table 5), financial resources (Table 6), and system processes (Table 7), show that there are significant differences among the three types of enterprises in all dimensions of the management system ($F=5.32$, $p<0.05$). Among them, state-owned enterprises excel in human resource standardization, and listed enterprises excel in financial transparency. This is consistent with the conclusions of Zhang Lejiao (2024) on the governance structure of Chinese real estate enterprises.

4. Demographic Variations in Performance

4.1 Age

Table 8
Significance Difference in Terms of Age

Indicators	Difference	Quadratic Sum	Free Degree	Mean Square	F	P-price
Human Resources	Interblock	3.725	5	0.745	1.038	0.394
	Within the Group	354.401	494	0.717		
	Amount to	358.125	499			
Financial Resources	Interblock	3.994	5	0.799	1.095	0.362
	Within the Group	360.367	494	0.729		
	Amount to	364.36	499			
Systems and Procedures	Interblock	1.771	5	0.354	0.518	0.762
	Within the Group	337.53	494	0.683		
	Amount to	339.301	499			

No significant differences in HR, financial resources, or systems and procedures across age groups were observed, suggesting uniformity in perception regardless of age. This finding may be explained by Maslow's Hierarchy of Needs, which posits that employees across different age groups share fundamental needs such as job security (safety needs) and opportunities for professional growth (self-actualization needs). Since these needs are universal, employees of all ages may perceive organizational practices similarly, particularly in well-established enterprises where policies are consistently applied. This aligns with Armstrong's (2004) assertion that effective HR practices, such as structured training and fair performance evaluations, can create a sense of equity and satisfaction across diverse employee demographics.

4.2 Gender

Table 9
Significance Difference in Terms of Sex

Analysis Indicators	Item	Average Value	Standard Deviation	Mean Difference	t	df	P
Human Resources	Female	2.65	0.87	-0.22	-2.932	485.045	0.004**
	Male	2.87	0.82				
Financial Resources	Amount to Female	2.76	0.85	0	0.064	498	0.949
	Male	2.73	0.84				
	Amount to Female	2.73	0.87				
	Male	2.73	0.85				
Systems and Procedures	Female	2.62	0.83	-0.17	-2.338	498	0.020*
	Male	2.79	0.82				
	Amount to Female	2.71	0.82				

* p <0.05 ** p <0.01

Significant differences were noted in HR ($p = 0.004$) and systems and procedures ($p = 0.020$), with males rating these areas higher. This phenomenon may be related to the persistent structural inequalities in the performance appraisal system, as pointed out by management scholar Jeffrey Pfeffer's research in the 1990s. He stated that differences in gender dominance in the workplace affect employees' perceptions of the organizational environment. Specifically, male employees are typically more likely to have access to key project participation opportunities, career

guidance resources, and promotion paths, a difference that may directly influence perceptions of organizational fairness across gender groups. Notably, men's positive evaluations of institutional processes may also be related to their involvement in policy-making sessions - previous research on organizational decision-making has shown that members of the dominant decision-making group tend to hold a more positive endorsement of established rule systems. The findings suggest the need for a more gender-inclusive policy framework in human resource management practices, particularly in terms of optimizing talent selection criteria, reforming decision-making participation mechanisms and improving career development support systems, in order to build a fairer career ecosystem.

4.3 Marital Status

Table 10
The Civil Status

Analysis Indicators	Item	Average Value	Standard Deviation	Mean Difference	t	df	P
Human Resources	Single	2.57	0.92	-0.30	-3.628	307.774	0.000**
	Married	2.87	0.79				
Financial Resources	Amount to Single	2.76	0.85	0.05	0.609	498	0.543
	Married	2.71	0.86				
Systems and Procedures	Amount to Single	2.78	0.80	0.11	1.381	498	0.168
	Married	2.67	0.83				
	Amount to	2.71	0.82				

* p < 0.05 ** p < 0.01

Married employees reported significantly higher satisfaction in HR practices ($p = 0.000$), indicating better alignment with organizational policies. This phenomenon may be explained by the Hierarchy of Needs theory - employees in a marital status tend to place more emphasis on occupational safety and security and interpersonal support in the workplace, which are exactly the same as Maslow's theory of security needs and social needs. Classical human resource management research confirms that when companies establish transparent talent development mechanisms and objective performance evaluation systems, the perception of organizational fairness by employees from different

backgrounds will be significantly enhanced. It is worth noting that the skill enhancement opportunities brought about by systematic training, the level playing field created by standardized appraisals, and the relationship networks formed in teamwork together form an important foundation to support the satisfaction of married employees. This finding suggests that organizational managers need to pay attention to the core demands of employees at each stage of their life cycle, and optimize the structure of compensation and benefits, improve career development paths and other measures to achieve a dynamic match between human resources policies and the actual needs of employees.

Table 11
Significance Difference in Terms of Years of Service

Indicators	Difference	Quadratic Sum	Free Degree	Mean Square	F	P-price
Human Resources	Interblock	7.529	5	1.506	2.122	0.062
	Within the Group	350.596	494	0.71		
	Amount to	358.125	499			
Financial Resources	Interblock	16.605	5	3.321	4.717	0.000
	Within the Group	347.756	494	0.704		
	Amount to	364.36	499			
Systems and Procedures	Interblock	13.441	5	2.688	4.075	0.001
	Within the Group	325.86	494	0.66		
	Amount to	339.301	499			

No significant difference was observed ($p > 0.05$) on human resources suggesting that employee perceptions of HR practices are consistent across years of service.

Significant differences were found ($p < 0.05$) with regard to Financial Resources and Systems/Procedures. Employees with 11–15 years of service rated financial resources and systems more positively than those with fewer years of service. This indicates

that experienced employees may have greater insight into the effectiveness of these areas, as they have had longer exposure to the company's processes.

These results align with the findings of Kaplan and Norton (1996), who emphasized the importance of aligning experience levels with organizational performance measures.

4.4 Highest Educational Attainment

Table 12

Significance Difference in Terms of Highest Educational Attainment

Indicators	Difference	Quadratic Sum	Free Degree	Mean Square	F	P-price
Human Resources	Interblock	8.887	3	2.962	4.207	0.006
	Within the Group	349.238	496	0.704		
	Amount to	358.125	499			
Financial Resources	Interblock	18.123	3	6.041	8.654	0.000
	Within the Group	346.237	496	0.698		
	Amount to	364.36	499			
Systems and Procedures	Interblock	9.592	3	3.197	4.810	0.003
	Within the Group	329.709	496	0.665		
	Amount to	339.301	499			

Significant differences were observed across all indicators ($p < 0.05$) when it comes to educational attainment. Employees with higher educational attainment (e.g., doctoral degrees) rated HR, financial resources, and systems higher than those with lower educational levels (e.g., junior college). This finding suggests that employees with advanced education may have higher expectations and a deeper understanding of organizational processes. The results align with Esperon (2011), who emphasized the role of educational background in shaping perceptions of organizational effectiveness.

4.5 Position

Table 13

Significance Difference in Terms of Position

Analysis Indicators	Item	Average Value	Standard Deviation	Mean Difference	t	df	p
Human Resources	staff	2.76	0.85				
	manager amount to	3.06	0.73	-0.30	-1.294	9.509	0.226
Financial Resources	staff	2.72	0.86				
	manager amount to	3.06	0.74	-0.34	-1.426	9.503	0.186
System and Procedures	staff	2.70	0.82				
	manager amount to	3.09	0.76	-0.39	-1.489	498	0.137

* p < 0.05 ** p < 0.01

No significant differences were found across all indicators ($p > 0.05$) based on position. This suggests that perceptions of HR, financial resources, and systems are consistent regardless of whether an employee is in a managerial or non-managerial position. This result may reflect the effectiveness of standardized organizational policies and systems that are perceived similarly across hierarchical levels. However, further qualitative insights could help explore nuances in these perceptions.

3. Significant Relationship Between Performance Level and Enterprise Profile

Table 14*Summary of Relationship of the Performance and the Profile*

		Enterprise Performance Level	Form of Business Enterprise	Operating Years	Number of Employees	
Enterprise Performance Level	Correlation Coefficient	1				
	P- price	-				
	Sample Capacity	-				
Form of Business Enterprise	Correlation Coefficient	-0.689*	1			
	P- price	0.028	-			
	Sample Capacity	10	-			
Operating Years	Correlation Coefficient	0.726*	-0.863**	1		
	P- price	0.018	0.001	-		
	Sample Capacity	10	10	-		
Number of Employees	Correlation Coefficient	0.683*	-0.802**	0.807**		1
	P- price	0.029	0.005	0.005	-	-
	Sample Capacity	10	10	10		-

* p < 0.05 ** p < 0.01

Form of Business Enterprise

The correlation coefficient between enterprise performance level and form of business enterprise is -0.689, which is statistically significant ($p < 0.05$). This indicates a negative relationship, meaning that performance levels vary significantly by enterprise type. Listed companies and state-owned enterprises tend to outperform non-listed companies, as evidenced by stronger management structures and resources. This result aligns with Zhang Lejiao (2024), who noted the unique challenges faced by non-listed companies in maintaining competitive performance due to fewer resources and limited oversight compared to listed and state-owned enterprises.

The correlation coefficient between enterprise performance level and operating years is 0.726, showing a significant positive relationship ($p < 0.05$). This indicates that older enterprises tend to perform better due to their accumulated experience, better customer relationships, and established operational efficiencies. This aligns with Kaplan and Norton (1996), who emphasized the importance of aligning long-term operational strategies with organizational experience to achieve sustainable performance.

Number of Employees

The correlation coefficient between enterprise performance level and the number of employees is 0.683, which is statistically significant ($p < 0.05$). This suggests that larger enterprises, with more employees, have higher performance levels. This is likely due to better resource allocation, division of labor, and innovative capacity within larger workforces. The result corroborates Esperon (2011), who highlighted that a larger workforce allows companies to better manage workload distribution and leverage diverse talents for performance improvement.

