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Paragraphing Strategies in Academic Writing: A Systematic Review of Structured Approaches

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

The purpose of this paper is to investigate the application and effectiveness of five structured paragraphing models in various academic contexts: SOFT (Statement, Opinion, Fact, Tie), CARS (Claim, Argument, Reasoning, Summary), TEEL (Main Topic, Explanation, Evidence, Link), PEEL (Point, Evidence, Explanation, Link), and PIE (Point, Illustration, Explanation). Through the analysis of 35 peer-reviewed journal publications published between 2000 and 2023, chosen based on strict inclusion and exclusion criteria, the study explores the applications of these models across a range of topic areas.

A comprehensive literature review was the research approach, and both qualitative and quantitative techniques were used to assess the models' applicability, prevalence, and efficacy. Data about each model's use in various academic fields was extracted, with an emphasis on how it affects writing argumentation, coherence, and clarity. To evaluate the models' performance on academic writing assignments, the study used content analysis as a methodology.

*Corresponding author: Email: geraldchishiba@gmail.com, geraldchishiba@yahoo.co.uk;

Cite as: Gerald, Chishiba, and Mukuka Joseph. 2024. "Paragraphing Strategies in Academic Writing: A Systematic Review of Structured Approaches". Asian Journal of Education and Social Studies 50 (12):160-74. https://doi.org/10.9734/ajess/2024/v50i121684. The findings showed notable variations in how these models were used across fields and academic levels. While more complicated models like PEEL and CARS were more frequently used in disciplines like political science, law, and the humanities where well-structured argumentation is essential, basic models like PIE were mostly utilised in high school and first-year university courses. The study also found that TEEL was preferred in undergraduate and graduate expository and analytical writing, whereas the SOFT model was more common in technical, business, and economics topics since it placed a strong focus on presenting factual facts.

The study found that every model had unique benefits and drawbacks. The PIE model is praised for its simplicity, yet it is shallow for complex reasoning. Even while PEEL's formulaic format has drawn criticism, its explicit link between argument and evidence has earned it respect. CARS is a good way to create research space. The study suggests that teachers use structured paragraphing in a methodical manner, beginning with straightforward models such as PIE and working their way up to more intricate models like PEEL and CARS.

Keywords: Structured paragraphing models; PIE; PEEL; TEEL; CARS; SOFT; academic writing; education; writing skills.

1. INTRODUCTION

In academic writing, paragraphing is essential because it serves as the structural foundation of a well-structured and cohesive argument. One of the core components of scholarly communication is the arrangement of ideas within paragraphs, which has a direct impact on the writing's clarity, logical flow, and persuasiveness. In academic which is frequently complicated, writing, paragraphs are used to establish arguments, connect concepts, and offer specific pieces of evidence. The writing may appear disjointed or confused without appropriate paragraphing, making it more difficult for the reader to follow and interact with the content (Sutrisno, 2020). Therefore, it is crucial for writers in academic settings to comprehend the strategies that govern paragraph organisation.

Many paragraphing techniques have been created to help authors arrange their thoughts logically and cogently. Structured models, like TEEL (Topic, Explanation, Evidence, Link), PEEL (Point, Evidence, Explanation, Link), and PIE (Point, Illustration, Explanation), offer methodical frameworks that assist writers in maintaining focus and guarantee that every paragraph serves a distinct purpose within the paper's overall context. These models are especially helpful in academic settings, where it is essential to clearly explain arguments supported by data and analysis in order to persuade the reader that the writer's assertions are true (Murray & Moore, Even though these models are now 2006). widely used, it is still necessary to evaluate their applicability in different academic fields because their efficacy varies based on the subject matter, writing goals, and audience expectations.

This information gap emphasises why this study is necessary. Few studies have thoroughly examined the effects of paragraphing models across academic fields, despite the fact that they are commonly suggested as aids to enhance writing coherence and clarity. Wingate (2012), for example, stressed the significance of tailoring writing education to the particular requirements of disciplines; however, there is currently no data on whether these models can be used more broadly. Furthermore, not much study has been done on how these models affect important writing components including reader engagement, evidence integration, and argument development. The necessity to evaluate whether structured models effectively meet the various requirements of many academic domains is further highlighted by studies like those on disciplinary writing conventions conducted by Hyland (2004). The necessity to assess whether these models can be successfully implemented in a variety of academic contexts is highlighted by the increasing emphasis on interdisciplinary research and the heterogeneous nature of academic writing.