The findings provide actionable insights for enterprise management.

Enterprise Type: Non-listed companies may benefit from adopting practices seen in listed or state-owned enterprises, such as structured performance management systems and transparent reporting.

Operating Years: Younger companies should focus on learning from industry best practices and investing in customer relationship management to accelerate their performance growth.

Employee Base: Smaller enterprises should prioritize strategic hiring and workforce development to enhance innovation and productivity.

These insights underscore the importance of tailoring strategies to enterprise-specific profiles to optimize performance outcomes.

The analysis of the correlation between corporate characteristics and performance levels validated the applicability of economies of scale in the real estate industry, which corroborates the findings of Wang Lining (2020). However, it is worth noting that the institutional characteristics of state-owned enterprises showed a negative correlation with performance. This unique finding provides direct evidence for Zhang Lejiao's (2024) 'institutional cost' theory and offers a new perspective on the current practice of mixed ownership reform.

5. Challenges Identified

Table 15

Challenges in the Operation Process of Real Estate Development Enterprises

Option	Frequency	Scale
Poor financial risk management of the company may lead to potential losses.	194	38.8%
The company's budgeting process is ineffective, resulting in overruns or underuse of funds.	179	35.8%
Improper cash flow management affects business operations.	177	35.4%
The company is limited in its market research and analytical capabilities.	176	35.2%
Companies provide limited opportunities for career development, resulting in low employee engagement.	168	33.6%
It is difficult to align its short-term goals with its long-term strategy.	163	32.6%
Companies struggle to adapt to rapid technological change.	152	30.4%
Low employee satisfaction affects overall morale and productivity.	151	30.2%
Insufficient financial monitoring of the company results in low efficiency of resource use.	151	30.2%
The enterprise project management tool is ineffective, resulting in project delays and cost overruns.	137	27.4%
The communication between the various departments of the company is inconsistent.	114	22.8%
Companies lack adequate training programs to develop the necessary skills.	105	21%
Companies face challenges in integrating sustainability practices into their business model.	101	20.2%
Companies resist continuous improvement and innovation.	99	19.8%
Companies face challenges in managing international projects with cross-cultural teams.	91	18.2%
As industry regulations change, companies face challenges in maintaining compliance.	86	17.2%
The company's performance evaluation system is ineffective and cannot accurately reflect the contributions of employees.	83	16.6%
The company ensures strong cyber security measures.	56	11.2%
Companies struggle to recruit quality people in competitive markets.	49	9.8%
Companies struggle to retain top talent.	9	1.8%

Top Challenges:

Financial Risk Management (38.8%) was rated by most to be the top challenge in the operation of real estate development enterprises. This finding is consistent with Sasan *et al.* (2022), this highlights vulnerabilities in coping with market fluctuations. Budgeting Inefficiencies (35.8%) was rated second which aligns with Ross, Westerfield, and Jaffe (2010) on the importance of strategic budgeting. Career Development (33.6%) came in third suggesting that limited opportunities affect engagement, as noted by Pfeffer (1994).

The results of identifying operational challenges for real estate companies show that financial risk management and budget control are the most prominent issues facing the industry. This situation is highly consistent with Ross *et al.* (2010)'s early warning of financial vulnerability in real estate development companies. Combining the latest research results from Sasan *et al.* (2022), companies should prioritize the introduction of real-time financial monitoring systems, which may be the most effective technical solution to address the current challenges.

Output of the Study

This study explored how performance management systems function in real estate development companies in Nanjing, paying particular attention to three crucial organizational factors namely human resources, financial resources, and the systems and procedures in place. An investigation was done on five real estate development firms, one state-owned, two listed, and two non-listed, to understand how current practices in performance management work, as well as the key challenges these companies encounter. Based on the three-stage chain of evidence derived from the above findings—management system differences verification (H_{01}) → analysis of demographic factors → examination of corporate characteristics (H_{02})—this study proposes the following targeted intervention measures.

Enhance Financial Management and Risk Control

Real estate development enterprises should set up clear financial systems with straightforward reporting, careful budget tracking, and regular independent checks. These routine reviews keep things transparent and detect any money issues before they

become big problems. Modern financial tools are game-changers because they can allow enterprises to monitor their numbers in real time and be able to spot warning signs like cash shortages. It is also wise to keep emergency cash reserves and stay on top of payments of loans in order to avoid money crunches. At the same time, regular training can help finance team spot risks early and handle them effectively.

Refine Budgeting and Cost Control

Effective budget planning and cost control are essential for maintaining financial stability and optimizing resource allocation. Organizations should implement comprehensive market analysis, detailed cost assessments, and realistic revenue projections to develop practical budgets. The zero-based budgeting approach proves particularly valuable by requiring justification for all expenditures, ensuring efficient resource distribution. Additionally, enhancing procurement procedures through competitive supplier evaluations and adopting energy-efficient operations can significantly contribute to expense management. These measures collectively enable businesses to maintain financial discipline while maximizing the utility of available resources.

Boost Employee Satisfaction and Career Development

Keeping employees happy is key to keeping them motivated and loyal. Organizations should regularly check in with staff through surveys to understand what they need, then adapt HR policies to offer things like flexible work hours, fair pay, and skills training. By mapping out clear career progression paths and doing regular performance reviews, companies can help workers set meaningful goals while creating a welcoming workplace culture that draws in top talent.

Strengthening Market Research and Analytical Capabilities

Understanding the market is crucial for making smart business decisions. Companies should create specialized teams to continuously study industry developments and customer preferences. By using advanced data analysis tools, businesses can gain valuable insights into market changes, allowing them to

improve their strategies and optimize their supply chain operations more effectively.

Promote Technological Innovation and Adaptability

In today's competitive property sector, embracing new technologies gives businesses an edge. Firms need to focus on eco-friendly construction methods, intelligent home features, and sustainable materials to satisfy growing demand for green living spaces. Flexible company setups help react faster to shifting market conditions, while rewarding creative thinking encourages teams to develop innovative solutions to industry challenges.

Enhance Project Management and Operational Efficiency

Strong project management makes all the difference for property developers. Using modern approaches like Agile workflows and lean building methods helps teams deliver better quality projects. When managers can track progress in real-time, they spot issues faster and cut through red tape - keeping projects on schedule and running smoothly.

Foster Corporate Culture and Communication

A positive workplace culture brings teams together and strengthens company identity. Organizations can nurture this by creating engaging team events, implementing employee recognition initiatives, and celebrating achievements together. Keeping communication channels open through regular check-ins and digital collaboration tools helps teams work better together and share knowledge more effectively - leading to improved business results overall.

CONCLUSION

Results of this highlight how performance management systems significantly enhance how Nanjing's property developers operate. The study reveals that human resources, financial resources, and procedure system do not work alone but are interconnected pieces that depend on each other to drive business success.

The analysis found that performance management practices across different types of companies were significantly diverse. State-owned and publicly listed firms, for example, showed more structured and mature systems, particularly in financial resource management, whereas non-listed firms could be more flexible and innovative in dealing with human resource management. These differences reflect strategic priorities and operational conditions determined by, among other things, the nature of the enterprise, its history and the size of its workforce.

As issues of employee satisfaction and employee engagement were consistently raised as ongoing issues, human resource management specifically presented as a challenge. Overall, companies that have been around for longer and which have larger teams seem to offer a closer match between employee ambitions and company goals. Additionally, gender, marital status and years of service appear to have positive, albeit small, effects on the performance evaluations, confirming the need for more individualized management practice that considers employee characteristics.

Financial management was also a critical concern, including in the areas of budget planning and supervision of cash flow. Real estate businesses must build up their risk management apparatus and leverage advanced financial technologies for better real-time decision-making and to navigate uncertain financial worlds. Solid financial management is required to secure lasting growth and stability in a mighty competitive marketplace.

Systems and procedures primarily internal controls and compliances showed relatively high performance on the other hand. Nonetheless, any sustained competitive advantage is going to demand ongoing innovation in integrating information systems and improving processes as the real estate industry continues to move at breakneck speed in terms of technology.

In the end, the survival and prosperity of the real estate development enterprises in Nanjing depend on their constant improvement and combination of human resources management, financial elements management, and the management of procedure practices. Through innovation culture, financial sustainability, and utilization of modern management tools, these firms can not only deal with existing challenges but also establish

themselves on sustainable growth trajectory in a competitive fast-paced business world.

Future research could replicate this study but focusing on China's Yangtze River Delta region in order to isolate Nanjing-specific policy effects from broader regional trends.

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Reaching New Heights through Research Beyond 78: the UE Research Forum on September 2024

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The Office of Research Coordination (ORC) conducted the UE Research Forum on September 26, 2024, for its traditional contribution to the celebration of the 78th foundation anniversary of the University of the East with the theme "Reaching New Heights through Research Beyond 78." There were 585 participants distributed as follows: officers and faculty members (53); forum presenters (10); guests (6) and students from the College of Business Administration (CBA) Manila (5); Basic Education Department (BED) Manila (26); College of Computer Science and Systems (CCSS)(82); College of Dentistry (85); and College of Arts and Sciences (CAS) Manila (316).

Opening

Dr. Alberto T. Paala, dean of the UE Graduate School, gave the welcome remarks on behalf of UE Manila Chancellor Louie Divinagracia. Dean Paala commended the audience for their presence, which he considered a "testament to our shared commitment to advancing knowledge and fostering a vibrant research community." He described the forum's theme for this year as "capturing our shared mission to surpass self-imposed boundaries, reminding us of research opportunities, and urging us to explore new horizons." Lastly, he encouraged everyone to "embrace new perspectives, foster meaningful discussions, and remain driven to elevate our research outputs so we can turn today's theme into reality."

UE President Zosimo Battad welcomed the participants to this year's forum, stressing the efforts of the faculty in adhering to the required functions of higher educational institutes (HEIs), which are to promote instruction, advance research, and expand community outreach. He reiterated how important research is in generating new knowledge and how the only way the faculty can earn the title of a professor is when they are able to contribute new knowledge in their discipline through research. This knowledge should be disseminated through publication, and in this department, the University of the East Research Bulletin (UERB), which is now renamed as the University of the East Research Journal (UERJ), has provided an avenue for the dissemination of research findings of UE faculty and constituents.

ORC Director Lydia Leonardo welcomed the audience to the 17th UE Research Forum, recalling that even during the time of the pandemic, the forum continued using the webinar platform. For three years, from 2020 to 2022, the forum was conducted online with guest presenters coming from Centro Escolar University (CEU), Adamson University, Far Eastern University (FEU), and Manuel L. Quezon University (MLQU). In September 2023, the first onsite forum was held in UE Manila, followed by another onsite forum in March 2024 in UE Caloocan. Dr. Leonardo expressed hope that this third onsite forum will continue in the forthcoming years with plans of documenting the proceedings of each meeting and publishing them so more people would be aware of this biannual event. The current forum featured presentations from UE Manila and UE Caloocan, CEU Manila, and CEU Makati. A new guest presenter, this time from Jose Rizal University (JRU), in the person of Dr. Michael Angelo Battung, was also welcomed in the forum.

Presentations in the Morning

The morning session featured presentations from various interesting fields. UE CAS Manila faculty Prof. Steve Obanan's talk entitled "Tree Biodiversity Assessment of a Highly Urbanized City in the Philippines" stressed the importance of urban parks such as the Quezon Memorial Circle Park (QMCP), which could contribute to urban park biodiversity, which is vital in the promotion of health and well-being of city inhabitants. Such

urban parks, if well-maintained, can also provide various ecosystem services that contribute ecological benefits to highly altered urban settlements. The QMC urban park was found to have high tree biodiversity with a Shannon diversity index value of $H' = 3.024$. Narra (*Pterocarpus indicus*) was the most abundant tree species, and Fabaceae was the most common tree family in the urban park. Most of the tree species are native trees, although introduced trees were equally abundant. Prof. Obanan encouraged people in the academe, particularly in the field of Biology, to do more research that could produce results that can be used as guides by local government authorities in crafting policies for the maintenance of urban parks.

The presentation of CEU faculty Prof. Joan Adriano entitled "Green synthesis of silver nanoparticles by *Ipomoea batatas*, *Colocasia esculenta*, and *Moringa oleifera* aqueous leaf extracts" showed the potential of using common and readily available plants such as gabi, talbos ng kamote and malunggay in the synthesis of silver nanoparticles. Silver nanoparticles play a crucial role in nanotechnology research and development with widespread applications across diverse fields owing to their distinct physicochemical and biological properties. Although these plants by themselves cannot produce silver, they have special molecules that can facilitate the production of silver nanoparticles when combined with agents such as silver nitrate. The plant-based green synthesis of silver nanoparticles presents a practical, environmentally friendly, and cost-effective method with significant potential for further applications.

Prof. Stephen Capilitan from CEU, in his talk entitled "Investigating the Impact of Clinical Applications and Systems Dynamic Modeling on Systems Thinking in Undergraduate Cell and Molecular Biology Education," stressed the impact of utilizing clinical applications to enhance systems thinking abilities and proficiency in creating stock-and-flow diagrams among undergraduate Biology students. Results from classroom observations, student products, and interviews indicate that most students who utilized these applications were able to identify and apply the seven characteristics of systems thinking. The findings highlight the importance of (1) introducing the seven

characteristics of systems thinking, (2) applying these characteristics in various contexts, (3) focusing on individual characteristics, and (4) explicitly using system language. This study shows the potential of integrating clinical applications and systems dynamic modeling in improving cell and molecular biology education. This might just be part of the solution to addressing the low proficiency in mathematics, science, and critical thinking. Teachers need to be oriented on this new concept in learning and embrace novel and new technologies since these are valuable ways of improving learning in this present time.

Dr. Michael Angelo P. Battung from JRU, in his first presentation entitled "The Multi-Stream Management Approach on Millennial Generation Workers and Its Impact on Job Satisfaction, Employee Productivity, and Organizational Commitment," spoke about multi-stream management, which is a better way of dealing with Gen Z employees by addressing their job productivity and performance, organizational commitment and job satisfaction to increase their longevity in the company and improve their performance. Unfortunately, this approach still has to be adopted by many companies, but it is believed that this is the best way to deal with Gen Z employees who wish to be treated like stakeholders instead of just mere employees in the sense that they are heard and listened to and their views carefully considered.

In his second presentation, entitled "Influence of Budgetary Control on the Growth of MSMEs in Southern Manila District of NCR," Dr. Battung talked about how important budgetary control is to MSMEs to be able to survive aside from assistance from the government. The study shows that most respondents in his study agree that good budgetary control can facilitate the growth and efficiency of good business operations. This study enhances the current understanding, particularly in the budgeting and growth development of Micro, Small, and Medium Enterprises (MSMEs). The paucity of government assistance eventually led to the bankruptcy of many of these enterprises during the recent serious health emergency of the COVID-19 pandemic.

Mr. Michael Anthony Aduan from UE, in his presentation entitled "Code-Switching in Translanguaging Practices of College

Students Toward their Oral Proficiency in English,” explored the correlation between different code-switching practices and students' performance on the International English Language Testing System (IELTS) Speaking Fluency Test. Findings revealed that intra-sentential code-switching was the most frequently employed type, significantly enhancing comprehension, communication, and classroom engagement. This research highlights the pedagogical benefits of integrating code-switching into classroom instruction, suggesting that strategic use of translanguaging can foster improved language learning outcomes.

There were interesting questions on the various ways of code-switching and how special adjustments should be made in order to make code-switching beneficial, such as among persons with language disabilities. He recommended that professors pay attention to how code-switching can actually be used in improving comprehension and learning. Mr. Aduan's presentation is part of his master's thesis, which he took at the CEU.

Presentations in the Afternoon

Dr. Kimson Gener Kong from UE, in his study entitled "Prevailing Moral Standards in Higher Educational Institutions," presented the results of his investigation on the moral standards within Higher Education Institutions (HEIs) among faculty and students, employing a phenomenological approach where he examined the lived experiences of six faculty and six students from diverse HEIs via in-depth interviews. The findings reveal structured standards aligned with the Code of Ethics for Professional Teachers, with emphasis on values such as respect, honesty, integrity, and social responsibility. In addition, unwritten moral standards reflect participants' lived experiences, covering spirituality, empathy, accountability, fairness, and personal well-being. Three interconnected factors influence ethical behavior, namely moral character, interaction, and environment. Traits like integrity and self-discipline form the foundation for ethical conduct. Positive interactions, such as empathy and compassion, promote a supportive atmosphere. The moral environment, marked by responsibility and justice, shapes societal and institutional contexts for ethical behavior. Results of the study hopefully will improve understanding of the moral standards of HEIs and offer insights into promoting a morally upright society within institutions.

Prof. Mark Joseph Aragon from CEU-Makati, in his study entitled “Knowledge, Skills, and Training Needs of MAPEH Teachers in Private Secondary Schools in Iriga City,” reported that many MAPEH teachers lack proper training and support, especially in the case of private school teachers who have limited access to specialized training programs and often find themselves relying heavily on the internet as a source of information and instructional materials. It was emphasized that teachers cannot teach subjects that they have deficient knowledge about, and therefore, they cannot teach what they don't know. The results showed that MAPEH (Music, Arts, Physical Education, and Health) teachers need refresher training and various workshops to improve their skills in each of the four specializations. Recommendations include further studies in Graduate School on MAPEH, further work on Music education, balancing teacher time for different subject areas, and prioritizing training to improve knowledge and skills in MAPEH.

The study of Dr. Zandee Briones and Prof. Margarita Jaldo from UE entitled “A Sustainable Recovery Strategy for Tourism Related Establishments Affected by Pandemic through Continuous Improvement Plan” aimed to contribute to helping tourism-related establishments affected by the pandemic and create a sustainable recovery strategy through a continuous improvement plan. For almost three years, the tourism industry became one of the heaviest affected by closure and lockdowns. The challenge for tourism-related establishments is how to win back their customers and recover from financial loss. Through interviews and questionnaires of respondents such as managers, staff, and customers of selected tourism-related establishments in Boracay, the study concluded that recovery strategies provide directions or outline the future of tourism-related establishments. Among tourism-related establishments, the hotel has the best recovery strategy. The corporation type of business has the best recovery strategy program. Implementation of recovery strategies leads to better services to customers and high morale of the workforce. Lastly, small-owned tourism-related businesses are not strategy recovery-centered.

Dr. Nelson Agoyaoy of UE, in his presentation entitled Disaster Preparedness and Awareness of Selected Barangays in Caloocan City,” assessed the level of awareness about the

implementation of disaster preparedness programs and activities and sought solutions to problems encountered by the six (6) purposely selected barangays located in Caloocan City, a first-class highly urbanized city north of Metro Manila, Philippines. Respondents were officials of the barangay, Sangguniang Kabataan (SK) officials, and its residents. Results show that the respondents are fully aware of their preparation during times of disaster because their respective barangays conduct house-to-house information campaigns about what to do before, during, and after a disaster occurs. Their barangays provide medicines, hygiene, and sanitation kits for victims of disasters. They also have enough equipment, ambulances, emergency vehicles, and evacuation centers to support their disaster preparedness programs. Fire, flood, earthquake, and typhoon are the most experienced disasters in their barangays.

Problems encountered in the implementation of disaster preparedness programs were the lack of qualified personnel to conduct training, miscommunication between officials and residents due to political and personal reasons, and lack of sufficient budget that resulted in the low interest of residents to join in activities and programs. To improve disaster preparedness, the respondents suggested that there should be a continuous information campaign, training, and partnership with stakeholders towards community empowerment, strengthening communication among residents and officials, and proper allocation of funds for infrastructure development through periodic maintenance and inspections.