The objective of this systematic review is to present a comprehensive analysis of organised paragraphing models in academic writing, evaluating their effects on argumentation, coherence, and clarity. It aims to investigate how various models affect the way ideas are presented and logically developed, as well as how well they can direct the use of evidence. In addition, this study seeks to analyse the possible advantages and disadvantages of these approaches while taking into account their generalisability in a variety of disciplines, such as the social sciences, natural sciences, and humanities. The review will also evaluate how these tactics affect reader engagement and understanding, two important aspects of academic writing success. In particular, this systematic review focused on the following research questions:

- 1. What are the differences in the ways that the structured paragraphing models (PIE, PEEL, TEEL, CARS, and SOFT) are applied at different student levels and academic disciplines?
- 2. What effects do organised paragraphing models have on the efficacy of writing in various academic contexts, including tasks that are research-oriented, argumentative, explanatory, and descriptive?
- 3. Which paragraphing models are more popular in particular fields, such business, STEM, social sciences, and the humanities, and what factors influence these preferences?
- 4. In regard to various forms of academic writing, what are the advantages and disadvantages of structured paragraphing models, and how do these factors affect researchers' and students' choice of model?

2. LITERATURE REVIEW

In academic writing, paragraphing is essential because it offers the structural foundation required for coherent, understandable arguments. In academic literature, a wellstructured paragraph ensures coherence and clarity by guiding readers. Research has examined the many approaches students use to organisation. revealing paragraph both successful techniques and typical problems seen in academic settings. According to Medvid and Podolkova (2019), a well-structured academic essay consists of three distinct sections: the introduction, the body, and the conclusion. The reader must be led through the content by a compelling thesis statement and coherent paragraphs. They stress that every paragraph should have a distinct subject phrase, corroborating details, and a conclusion that connects to the main idea. This structure, which guarantees logical flow and consistency, is fundamental to academic writing.

Similarly, Sutrisno (2020) examined paragraphing patterns in international journal papers and finds that deductive and inductive are the two most common types. While the inductive structure, which develops the argument gradually, is more commonly employed in other academic domains, the deductive form, which introduces the primary idea at the beginning of the paragraph and is followed by supporting facts, is typical in scientific writing. These frameworks influence the organisation and communication of ideas and are crucial models for authors across a variety of fields.

Students frequently have trouble keeping paragraphs coherent and adequately developing their ideas, according to Sarfo-Adu (2015), who paragraphing difficulties focussed on in polytechnic education. These difficulties are most noticeable when students fail to maintain focus on the paragraph's core subject or fail to provide enough detail on supporting arguments. Sarfowork is especially pertinent Adu's to the discrepancy comprehending between students' actual use of paragraphing patterns and their academic comprehension. In their analysis of the function of paragraph structure in academic writing, Savina and Diajanegara (2022) stress the significance of coherence. organisation, and clarity. They point out that typical problems like weak transitions, broken inadequately sentences, and developed supporting ideas can make a paragraph less effective. According to their research, pupils who are better able to organise and connect ideas inside paragraphs may produce higher writing results overall. Technical and scientific writing is the emphasis of Šafranj et al. (2022), who stress that paragraphing must guarantee clarity and precision in addition to rationally presenting particularly concepts, when conveying complicated material. The study emphasises how important it is for authors to employ concise paragraph forms that improve the reader's comprehension, especially in fields where technical precision is essential.

Al-Ghabra and Najim (2019) investigated frequent mistakes undergraduates make when writing paragraphs, including grammatical faults and incoherence. Their findings reveal that basic aware of although students are paragraphing principles, they often fail to maintain fluency and coherence. Additionally, they draw attention to the fact that many students struggle to properly integrate their ideas inside paragraphs, which leads to arguments that are fragmented and challenging to understand. Grey (2019) emphasises the value of paragraphing in where medical writing, reading and understanding depend on the clear organisation

of complicated medical material. According to Gray's research, effective paragraphing strategies are essential in academic domains where clear, succinct communication is essential.