Open Forum

An open forum followed after every three presentations. The need for more urban parks was emphasized by Prof. Obanan, but given the limited green spaces in the city, residential yards, and pocket gardens could be set up. The problem of invasive species can be addressed by controlling them. Old trees should be preserved. Urban parks should be managed and maintained by LGUs, and they could be guided as more studies are made on urban parks.

Prof. Adriano stressed that while plants are unable to produce silver nanoparticles, they possess bioactive compounds that can facilitate the production of these by exposing them to

longer periods and higher concentrations of agents such as silver nitrate. The study shows the potential of locally available plants such as talbos ng kamote, gabi, and malunggay.

Prof. Capilitan suggested that the proper intervention to improve student's learning be chosen carefully. In the face of predictions of future pandemics, educational institutions should be acquainted with varying strategies for learning and teaching, and systems thinking is one of them. Prof. Capilitan explained that while it may be stressful to introduce new concepts in learning, the rewards could be in the possible improvement of the low proficiency in mathematics, science, and critical thinking. The demand for embracing novel and new technologies to alleviate problems in learning cannot be overemphasized.

Mr. Aduan explained that language is not a measurement of knowledge but an avenue to express ideas and thoughts. Teachers should be convinced that code-switching is beneficial. Although there are some subjects, such as mathematics, that are hard to teach in the native tongue, teachers can use English terms but cannot explain them in Filipino. It was mentioned that some students, such as Montessori students, can express themselves better in English while others do so in Filipino. Translanguaging considers both languages as one.

Mr. Aduan emphasized everyone's need to be understood. New and alternative tools and strategies should be provided for people with disabilities like dyslexia. Students should be allowed to be comfortable in their native language and should be provided with alternatives that would allow them to communicate more effectively.

Dr. Battung explained that in the Philippines, compared to other countries, most decisions are made by top management. Many companies are not familiar with multi-stream management, and there is a need for focus group discussions to clarify this.

Dr. Battung suggested that there should be assistance from the national government during times of emergencies. NEDA should assist in recommending strategies to help reduce taxes and create more jobs. Communication should be improved further between business entrepreneurs and the national government.

Dr. Kong explained that moral interaction involves relationships with other people, and moral character can best be shown through interaction with people. A favorable moral environment marked by justice and responsibility is crucial in the expression of good ethical behavior. Dr. Kong explained the phenomenological approach that he used in his study, where he first collected significant statements and then grouped these statements into clusters, and then obtained the moral standards based on the clustering.

Prof. Aragon shared the challenge that teachers face in teaching MAPEH since their proficiency in teaching these subjects is not that acceptable. These teachers are not experts in these subjects and therefore lack the confidence and the competence to handle them. The need for training and even enrollment in Graduate School was emphasized as the only way to deal with this challenge.

Dr. Briones identified strategies that tourism-related establishments can adopt in order to be able to recover from the backlash that they experienced from the years of lockdown imposed during the pandemic. These include integration, intensification, diversification, and defensive strategies. They should be able to develop new products and ensure enhancement of designed reengineering. The study showed that hotels have the best recovery strategy.

Dr. Agoyaoy shared that disaster preparedness can further be enhanced through education and training. While the level of awareness has been elevated, the response can be further improved through education. Challenges include the sustainability of financial support and maintenance of the psychological and emotional well-being of the people during disasters.

Closing

The presenters were given certificates of appreciation towards the end of the program. Chancellor Victor Macam of UE Caloocan concluded the event with his closing remarks, where he thanked the participants for their active participation in the forum, indicating their interest in research. Chancellor Macam emphasized the importance of continuous improvement in the conduct of research and, most especially, the continuous dissemination of research findings.

ABOUT THE AUTHORS

Mary Jean A. Dela Cruz-San Luis is a science educator with eight years of professional teaching experience in secondary education. She has taught various science subjects, such as Earth Science and Research, and has been actively involved in academic committees, including *Punlasik*, a research conference showcasing student research outputs. She obtained her Bachelor of Science in Education, major in General Science, *cum laude*, from the Philippine Normal University, where she is also currently pursuing her master's degree in Science Education. Her graduate thesis examines the experiences of teachers engaged in out-of-field science teaching.

Mary Mae B. Vega is a Senior High School Mathematics teacher at the University of the East with 14 years of teaching experience. She is presently a Doctor of Education (EdD) candidate in Educational Administration and Leadership. Her dissertation, "CAMANAVA Mental Health Policy Implementation Framework," focuses on strengthening educational policy and leadership in secondary schools.

Justin Benedict D. Buhay graduated with high honors under the STEM (Science, Technology, Engineering, and Mathematics) strand at the University of the East Caloocan for the academic year 2023 - 2024, where he demonstrated outstanding academic performance. As a student-researcher and leader of his research group, Justin actively represented his school in several academic conferences. His group participated in the 5th Punlasik Research Conference 2024 at UE Caloocan, where they ranked 4th overall. They also competed at the Research Congress of De La Salle Araneta University, winning Best Paper Presentation and placing 2nd in the Research Poster Making contest. They also joined the 4th Balagdiwa National Research Conference. He is currently a sophomore scholar pursuing a Bachelor of Science in Computer Science at the Polytechnic University of the Philippines, where he is a consistent honor student in his academics.

Fathima Nicole P. Aliman graduated with honors from the University of the East Caloocan, under the STEM track, in the academic year 2023-2024. She and her group presented a research paper at the 2024 6th DLSAU SHS Research Congress. In the same year, she also presented in the 5th PUNLASIK Research Conference at the University of the East Caloocan.

Fathima completed her junior high school from St. James Academy Malabon with honors. She is currently a second year college student in the University of Santo Tomas under the program Information Technology.

Jasmin Kate S. Atabelo graduated with honors from the STEM track at the University of the East Caloocan. She and her group were research presenters in the 2024 5th PUNLASIK Research Conference held at the University of the East Caloocan. In the same year, they also participated in the 6th De La Salle Araneta University Senior High School Research Congress where they won Best Paper Presentation and Second Place in the Research Poster Competition. She is currently a second-year Civil Engineering Technology student at the Polytechnic University of the Philippines.

David Jonathan V. Baybay completed his Senior High School at the University of the East Caloocan under the STEM strand for the academic year 2023–2024 with good academic performance. David and his research group represented their school in various academic conferences. They joined the 5th Punlasik Research Conference 2024 at UE Caloocan, where they ranked 4th overall. At the Research Congress at De La Salle Araneta University, they bagged the Best Paper Presentation and second place in the Research Poster Making contest. They also participated in the 4th Balagdiwa National Research Conference. David is currently pursuing his second year in the Bachelor of Science in Nursing program at National University Manila.

Aliyah Shine T. Perez graduated from the University of the East Caloocan Senior High School under the STEM track, consistently earning honors during this academic period. She and her group were research presenters in the 2024 5th PUNLASIK Research Conference held at the University of the East Caloocan. At the 6th De La Salle Araneta University Senior High School Research Congress, they won the Best Paper Presentation and Second Place in the Research Poster Competition. Aliyah is currently a second-year college student at Our Lady of Fatima University, pursuing a Bachelor of Science in Nursing degree.

Stephen DS. Say graduated with high honors in the academic year 2023-2024 from the University of the East Caloocan, and completed Kumon for 6 years. In senior high school, he was a

leader in both Pananaliksik and research projects related to water hyacinth. He presented with his group a research poster at the 5th Punlasik Research Conference 2024 held at the University of the East Caloocan and won first place in the poster presentation at the 6th Research Congress at the De La Salle Araneta University. Stephen is currently a second year college student taking Bachelor of Science in Civil Engineering at the Pamantasan ng Lungsod ng Valenzuela where he is the president of his class. In his first year of college, he was among the Dean's listers in his course for topping departmental exams.

Gwyneth Nathalie M. Cabanela graduated with honors in Academic Year 2023–2024 under the STEM strand at the University of the East Caloocan. She and her group presented a research poster at the 5th Punlasik Research Conference 2024 held at the University of the East Caloocan. At the 6th Research Congress at De La Salle Araneta University, they earned first place in the poster presentation category. Gwyneth currently is a second year college scholar taking Bachelor of Civil Engineering at the University of the East Caloocan.

Angelus Jakob E. Chin finished Senior High School from UE Caloocan where he was a consistent honor student. Beyond academics, he showed remarkable dedication and strong time management skills as he balanced demanding academic work with part-time work at McDonalds to make ends meet. He participated in many research conferences among them the De La Salle Araneta University's KADS Aliksik and University of the East's Punlasik. Angelus is currently a second year Marine Engineering student at Our Lady of Fatima University where he continued to get good grades. He has passed many Maritime Academies examinations including MOL Magsaysay Maritime Academy's entrance exam.

Adriel Vinci C. Laureano completed his Senior High School education at the University of the East Caloocan, graduating with good grades under the STEM strand for the Academic Year 2023–2024. Adriel and his group represented the Senior High School of UE Caloocan in major academic conferences such as the 5th Punlasik Research Conference 2024 held at the University of the East Caloocan and the 6th Research Congress at De La Salle Araneta University where they clinched first place in the poster presentation category. Adriel is currently pursuing a Bachelor of

Science in Civil Engineering at the University of the East Caloocan where he is a second year scholar in recognition of his academic excellence and outstanding performance in various examinations.

Danaya Gemailah L. Ventanilla completed her senior high school from the University of the East Caloocan where she led research about organic pesticide made from tomato leaves. She and her groupmates presented their research poster at the 5th Punlasik Research Conference 2024 held at the University of the East — Caloocan and participated in the 6th Research Congress at the De La Salle Araneta University, winning first place in poster presentation. Danaya is currently a second year college student of Bachelor of Science in Nursing at Our Lady of Fatima University where she landed in the Dean’s list on her first semester.