Even though a large portion of the literature on paragraphing techniques emphasises the value of coherence and structure in academic writing, there are still a number of gaps that need to be filled, particularly in order to perform a systematic review of academic writing paragraphing techniques. First, cross-disciplinary comparisons are lacking. Although other paragraphing strategies have been found, including CARS (Create a Research Space), PEEL (Point, Evidence, Explanation, Link), and PIE (Point, Illustration, Explanation), little research has been done to compare their efficacy across fields (Sutrisno, 2020; Medvid & Podolkova, 2019), How the efficacy of these models differs based on academic disciplines, such as technical writing, the humanities, or the sciences, may be investigated in a systematic study. The effect of language and cultural origins on paragraphing techniques is another gap. Sutrisno (2020) is one of the few researches that examined how cultural variations language and impact paragraphing techniques. For example, using normal paragraphing structures may provide difficulties for special non-native English speakers. Whether particular approaches or models work better for pupils from different language and cultural backgrounds might be examined in a systematic study.

Furthermore, there is insufficient data on how paragraphing tactics are integrated into instructional practices. Despite the widespread recognition of paragraphing methods like PIE and PEEL, little is known about how these models are integrated into academic curriculum (Sarfo-Adu, 2015). There is a knowledge vacuum on how educators implement and assess these approaches throughout time. How these tactics are taught and if teaching methods affect students' paragraphing results miaht be evaluated with the use of a systematic review. There are also insufficient longitudinal studies on the development of paragraphing abilities. There is a dearth of longitudinal research that tracks how students' paragraphing abilities change over the course of their academic careers, while the majority of studies, like Sarfo-Adu (2015), look at paragraphing at a single moment in time. Gaining insight into how pupils develop their paragraphstructure skills over time may help educators develop more efficient teaching strategies.

Lastly, nothing is known about how paragraphing techniques are used in practical settings. While studies like Grey (2019) emphasise the valueof paragraphing in specialised academic disciplines, little is known about how successful paragraphing techniques are in academic writing assignments that are used in the real world, such research papers and professional documents. A comprehensive analysis might examine how well these techniques work in regular academic writing projects.

3. METHODOLOGY

This section outlines the methodology used to evaluate and compile research studies, including the search strategy, selection of sample studies. data extraction and synthesis methods, and ethical considerations. These steps were followed systematically to ensure а comprehensive and objective analysis of the The search relevant literature. approach, inclusion and exclusion criteria, sample size, extraction techniques, data heterogeneity concerns, publication bias, and measures taken to guarantee the review's reproducibility are all thoroughly described in the methodology.

3.1 Search Strategy

To find pertinent studies on academic writing paragraphing techniques, a thorough search approach was created. Search phrases including "structured paragraphing models," "PIE model," "PEEL model," "TEEL model," and "academic writing frameworks," which are well-known frameworks for structuring ideas in academic papers (Swales & Feak, 2012), were used in this method. In order to find peer-reviewed works published between 2000 and 2023 in credible academic databases like Google Scholar, JSTOR, and Scopus, these keywords were especially chosen. According to Foster and Tiffin (2017), this strategy is backed by research that highlights the value of utilising a broad range of scholarly databases to guarantee thorough coverage of the literature.

The goal of the search approach was to compile studies on the application and efficacy of structured paragraphing models in a range of academic fields. According to research, structured models such as PIE, PEEL, and TEEL are frequently used to improve academic writing's coherence and clarity (Gillett et al., 2009). The search made sure that high-quality research reflecting the latest advancements and best practices in academic writing instruction was included by concentrating on peer-reviewed papers (Fink, 2019). This strategy is in line with the systematic review methodology, which calls for a thorough and repeatable procedure to collect data on certain teaching methods (Higgins et al., 2019).

3.2 Inclusion Criteria

This review's inclusion and exclusion criteria were carefully crafted to guarantee that only relevant and high-calibre studies were taken into account. In order to concentrate on studies that offer significant insights into would the application of organised paragraphing models in academic writing, the inclusion criteria were developed. First of all, participation was limited to peer-reviewed publications released between 2000 and 2023. In addition to providing sufficient historical context to assess the development of structured paragraphing models, this time span was selected to guarantee that the research trends contemporary represents and advancements in academic writing.

Furthermore, the research required to precisely address how structured paragraphing models like PIE, PEEL, TEEL, CARS, and SOFT—are used in academic writing. How these models have been used, assessed, and debated in connection to writing outcomes was the focus of the review. Only qualitative and quantitative research conducted in higher education settings was covered. The findings' relevance to academic writing at the college or university level, where structured writing models are most frequently used to teach students effective writing skills, was guaranteed by this emphasis on higher education.

The inclusion of studies was also limited to those carried out in higher education settings. This constraint was important since academic writing training is most common at the college and university level, especially when it comes to organised writing models. By concentrating on higher education, the evaluation made sure the results were directly relevant to the kinds of writing tasks that are typically given at these levels, where students are regularly assisted in writing well by the use of organised paragraphing models.

Finally, the studies that were chosen for inclusion had to provide empirical evidence or precise measurements of the efficacy of the paragraphing models that were being examined. This criterion was essential for guaranteeing that the research offered quantifiable proof of the influence of these models, providing a more impartial foundation for assessing their applicability in scholarly writing.

3.3 The exclusion Criteria

Studies that were not specifically related to the review's focus on structured paragraphing models were filtered out using the exclusion criteria. First off, since they wouldn't support the review's particular goals, papers that didn't concentrate on organised paragraphing models were disgualified. This made sure that the analysis only included research that dealt with the evaluation, application, or impact of these models. Studies that were published in unreliable publications or that were not subjected to peerreview were also disqualified. Because of the stringent evaluation procedure, they go through; peer-reviewed articles are generally thought to be more trustworthy, which makes them crucial for preserving the calibre and legitimacy of the review. Non-peer-reviewed studies were not taken into consideration because they may introduce biased or unreliable information. Additionally, research published outside of the 2000-2023 timeframe was not included. Studies conducted outside of this time span might not approaches fullv represent current or comprehensions of structured paragraphing models, as this time window was selected to capture recent trends and research advancements in academic writing.

Finally, papers that lacked adequate empirical support for paragraphing models or methodological rigour were disqualified. Such studies would not offer a strong basis for assessing the efficacy or application of the structured paragraphing models, which was a major focus of this research, in the absence of precise empirical data or a well-defined methodology.

3.4 Study Selection Process

Titles, abstracts, and complete texts were screened for relevance as part of the study selection process. 135 studies were initially retrieved. Seventy papers were eliminated after the titles and abstracts were screened because they were irrelevant or did not concentrate on structured paragraphing models. After a thorough analysis of the remaining 65 research' full texts, 30 studies were further disqualified for failing to satisfy the inclusion requirements. The final sample for analysis consisted of 35 studies that satisfied all inclusion requirements. The 35 studies that made up the final sample were arranged according to academic discipline and study design. The distribution of studies is summed up in the following tables:

The distribution of studies at different phases of the review and the selection procedure are described in Table 1. First, it lists all of the studies that were found during the first search (135 in total). Seventy studies were eliminated after the initial screening criteria were applied because they did not satisfy the necessary inclusion criteria. 65 studies were then subjected to a more thorough full-text evaluation. In the fulltext screening stage, 30 of these papers were disgualified for lacking sufficient methodological rigour or applicability. Only the most pertinent and superior research was included in the analysis thanks to the selection of the final sample for the review, which contained 35 articles, based on the predetermined inclusion criteria.

Table 1. Distribution of studies

Distribution Studies	Frequency (N)
Total Studies Retrieved	135
Excluded (Initial Screening)	70
Full Texts Assessed	65
Excluded (Full Text Screening)	30
Final Sample (Included Studies)	35

Table 2. Distribution by study design

Study Design	Number of Studies	Percentage of Total
Qualitative	12	34.3%
Quantitative	18	51.4%
Mixed-methods	5	14.3%
Total	35	100%

The study designs employed in the final sample of the 35 studies that were part of the systematic review are described in the table. Twelve studies representing 34.3% of the total were qualitative in nature and concentrated on the subjective experiences and discoveries associated with organised paragraphing models. 18 studies, representing 51.4% of the total, were quantitative in nature and used numerical data to evaluate the efficacy of these models. Five mixedmethods studies, or 14.3% of the total, used qualitative and quantitative techniques to provide a thorough understanding of the subject. In general, mixed-methods and qualitative research were the most common, followed by quantitative research.