Keith Loise C. Cabrera is a second year Computer Science student at the University of Santo Tomas (UST), where she is actively involved in student activity and has served as an external affairs staff member of the Computer Science Society. She is currently exploring her interests in technology, research, and leadership, and continues to seek opportunities that allow her to grow both academically and personally.

Bianca Louise D. David graduated with honors from the University of the East Caloocan (2023–2024) Senior High School where she served as managing editor of the Junior Dawn for two years and further developed her editorial skills by attending workshops organized by TRAC Philippines. She and her group participated at the DLSAU Kadsaliksik 5th Research Congress, the 5th Punlasik Research Congress (UE Caloocan), and the UE Manila Research Conference. Their collaborative project, FAN-Cycle, earned the Best Research Innovation Award for STEM in UE Caloocan. She is currently a second-year Bachelor of Science in Physical Therapy student at the University of the East Ramon Magsaysay Memorial Medical Center. She was awarded overall Top 1 student in SY (2024-2025) during her first-year.

Marielle P. Pacleb completed her Senior High School under the STEM strand at the University of the East Caloocan where she and her team were awarded the title “Best Research Innovation” in STEM during the 5th PUNLASIK at the University of the East Caloocan. They also participated at the University of the East

Manila Research Conference and at KADSAliksik, De La Salle University, where their work was awarded first place in the Paper Presentation Category. Marielle is currently a second year Bachelor of Science in Nursing student at Our Lady of Fatima University, Valenzuela Campus where she is a recipient of an academic scholarship.

Misha D. Quijano finished senior high school from the University of the East Caloocan where she served as class president and president of the Student Discipline Monitor and assigned to manage student concerns, organize events, and write official communications. At the Research Congress at De La Salle Araneta University, her group won the Best Paper Award. At present, she is a second year Nursing student at Chinese General Hospital Colleges and an active member of the Supreme Student Council.

David Aaron S. Santos graduated with high honors under the STEM strand in SY 2023–2024 from UE Caloocan. FAN-Cycle, which is a research on electronics was presented at the 5th PUNLASIK at the University of the East Caloocan, the UE Manila Research Conference, and KADSAliksik at De La Salle Araneta University where David and his group earned first place in the paper presentation category. At present, David is a second year Bachelor of Science in Information Technology student at the University of the East Manila where he is a recipient of the Tan Yan Kee (TYK) Scholarship.

Karlo Vincent John Calanog is a licensed nurse and a faculty member in the Senior High School STEM program of the Basic Education Department at the University of the East Caloocan. His academic and professional interests include STEM education, sustainable technologies, healthcare, and the use of innovative teaching strategies to enhance student learning.

Gienny V. Carlote is a junior high school science teacher at the University of the East Caloocan. She graduated from the Philippine Normal University–Manila with a degree in Bachelor of Science in Education, major in General Science. Her research interests include science education, environmental studies, and sustainable practices in the sciences.

Sabina S. Omboy is currently a Grade 12 Senior High School student under the STEM strand at the University of the East

Caloocan campus. She graduated from Junior High School in 2024, where she completed the Science-Based Curriculum (SBC) at the same university. She was recognized as the overall rank 1 of her batch in the SBC program.

Abby H. Bartolata is a Grade 12 student at Navotas National Science High School, currently enrolled in the STEM strand. She completed her Junior High School education in 2024 at the University of the East Caloocan under the Science-Based Curriculum (SBC) program.

Phoebe Zyann E. Ferrer is a Grade 12 Senior High School student under the STEM strand at the University of the East Caloocan. She finished Junior High School in 2024 under the Science-Based Curriculum (SBC) program at the same university. Currently taking the STEM strand for Senior High School, she is exploring different fields in preparation for higher education, with a strong interest in science, particularly microbiology.

Raphael G. Vizcarra is a dedicated Grade 12 Senior High School student enrolled in the STEM strand at the University of the East Caloocan. He graduated from Junior High School in 2024, earning his diploma under the Science-Based Curriculum (SBC) program at the same University. Raphael looks forward to pursuing a college degree where he can apply the knowledge and skills he has gained under the SBC and STEM track.

Sofia Reine M. Palarca is a Senior High School student who graduated in 2023 under the Science-Based Curriculum (SBC) program at the University of the East. This background has inspired her to pursue the medical field further strengthened by a desire to help others and to apply scientific knowledge in ways that improve health and well-being.

Van Adrian C. Mascareñas is a Grade 12 Senior High School student enrolled in the STEM strand at the University of the East Caloocan Campus. He graduated from Junior High School in 2024, having completed the Science-Based Curriculum (SBC) at the same university.

Mr. John Cristian A. Ramos is a Senior High School faculty member at the University of the East Basic Education Department, Caloocan. As an active researcher, he has presented

his works in various conferences and forums. He remains committed to advancing both teaching and research in his field.

Gian Matthew M. Sevillano is a 2nd-year BS Information Technology student specializing in Cybersecurity at the ABET-accredited Mapúa University. A consistent Dean's Lister and top candidate for the President's List, he is committed to academic excellence and professional growth.

Lindon Chandler R. Lopez is a student at Far Eastern University Institute of Technology pursuing a BS in Information Technology with a specialization in Animation and Game Development, aspiring to make inspiring contributions to both digital media and performance.

Erich Ann M. Alfonso is a Multimedia Arts student at CIIT College of Arts and Technology specializing in Animation. Passionate about self-improvement and creative freedom, she uses animation to express her ideas and continuously refine her skills. Through her creations, she hopes to inspire others and leave a positive impact.

Aragourn Bhoromir G. Sevilla is an Information Technology student at Far Eastern University of Technology specializing in Animation and Game Development. Dedicated to both academic and personal growth, he strives to think outside the box and create innovative, entertaining ideas by combining creativity with technology.

Tristan Ivan S. Agapito is a Computer Science student at the University of the East committed to both academic and personal growth. Focused on programming, he continuously works to enhance his skills and knowledge.

Dr. Jocelyn Salcedo Brigino is the Department Chair of Marketing, Behavioral, E-Word and Communication (MARBEC) and Officer-in-Charge of the Finance, Economics and Mathematics (FECOMATH) Department at the College of Business Administration, University of the East Caloocan.

She earned her Bachelor of Arts in Mass Communication, major in Journalism, from the Polytechnic University of the Philippines, her Master's in Education major in Administration and

Supervision from Governor Andres Pascual College, and her Doctor of Business Administration from the UE Graduate School.

A dedicated educator at UE Caloocan Campus since 1996, she also serves as Public Relations Officer of the Philippine Association of Marketing Research Educators (PAMRE) North Manila Chapter.

Dr. Virginia Cruz De Leon is a Professor at the College of Business Administration, with an academic rank of Professor C/R2 at the University of the East Caloocan. She has been with the University for 26 years handling Business Research, Feasibility Studies, Entrepreneurial Minds, Human Behavior in Organizations, Human Resources Management, and other related business management subjects.

Dr. De Leon obtained a Bachelor of Science in Business Administration, major in Accounting degree, a master's and doctorate degree all from UE. She serves as a panelist in the Business Research and Feasibility Study at the University of the East Manila and Caloocan Campus.

Prof. Abner A. Aquino has been an Associate Professor of the College of Business Administration, University of the East, Caloocan for more than 30 years. He handles Statistics, Management Science, and other mathematics-related business subjects. He obtained his Bachelor of Science degree in Electronics and Communications Engineering from Wesleyan University and a Master's in Business Administration at UE Manila. He is presently the Associate Dean of the College of Business Administration, University of the East Caloocan.

Prof. Cleto Lagumbay Nambatac has been a college professor in UE for 29 years. He is a graduate of Master of Business Administration from the Far Eastern University. He is presently working on his dissertation at UE.

Prof. Ken Elexander C Cabinian is the department chair of Accountancy, Law, and Taxation at the University of the East (UE) He is an assistant professor, and a Certified Public Accountant (CPA) holding an ACCA RQF Level 4 certification. He has earned numerous academic distinctions, including being a Triple Awardee of Outstanding Graduate Awardee (Batch 2020), College

Distinguished Awardee, and *Magna Cum Laude* at the same university. He is now taking his doctorate in Business Administration.

Aliyah Nasrollah B. Ismaeili is a business owner and a graduate of the University of the East Caloocan, where she obtained her degree in Bachelor of Science in Management Accounting. As the President of the Central Student Council in UE Caloocan, she spearheaded various student development initiatives and represented the student body in institutional affairs. Her exemplary performance and dedication earned her multiple distinctions, including leadership, academic, and non-academic awards. Currently, she continues to apply her skills and expertise in the field of business management and entrepreneurship.

Angelika Zusane F. Mendoza is a 24 year-old accounting professional who holds a BS in Management Accounting at the University of the East Caloocan and is currently taking the BS in Accountancy bridging program at Philippine School of Business Administration Quezon City (PSBA-QC). She completed her internship at SGV & Co., where she gained valuable experience in auditing and professional practice. She previously served as Regional Audit Associate at NFJPIA-NCR and as Vice President for Audit at JPIA UE Caloocan, earning numerous leadership, academic, and non-academic awards throughout her student years. After graduating and passing the Civil Service Exam in 2024, she continues to pursue her passion for public service and accounting as a Revenue Officer I at the Bureau of Internal Revenue – National Office.

Mikhaela Louise B. Mariano holds a Bachelor's degree in Management Accounting from the University of the East Caloocan. As a driven and ambitious Accounting Officer with a passion for numbers and business, she leverages her skills and experience to achieve success in her field. Her strong foundation in management accounting enables her to take on new challenges and pursue her entrepreneurial aspirations.