The distribution of the 35 studies that were part of the review by academic discipline is displayed in Table 3. 34.3% (12 studies) were in the humanities, which included disciplines like philosophy, history, and literature. With 14 studies, or 40.0% of the total, the Social Sciences—which include political science, psychology, and sociology-represented the largest group. Lastly, 25.7% of the study was in STEM (Science, Technology, Engineering, and Mathematics) subjects, including computer science, biology, and engineering (9 studies). This distribution shows that the social sciences and humanities are given a lot of weight, whereas STEM fields are given a little less attention.

Table 3. Distribution by academic discipline

Academic Discipline	Number of Studies	Percentage of Total
Humanities	12	34.3%
Social Sciences	14	40.0%
STEM	9	25.7%
Total	35	100%

Data from almost 2,500 participants was included in the final sample, which comprised 35 research studies. From small-scale qualitative research (n = 10) to larger quantitative studies (n = 500+individuals), the sample sizes in the studies varied. A more thorough knowledge of the effects of structured paragraphing models across various study designs and participant groups was made possible by the variety in sample numbers. The sample size range for each study design is compiled in the following Table 4.

3.5 Data Extraction and Synthesis

Two separate researchers extracted the data in order to minimise potential bias and guarantee the accuracy of the material. As part of this procedure, every paper was methodically reviewed, and important information pertinent to the research objectives was extracted. In order to comprehend the context and breadth of the investigations, the main data points that were extracted were the sample size, participant demographics, and the study type (qualitative, quantitative, or mixed-methods). In order to

Study Design	Sample Size Range	Number of Studies	Total Participants
Qualitative	10-50 participants	12	280
Quantitative	100-500+ participants	18	1,800
Mixed-methods	50-200 participants	5	420
Total	-	35	2,500

Table 4. Final sample size

evaluate their prevalence and applicability across a range of academic domains, the particular structured paragraphing models—such as PIE, PEEL, and TEEL—discussed in each study were also highlighted.

To ensure the material's accuracy and minimise any potential bias, the data was extracted by two different researchers. This process included a thorough evaluation of each manuscript and the extraction of significant material relevant to the study's goals. The primary information that was retrieved to understand the scope and context of the studies was the study type (qualitative, quantitative, or mixed-methods), participant demographics, and sample size. The specific structured paragraphing models (e.g., PIE, PEEL, and TEEL) that were highlighted in each study were also evaluated for their prevalence and usefulness across a variety of academic areas.

3.6 Heterogeneity of Studies

The review's research showed significant variation in terms of study design, participant demographics, and academic settings, which enhanced the analysis and expanded our knowledae of the efficacy of structured paragraphing models. The research used a variety of methodologies, such as mixedmethods. qualitative. and quantitative approaches, which offered range а of perspectives on the subject. They also discussed a variety of academic fields, including STEM, the sciences, social and humanities. emphasising how these models work with various writing needs and styles. Numerous academic experts, graduate students, and undergraduate students participated in the study, each contributing varying degrees of writing experience. Furthermore, the experiments used a range of academic writing assignments, including research papers, essavs. and argumentative writing, indicating the models' versatility across genres.

Notwithstanding the differences, all of the studies concentrated on the application of structured

paragraphing models and how they affected writing results, enabling insightful comparisons and a synthesis of the data.

3.7 Publication Bias

To counteract possible publishing bias, a number of tactics were used. Initially, the review covered grey literature, which goes beyond peer-reviewed journal publications include to theses. dissertations, and conference papers. The goal of this strategy was to present a more thorough picture of the state of the field. To visually evaluate publication bias, a funnel plot analysis was also performed. The results revealed no discernible bias, indicating that the results were not skewed by any research' non-publication. Finally, to reduce publication bias and make sure that a variety of viewpoints on the efficacy of structured paragraphing models were taken into account, research with both positive and nonsignificant results were included in the review.

4. RESULTS

The structured paragraphing models—PIE, PEEL, TEEL, CARS, and SOFT—are widely used across different academic contexts. However, the application of these models varies based on factors such as the discipline, level of study, and specific writing task. Statistical insights into the variations of these models in practice reveal how they are adapted and their effectiveness in diverse academic settings. This section further explores the statistical variations in the application of these models and their effectiveness across different academic writing contexts.

4.1 PIE Model (Point, Illustration, Explanation)

In general education courses, the PIE model are most frequently applied to descriptive and introductory writing. Many students can use it because of its simplicity, especially in secondary school or early undergraduate courses. However, as Table 5 illustrates, the application of this model varies significantly across disciplines and the complexity of writing assignments.

The use of structured paragraphing models at various educational levels is displayed in Table 5. At 65%, high school pupils use it the most, suggesting that they prioritise fundamental writing abilities. First-year college students come in second position, with 57%. 25% advanced undergraduatestudents employ these models, indicating a move towards more complex writing techniques. The lowest utilisation (18%) is found among graduate students, indicating that writing at this level is more concerned with research and debate rather thanfundamental paragraphing strategies.

4.2 PEEL Model (Point, Evidence, Expla-Nation, Link)

In argumentative and analytical writing, particularly in coursework at the undergraduate and graduate levels, the PEEL model is frequently preferred. It is a common choice in critical and persuasive writing because of its explicit emphasis on tying the paragraph's core point to supporting details and making a clear relationship to the larger argument. The results are detailed in Table 6.

The PEEL model's popularity across disciplines is seen in Table 6. It is widely employed in fields where organised reasoning is crucial, such as law (94%), political science (90%), and history (85%). The PEEL model is less applicable in engineering and mathematics, since technical writing frequently adheres to other rules, where its utilisation declines dramatically (30–35%).

4.3 TEEL Model (Main Topic, Explanation, Evidence, Link)

Because a structured method helps maintain clarity and consistency, the TEEL model works especially well in expository and analytical writing. The model stresses the significance of a well-structured explanation, followed by corroborating details and a concluding phrase to uphold the essay's major point.

Table 7 above illustrates the use of structured paragraphing models among different student levels and disciplines. Undergraduate students have the highest usage at 77%, reflecting the emphasis on developing structured writing skills at this level. Postgraduate students follow closely with 72%, likely due to the need for clarity and cohesion in advanced research writing. In contrast, STEM studentsreport lower usage at42%, suggesting that structured paragraphing models like PEEL or TEEL are less commonly applied in technical fields, where writing often focuses more presenting data on and methodologies argumentative than on structure.

Table 5. Application of PIE model

Application Context	Percentage Usage	Authors
High School	65%	Hamp-Lyons & Condon (2000)
First-Year College	57%	Hamp-Lyons & Condon (2000)
Advanced Undergraduates	25%	Bitchener & Basturkmen (2010)
Graduate Students	18%	Bitchener & Basturkmen (2010)

Table 6. Application of PEEL model

Discipline	PEEL Model Usage	Authors
Political Science	90%	Bitchener & Basturkmen (2010)
History	85%	Bitchener & Basturkmen (2010)
Law	94%	McDonald (2014)
Engineering/Mathematics	30-35%	McDonald (2014)

Table 7. Application of TEEI model

Student Level	Percentage Usage	Author
Undergraduate Students	77%	Dodd (2011)
Postgraduate Students	72%	Harris (2016)
STEM Students	42%	Swales (1990).

Field	CARS Usage	Author
Humanities/Social Sciences	92%	McDonald (2014).
STEM Fields	60%	Graff&Birkenstein(2018).
Research Papers	70%	Harris (2016)
Theses/Dissertations	45%	Harris (2016)

Table 8. Application of CARS model

4.4 CARS Model (Claim, Argument, Reasoning, Summary)

The CARS model is mostly utilised in academic research writing, particularly when creating introductions and study proposals. It is crucial for organising academic research papers because of its emphasis on establishing a research gap and demonstrating the study's contribution. The findings are detailed in Table 8.

The CARS (Claim, Argument, Reasoning, Summary) concept is used in a variety of academic subjects and types of documents, as illustrated in Table 8. The model is most common in the humanities and social sciences, where it is frequently used to set the stage for research and pinpoint gaps in the body of literature. The model's transition to a more data-driven focus while maintaining an emphasis on a structured introduction is shown in the 60% utilisation rate in STEM subjects. Theses and dissertations utilise CARS at a lesser rate of 45%, perhaps as a result of their more stringent requirements for literature reviews, which may result in different organisational strategies. Research articles are pegged at 70%, probably because it is useful in defining particular research questions.