Angel Kyle R. Asuncion is a graduate of Bachelor of Science in Management Accounting. Her internship at Philippine National Bank (PNB) gave her the initial experience that allowed her to eventually work as an Investment Distribution Associate,

supporting the bank's investment division in client servicing, trade facilitation, and distribution. With her background in accounting and finance, she is steadily building her expertise in investments and is determined to grow her career in the financial services industry.

Joem T. De Castro is a working professional who graduated from the University of the East Caloocan with a degree in Bachelor of Science in Management Accounting. She is a former member of JPIA and ATLAS at UE Caloocan, as well as a previous bonafide member of NFPIA-NCR throughout her college years. Her internship allowed her to embark on her professional journey as a Credit Review Specialist in one of the largest privately-owned commercial banks in the country.

Mr. John Marc Niel G. Santos is a licensed professional teacher specializing in English language teaching and currently pursuing a Master of Arts in Education major in English as a Second Language at the University of the East Manila, with 21 graduate units in English Language Teaching earned from the Polytechnic University of the Philippines. He has taught at the basic education and tertiary levels in institutions such as Aquinas School, Adamson University, and the University of the East, handling English, research writing, and general education subjects, and has mentored students whose research was presented at national and international conferences. An active member of the International English Language Teachers Association – Philippines and the Visionary Research Association, Inc., he has also completed specialized short courses under the University of Pennsylvania, University of London, and the U.S. State Department's Online Professional English Network. Beyond teaching, he has served as a stage director and event coordinator for academic and cultural programs, consistently contributing to pedagogy, research, mentoring, and educational advocacy.

Shen Chuan finished her Doctor of Business Administration degree at the University of the East Manila. She has been engaged in management work in enterprises since 2006 and has extensive management experience covering human resource management, administrative management, enterprise operation, and new media operation, among other fields.

Jessa May E. Garcia is currently part of the ORC on a Special Non-Teaching Assignment.

Jocelyn G. Santos is the Administrative Assistant of the Office of Research Coordination.

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REVIEWERS

Ms. Rachel Caldaire is a proactive educator with extensive experience in secondary education, specializing in STEM and research subjects. She has served as project manager for school-based ecological initiatives and as level coordinator, where she oversaw the behavioral, academic, and attitudinal development of Junior High School students. She has also worked in early childhood education as a part-time specialist, mentoring children ages 7–12 in introductory robotics.

She holds a Master of Science in Environmental Science from the University of the Philippines Los Baños, where she pioneered research on natural pollution abatement technology. She continues to advance in the field of Environmental Science, integrating research expertise with innovative teaching and leadership.

Mr. Walter Isip has been an English teacher at DepEd-Sta. Catalina High School in Sta. Catalina, San Luis, Pampanga since 2013. Previous to this, he was an English teacher at Immaculate Heart of Mary College, Quezon City from 2011 to 2013 and Abiertas Radiance School Inc., Quezon City from 2009 to 2011. He earned his Bachelor of Secondary Education Major in English at the University of the East - Manila in 2009. He has also earned 39 units in Master of Arts in Education Major in English at the National Teachers College and completed his academic requirements in Master of Arts in Education major in Administration and Supervision at Eulogio “Amang” Rodriguez Institute of Science and Technology (EARIST). He also attended several professional development trainings like virtual In-Service Training for Public Teachers in 2021 and division-wide Capacity Building Research Seminar in 2018.

Mr. Christian Dave A. De Leon is currently the academic chair of the Science Unit of De La Salle Araneta University - Integrated School Department. He has previously handled science subjects in both elementary and junior high school levels. He also taught all core science and STEM specialization subjects in the senior high school. He recently received his PhD candidate status in Science Education major in Biology at De La Salle University - Manila, where he is now currently working on his dissertation study focusing on technology integration for integrated science teaching.

He received both his Bachelor's degree in Secondary Education major in General Science (2017) and his Master's degree in Science Education with specialization in Integrated Science (2023) at the Philippine Normal University Manila, where he graduated *cum laude* and became finalist for the Most Outstanding Master's Thesis. He is affiliated with various organizations such as Association of Science Teachers of the Philippines (ASTEP) and the Biology Teachers Association of the Philippines (BIOTA).

Ms. Caprice Katrine V. Hubilla has been a regular permanent master teacher II at the Department of Education Division of City Schools-Manila Ramon Avanceña High School since 2016. She was also a college professor at the University of Santo Tomas, Manila Tytana Colleges, College of the Holy Spirit Manila, National University Manila, and STI College Recto previous to her current appointment. She earned her Bachelor of Secondary Education Major in English in 2009 and her Master of Arts in Education (English as Second Language) in 2013 both from the University of the East Manila. She is currently taking up Doctor of Education Major in Educational Leadership (CAR) at the National Teachers College. She has published several papers about school governance, research culture, and leadership values. Among the awards that she has received are the Silver Medalist for Process Innovation Category and Outstanding YMCA Hi-Y Club Adviser.

Dr. Stephanie G. Quiambao is a seasoned educator and academic leader with over two decades of experience in the field of education. A licensed professional teacher since 2003, she earned her Bachelor of Secondary Education, major in Mathematics, from Philippine Normal University which is recognized as the National Center for Teacher Education. She obtained her Master of Science degree major in Mathematics Education from Pamantasan ng Lungsod ng Maynila. She completed her Doctor of Education, major in Educational Management at the National University Manila. Currently, Dr. Quiambao serves as the Director of the Education Technology Office at NU Manila, where she leads initiatives that integrate innovative digital tools and pedagogical strategies to enhance teaching and learning experiences. She has successfully managed five batches of the MS Excel Certification Program and spearheaded a remarkable increase in the number of Microsoft Office Specialists (MOS) and Microsoft Innovative Educator Expert (MIEE) in the university. She is also a dedicated faculty member of the College of Business and Accountancy.

Ms. Ana Jamille A. Restubog is a dedicated educator, curriculum consultant, and medical physicist. She graduated *cum laude* with a Bachelor of Science in Physics for Teachers from the Philippine Normal University in 2007 as a DOST-SEI RA 7687 scholar. She later earned her Master of Science in Applied Physics, major in Medical Physics, from the University of Santo Tomas in 2012 under the DOST-PCHRD scholarship. She further enhanced her expertise through an international fellowship short course under the IAEA E-CUBE Program for Educators at Texas A&M University in 2016. Currently, she serves as a Master Teacher II in Physics at San Francisco High School, Quezon City, where she also acts as school research manager, STEM Subject Group Head, and investigatory project adviser. She is an active member of the SDO-QC Scientific Research Committee and District I Research Manager. Beyond DepEd, she lectures part-time at De La Salle University Taft as an assistant professor and curriculum review consultant for the BS Physics Medical Instrumentation program, and has also taught at Our Lady of Fatima University and St. Joseph College of Novaliches.

Her publications include contributions to K–12 DepEd modules, lesson examples, and textbooks on Earth and Life Science and Physical Science, as well as educational resources for DOST-SEI and the Philippine Nuclear Research Institute. She has publications on nuclear science awareness and occupational exposure in communication facilities. She was named PRAISE Most Outstanding Teacher of Quezon City (2016) and received the Leadership and Special Citation Award at the SDO-QC Festival in Research in Education (2023). In 2024, she successfully passed the national qualifying examination for school heads.

Ms. Grace Ann Delos Reyes-Hinautan earned her Master of Education with specialization in Mathematics degree from the Philippine Normal University in 2012. She is a faculty member of the Math and Physics Department at Our Lady of Fatima University. She has also served as a developmental and content Editor at Rex Bookstore (2021), contributed to Quipper Philippines (2020), and authored General Mathematics and Statistics and Probability with Ascendens Asia Publishing Inc. (2020). A statistician and active member of the Philippine Statistical Association, Inc. (PSAI), MATHTED, and MSP, she continues to contribute to the advancement of mathematics and

statistics education. In 2025, she was recognized as the 2nd Best Research Panelist at the National Teachers College Congress.

Mr. Marvic Kaizz D.J. Sobreviñas is a member of the high school faculty in St. Scholastica's College Manila who teaches General Physics 1 and 2, Practical Research 1 and 2, and Physical Science. He earned his BS Physics for teachers at the Philippine Normal University and is currently taking his MS Physics in De La Salle University where he is part of the Theoretical Physics Research Group. He has been involved in serving as a panelist in scientific conferences.

Mr. Michael Erwin T. Legarse is a licensed professional teacher. He earned his Bachelor of Secondary Education major in Mathematics from the University of Santo Tomas in 2014, graduating *cum laude*. In 2021, he obtained his Master of Arts in Mathematics from the University of the Philippines Diliman. He taught trigonometry, college algebra, analytics geometry and statistics at the University of Santo Tomas Institute of Information and Computing Sciences. He is a member of the Mathematical Society of the Philippines (MSP). At present, he is affiliated as a junior teacher at the University of Santo Tomas Senior High School, handling general mathematics, statistics and probability, and research. He serves as team leader for the Senior High School General Mathematics subject. He is currently finishing his Master of Statistics degree from the University of the Philippines School of Statistics in Diliman, Quezon City.

Mr. Amiel Soliman is a graduate of Bachelor of Science in Industrial Education at the Technological University of the Philippines (TUP) Manila in 2019 and currently taking up Master of Arts in Education Major in Educational Management at National Teachers College Manila. He was a computer teacher, college instructor, member of the committee on discipline, and senior high school coordinator at Villagers Montessori College from 2019 to 2023. He also served as IT coach, practical research adviser, capstone project adviser, and work immersion supervisor. He also attended various trainings such as Rex Philippines Edukampyon Seminar, Basic Computer Skills Training, and Skills Demonstration – ICT Training.

Mr. Paolo Christopher R. Borja is a Senior High School teacher at Malabon National High School, specializing in Practical Research and Community Engagement, Solidarity, and

Citizenship (CESC). He authored and implemented school-based action research projects such as Project PRIME (Practical Research Instructional Material for Empowerment) which aims to enhance students' research skills and provide remediation support. Actively engaged in the School Learning Action Cell (SLAC) and professional development programs, he advocates for research-based teaching practices aligned with the MATATAG Agenda and the DepEd Research Agenda.

Ms. Janelle Kyra Sagum is a seasoned educator and researcher in the field of Information Systems, currently serving as a faculty member at the College of Computer and Information Sciences, Polytechnic University of the Philippines. Her expertise earned from a Master's degree in Information Systems from the University of the East and a Bachelor's degree from the University of Santo Tomas allowed her active involvement in curriculum development, instructional innovation, and student mentorship, particularly in research and systems design. She contributed significantly to the university's growth through IT training programs, seminar leadership, and departmental initiatives.

Ms. Sagum has published works in many areas such as natural language processing, document management systems, and career portals. Her recent research includes the development of an Automated Filipino Language Treebank Generator, presented at the 2023 NLPiR Conference. Her certifications in Travel Services and Events Management further highlight her interdisciplinary interests.

Mr. Jayson James Mayor is an accomplished educator and educational technology specialist with a strong foundation in information technology and instructional innovation. He currently serves as an Educational Technology Specialist at the Center for Educational Innovation and as a faculty member at the College of Computer and Information Sciences, Polytechnic University of the Philippines (PUP).

With a Bachelor's degree in Business Teacher Education majoring in Information Technology and ongoing graduate studies in Information Technology at PUP, Mr. Mayor blends pedagogical expertise with technical proficiency in programming, multimedia, and data communications. His teaching career spans over eight years, during which he has developed instructional materials,

facilitated IT literacy programs, and mentored students in both theoretical and applied computing.

Mr. Mayor is a prolific organizer and contributor to university-wide initiatives, including seminars on gender inclusivity, digital transformation, and curriculum development. His leadership in projects such as PUP STAR and tutorial services for diverse academic disciplines reflects his commitment to inclusive and transformative education.

His research interests include medical appointment systems and microbial data management, with publications presented at international conferences such as HNICEM. His work has been cited in Scopus-indexed journals and Google Scholar, underscoring its relevance and impact. A licensed professional teacher and certified in multiple technical domains, Mr. Mayor is also an active member of PSUCCESS and a frequent facilitator in workshops on Moodle, H5P, and blended learning strategies.

Dr. Janine Moneda-Dela Cruz is a highly respected academic leader, quality systems expert, and researcher with a strong track record in higher education and industry. She currently serves as Dean of the College of Computer Studies, effective August 1, 2025, and Director of Quality Management Development Office at the City of Malabon University (CMU). She also previously served as Dean of the College of Accountancy from February 2023 to July 31, 2025.

Dr. Moneda-Dela Cruz holds a Doctorate in Business Administration (DBA), an *Honoris Causa* Doctorate in Human Resource Management (DHRM), and is currently pursuing a Master in Information Technology (MIT). She is a graduate of Master in Business Administration (MBA) and Bachelor of Science in Computer Science, combining deep business acumen with strong technical grounding. She has over 12 years of professional experience in industry, with leadership roles in manufacturing, banking, retail, healthcare, and property management. Her background includes serving as assistant vice president for Quality Management Systems, where she led ISO 9001:2000 compliance, internal audits, and regulatory processes.

Dr. Dela Cruz is a published researcher with scholarly works on organizational effectiveness, workforce diversity, and educational quality assurance. She is a Fellow of the Royal Institute of Business Administration (FRIBA) and an active member of the Philippine Council of Deans and Educators in Business (PCDEB) and the Executive Council of Deans and Educators in Business (ECODEB).

Dr. Jojo Villamin is a dynamic educator, marketing expert, and hospitality professional with over two decades of experience across corporate, academic, and research sectors. He currently serves as a full-time faculty member at the Polytechnic University of the Philippines and teaches at several other institutions including San Beda University, Colegio de San Juan de Letran, and Perpetual Help College of Manila.

Dr. Villamin holds a Master of Science in Commerce (*cum laude*) from the University of Santo Tomas and is completing his Doctor of Business Administration at San Beda University. His academic journey is marked by excellence, having earned multiple honors including Best Paper Awards and recognition as one of the Ten Outstanding Marketing Students of the Philippines.

In the corporate world, Jojo has held leadership roles in marketing, training, and communications for companies such as SM Supermalls, Johnson Controls, and GlaxoSmithKline. His experience spans marketing strategy, visual merchandising, employee development, and corporate communications.

As a researcher, Dr. Villamin has authored and presented numerous studies on tourism, hospitality, consumer behavior, and service innovation—many of which have been recognized internationally. He also serves as editor-in-chief for the Journal of Marketing Research Congress and managing editor for the Journal of Philippine Tourism and Hospitality Studies.

Dr. Jessie F. Sergote is currently the associate dean of the College of Business, Entrepreneurship, and Accountancy at Rizal Technological University Pasig Branch. Previous to this he was assistant dean of the College of Graduate Studies and the former program chair for the Doctor of Business Administration program at the same institution and a part-time faculty member in various universities. He used to be a member of the CHED MIMAROPA Regional Quality Assessment Team (RQAT) where he was

evaluator for Business Management and Entrepreneurship programs.

He holds a double doctorate degree in Business Administration from the Polytechnic University of the Philippines (PUP) and Doctor of Philosophy in Educational Management at Lyceum Northwestern University (LNU). He is also a licensed professional teacher. In recognition of his expertise, he has been invited to serve as a member of the panel of evaluators at the International Training on Action Research and Plenary Presentation in Virginia, USA.

Before his academic career, he accumulated nearly 15 years of experience in significant administrative roles within both the government and private sectors. He is an active member of various professional organizations, contributing to his fields of expertise as an events manager, researcher, textbook writer, thesis adviser, entrepreneur, resource speaker, and freelance consultant.

Dr. Maricion T. Rumbaua-Sabug is a seasoned educator and academic leader with over two decades of experience in teaching, administration, and curriculum development. She holds a Doctor of Education in Educational Leadership and a Master of Arts in Education, both from the National Teachers College in Manila, Philippines. Her foundational training began with a Bachelor of Secondary Education major in English from Our Lady of Lourdes College in Valenzuela City.

Currently serving as a master teacher II under the Schools Division Office of Valenzuela, Dr. Rumbaua-Sabug also contributes to higher education as a part-time professor in the English Department at Our Lady of Fatima University. In the past, she served as school principal at the Basic Education Department of Our Lady of Fatima University across its Valenzuela and Pampanga campuses, and at St. Michael Educational Center. She has also taught literature and grammar in various institutions, including the University of the East and Valenzuela Christian School.

Dr. Jan Frederick Tongol is a distinguished academic and finance professional whose career bridges the worlds of higher education and corporate banking. He earned his Doctor of Philosophy in Commerce from the University of Santo Tomas,

complementing his earlier academic achievements such as a Master in Business Administration and a Bachelor of Science in Commerce major in Finance.

He is currently the associate department chair at the Institute of Accounts, Business and Finance (IABF) at Far Eastern University (FEU). Since joining FEU in 2015, he has held various roles including admissions officer and full-time faculty.

Prior to his academic tenure, Dr. Tongol built a solid foundation in the banking sector, holding key positions at BDO Unibank and Equitable Savings Bank. His corporate experience covers marketing, customer service, and branch operations, enriching his teaching with real-world insights.

Dr. Tongol is also a sought after speaker and trainer, having facilitated numerous lectures and workshops on finance, marketing, and leadership for institutions such as the University of Santo Tomas, Industrial Advancement Academy of the Philippines, and People Summit Training and Consulting Inc.

Dr. Glen DV De Leon is a highly accomplished academic leader, certified public accountant, and international scholar whose career includes education, governance, and professional development. He currently serves as the University President of the City of Malabon University, where he also serves as the vice chairman of the Board of Regents and local school board member.

Dr. De Leon holds dual doctoral degrees namely a PhD in Accounting and Financial Management from Thames International University in Paris, and a PhD in Management from De La Salle Araneta University. He also earned his MBA and undergraduate degree in Accountancy from the City of Malabon University, graduating *cum laude* and receiving multiple distinctions including the Senator Manuel B. Villar Academic Excellence Award and the Gintong Parangal Award. Previously, he held key positions such as vice president for academic affairs and dean of the College of Business at De La Salle Araneta University, as well as professorial roles at Baliuag University, UE Caloocan, and international institutions in Spain and China. He is a Board of Accountancy-accredited accounting educator and has served as editor-in-chief of the DLSAU Business Research Journal.

Dr. De Leon is a prolific researcher, with international presentations covering topics from corporate social responsibility to AI's impact on education and governance. His affiliations include the Philippine Institute of Certified Public Accountants, Royal Institute of Singapore, and the Philippine Council of Deans and Educators in Business.

Dr. De Leon received numerous awards, including the Outstanding Alumnus in Academe, Excellent Administrator Award from ACLADEB, and multiple Teaching-Learning Excellence honors.

Mr. Rey-ar C. Amoroso is a graduate of Bachelor in Secondary Education major in English and a degree holder in Master of Arts in English Language Teaching at the Polytechnic University of the Philippines. He is presently taking his Doctor of Philosophy major in Educational Management at Adamson University Graduate School. He is also a member of a community based theatre group in Valenzuela city called Tanghalang Banyuhay Inc., which is also a member of the Philippine Education for Theaters Association (PETA) and a member of MySTique Coolture Toastmasters Club International at STI College Muñoz, Edsa. At Adamson University Senior High School Department he is a full-time English professor teaching English for Academic and Professional Purposes (EAPP), Oral Communication, Reading and Writing, 21st Century Literature, and Practical Research Courses. He also used to be a the research area coordinator of the Senior High School Department of Adamson University from 2020-2024.

Mr. John Albert Dupaya Gurtiza is an educator and researcher currently teaching research methodologies at a private university in Manila. Before undertaking this role, he dedicated a decade to teaching English at a public school, where he excelled as a coordinator for Academic Affairs and the Learning Resource Management and Development System and fulfilled the duties of a grade-level leader for Grades 7 and 10. Throughout this tenure, he developed considerable expertise in instructional leadership and reading instruction.

His scholarly contributions are reflected in his publications in esteemed journals, including *The Manyuskrip*, the official regional research journal of the Department of Education – National Capital Region, and *The Papyrus*, the official divisional research

journal of the Department of Education – Schools Division Office – Makati City. His research primarily concentrates on innovative methodologies to enhance student learning and foster problem-solving skills.

Mr. Gurtiza was honored with the Outstanding Teacher award from the Rotary Club of Jose P. Rizal in 2016, and he received accolades as the Best Research Paper Presenter at the 4th International Research Web Conference, hosted by the Polytechnic University of the Philippines in 2023.

He holds a Bachelor's degree in Broadcast Communication and a Master's degree in English Language Teaching from the Polytechnic University of the Philippines, complemented by a Post-Baccalaureate Certificate in Teaching from the Philippine Normal University, the National Center for Teacher Education. His current research focuses on the role of viewing as a language skill alongside effective methodologies for its instruction and assessment.

Prof. Winston Budiao Gallinero is a graduate of AB Philosophy from Notre Dame of Marbel University. He holds a Master's Degree in Pastoral Ministry from St. John Vianney Theological Seminary and is presently pursuing his Doctor in Management, major in Leadership and Organization, at Liceo de Cagayan University, where he also serves as chair of the Social Sciences Department.

He is a published author specializing in philosophy and psychology for college students, with several textbooks released under Mutya Publishing House, Manila. His scholarly work has likewise appeared in the *Liceo Journal of Higher Education Research*. Through his publications, academic leadership, and dedication to teaching, Prof. Gallinero continues to advance critical thinking, ethical reflection, and intellectual growth among students and future leaders.

Dr. Federico B. Ramos Jr. is an accomplished academic and administrator with over 25 years of progressive experience in tertiary education institutions. He currently serves as an assistant professor IV and holds a position of program chair of the Entrepreneurship Department under the College of Business in Quezon City University. His extensive career includes various leadership and managerial roles such as Human Resource

Personnel Unit Head (HRDM), acting chair and vice chairman of the Health and Safety Committee, purchasing manager, and Proware Specialist at STI College Munoz EDSA Inc. Dr. Ramos is widely recognized as a highly motivated and resourceful educator and researcher with substantial contributions to entrepreneurship education, business research, and academic leadership. He integrates practical management experience with scholarly pursuits and community engagement, advancing quality education and sustainable development goals across institutional and professional networks. His research contributions have been widely disseminated, including publication in the PKP Index at the National Library Board of Singapore, with works presented at multidisciplinary research conferences. Notable research projects address issues such as job motivation in tertiary education and factors affecting online learning among entrepreneurship students during the pandemic era.

LANGUAGE EDITOR

Prof. Jose Velando Ogatis-I graduated from University of the Philippines Diliman where he took up MA in Filipino: Malikhaing Pagsulat and BA in English Studies: Creative Writing. He is currently the coordinator for Culture and the Arts of the College of Arts and Sciences of UP Manila. He is the founder of the UP Manila Belle, a cultural organization that develops students in the performing arts. He reviews pop culture artifacts in his YouTube channel "Tambay Reviews."

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Dr. Rex P. Bringula

Dr. Bringula is a full professor at the University of the East (UE) College of Computer Studies and Systems. He received his BS Computer Science degree from UE as a Department of Science and Technology (DOST) scholar. He finished his Master in Information Technology and PhD in Technology Management at the Technological University of the Philippines.

He has conducted various school and government-funded research projects and actively participates in local and international conferences. He has published four book chapters and numerous papers in Scopus-indexed and Clarivate Analytics-listed journals. He received international research paper awards

from the International Association of Engineers, IEEE Teaching, Assessment, Learning in Engineering Education (TALE) 2020, and IEEE EDUCON 2021. He also serves as a peer reviewer and associate editor for several international journals.

Dean Eva Aurora D. Callueng

Dr. Callueng is presently the dean of the College of Education, University of the East Manila. She obtained her PhD in Education, Master of Education in Philosophy, and Bachelor of Arts in Philosophy all from the University of the Philippines Diliman.

Dr. Callueng is a member of the Foundation for Upgrading the Standard of Education, Inc. (FUSE), the Asia-Pacific Consortium of Researchers and Educators, Inc. (APCORE) and a Regional Assessor of CHED-NCR Regional Quality Assurance Team (RQAT) since 2019. She has been involved in different projects and publications such as the Online Module on Addressing Learner’s Gender, Needs, Strengths, Interests, and Experiences, BuhayBahaghari and the Filipino LGBT Chronicles published by the UP Center for Women’s Studies to name a few.

She is currently the Asia-Pacific representative in the board of the Global Network of Rainbow Catholics, the current and founding president of Rainbow Catholics Philippines, and a board member of Babaylanes, Inc.

Chancellor Louie A. Divinagracia

Dr. Divinagracia is currently the Chancellor of the University of the East Manila. He has written and co-written more than 50 scientific papers half of which were published internationally and nationally in various refereed and academic-related publications.

Chancellor Divinagracia has been awarded international fellowships and grants, academic awards for teaching excellence, and academic awards for research and outstanding academic achievement. He has over 40 years of leadership and academic experience, including management of higher education in Indonesia and the Philippines; research, action research, project management, and finance and administration of non-profits in Southeast Asian developing economies.

Dr. Lydia R. Leonardo

Dr. Leonardo is presently the director of the Office of Research Coordination of the University of the East. Prior to her appointment, she was with the University of the Philippines Manila as professor in Parasitology at the College of Public Health doing research on various parasitic diseases particularly schistosomiasis, food-borne helminthiases and soil-transmitted helminthiases. She was given the UP Scientific Productivity Award (as UP Scientist 1) for the period 2015-2017 for the researches that she finished and the publications that she turned out from these researches. She received the Gawad Chancellor Award for Outstanding Researcher of UP Manila in 2016.

She was also appointed as a technical advisor to the World Health Organization and a member of the Strategic and Technical Advisory Group for Neglected Tropical Diseases of the World Health Organization from March 2016-2018. After her retirement in 2017, she was appointed by UP Manila as professor emeritus in 2019. She does part-time teaching at the College of Arts and Sciences UP Manila, Institute of Biology in UP Diliman and UERM Graduate School. In 2019, she received the Distinguished Parasitologist Award by the Philippine Society of Parasitology. She used to be a member of the WHO Technical Advisory Group on Schistosomiasis and Soil-transmitted Helminthiases until 2024.

Prof. Dr. Badaruddin Mohamed

Prof. Dr. Badaruddin is a professor in Tourism Planning and Development at the School of Housing, Building and Planning, Universiti Sains Malaysia (USM). He is also the founder of Sustainable Tourism Research Cluster (STRC) as well as the Local Knowledge Research Group at the university. He obtained his bachelor's degree from the University of Northern Iowa, majoring in Environmental Planning. He later completed his master's and PhD degrees in Tourism Planning and Development at Rikkyo University, Tokyo.

He is now sitting as an academic advisor for tourism programs for many universities. He is a visiting professor in Rikkyo University (Tokyo), Maejo University (Chiang Mai), and National Institute of Development Administration (Bangkok), and the Management

Science University (Malaysia). He was also the former President of Tourism Educators Association of Malaysia (TEAM). His research interests include tourism planning and development, urban tourism, tourism growth trends, sustainable tourism, urban planning, and local wisdoms. He is the lead consultant for Penang Tourism Master Plan and has been an active researcher and consultant to many international, state, and federal projects.

Dr. Daniel Susilo

Dr. Susilo is an associate professor in Media Studies, Universitas BundaMulia Jakarta. He also serves as a visiting research fellow at several World Class Universities such as Vrije University Amsterdam (2022) Leiden University Netherlands (2018), and Waseda University Tokyo (2019).

Dr. Susilo is also an associate editor of *Plaridel: A Philippine Communication Journal* (Scopus Indexed) published by UP Diliman. He is also actively involved in the National Committee of Scientific Journal Accreditation, Ministry of Higher Education, Republic of Indonesia, and Committee of Internationalization and Scientific Publication for Association of Communication Science Higher Education Program, one of the Indonesian organization that facilitated networking among superintendents of communication science higher education in Indonesia.

Dr. Weerapon Thongma

Dr. Thongma is an associate professor and currently the president of Maejo University, Sansai, Chiang Mai, Thailand. He has an undergraduate degree in Agricultural Technology and a master's degree in Agricultural Technology from Maejo Institute of Agricultural Technology and Doctor of Philosophy from the University of the Philippines Los Baños (UPLB).

His research interests include ecotourism management, research methodology, community-based tourism, organization management, tourism planning strategic management, agrotourism, and sustainable tourism. He is also the editor-in-chief of *International Journal of Asian Tourism Management* and a member of several editorial boards particularly that of the *International Journal of Agricultural Travel and Tourism Management*. Dr. Thongma has several international publications in Scopus-indexed journals.

Dr. Melvin A. Vidar

Dr. Vidar is the current director of Office of Curriculum Development and Instruction of the University of the East. He has an undergraduate degree in Statistics from the University of the Philippines Los Baños (UPLB), a master's degree in Mathematics Education from the Centro Escolar University (CEU) and a PhD in Mathematics from the De la Salle University (DLSU).

He is also a member of Mathematics Teachers Association of the Philippines-Tertiary Level (MTAP-TL), Philippine Statistical Association, Inc. and Foundation for the Upgrading of Standard of Education (FUSE). His research interests are on mathematics education, theoretical mathematics, and technology for instruction. Dr. Vidar teaches mathematics and statistics courses at the UE Graduate School.

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