5. SOFT MODEL (STATEMENT, OPINION, FACT, TIE)

Presenting real, impartial information is where the SOFT model excels. It is most frequently utilised in disciplines like business, economics, and scientific research that place a strong emphasis on data and technical information. Table 9 gives the details of the findings.

The application of the SOFT model (Statement, Observation, Fact, Tie) in many academic domains is presented in Table 9. With 80% adoption, the model is most commonly used in technical fields. This is perhaps because the structure of SOFT fits in nicely with the requirement for objective, fact-based, and unambiguous writing that is typical in technical fields. In the fields of business and economics, where presenting analytical and data-driven arguments requires precise assertions and observations supported by facts, SOFT are also frequently utilised (78%). Nonetheless, SOFT utilisation is far lower-between 20 and 30 percent-in the humanities and social sciences. This trend might be a result of the focus on theoretical and interpretive analysis in these domains, where paragraph structures that

Table 9. Application of soft model

Field	SOFT Usage	Author
Technical Fields	80%	Hoffman, M. (2014)
Humanities/Social Sciences	20-30%	Hyland, K. (2004).
Business/Economics	78%	Badger & White, (2000).

Table 10. Strength and Weaknesses of the Models

Model	Strengths	Weaknesses
PIE	Simple, accessible, effective for introductions.	Lacks depth for complex arguments.
PEEL	Clear connection between evidence and	Can feel formulaic, oversimplifies
	argument.	analysis.
TEEL	Clear structure and focus, well-supported.	Explanation can be overly detailed.
CARS	Effective for research introductions, context	Limited applicability outside
	setting.	introductions.
SOFT	Useful for factual writing, clear evidence	Not suitable for subjective or
	presentation.	theoretical writing.

facilitate more exploratory writing—like CARS are frequently favoured.

Table 10 has presented the advantages and disadvantages of five organised paragraphing approaches used in academic writing.

The PIE model lacks depth for intricate arguments, yet it is clear and perfect for introductions. Although it may seem formulaic, the PEEL approach encourages argumentative writing with a clear connection to supporting material. Although it offers framework for study, the TEEL model runs the risk of providing explanations that are too detailed. Although it works best for introductions, CARS is useful for providing context for research. As for the SOFT model, it works best for factual writing, especially in technical disciplines, but it performs poorly in conversations that are theoretical or subjective. The usefulness of each paradigm varies according to the complexity and goal of the writing.

6. DISCUSSION

The results of this study offer a thorough examination of the many academic situations in which the structured paragraphing models—PIE, PEEL, TEEL, CARS, and SOFT—are used. Although these models provide useful structures for structuring scholarly writing, their application varies greatly according to the discipline, kind of writing assignment, and academic level. With insights backed by pertinent academic research, this debate will examine the main findings, highlighting statistical variances and assessing each model's efficacy. The goal is to gain a deeper understanding of these models' effects on writing quality and how they operate in various academic contexts.

6.1 PIE Model: An Entry-Level Tool

At the first levels of education, especially in high school and first-year college courses, the PIE model (Point, Illustration, and Explanation) became the most widely utilised framework. It is the perfect option for early academic writing assignments where students must provide fundamental ideas backed up by evidence because of its clarity and linear structure. The study found that 57% of first-year college students and 65% of secondary school students employed the PIE model in their writing. These figures highlight the model's value as a starting point for understanding argument structure.

However, PIE is used far less frequently when students go on to increasingly complex academic writing assignments. Only 25% of undergraduate students and 18% of graduate students employed the model, suggesting that higher education levels favour more complex structures. The rising complexity of writing assignments in upper-level courses, which frequently call for deeper analysis and evidence synthesis-tasks that PIE's straightforward format is less prepared to handle-is the reason for this reduction (Bitchener, 2016). Given its simple methodology, it is not unexpected that PIE is often used at the beginning stages of academic writing. According to Swales (1990), the requirement for more intricate structures like PEEL and TEEL becomes clearer as students' writing abilities advance.

6.2 PEEL Model: Popular in Argumentative and Analytical Writing

Argumentative and analytical writing were found to benefit greatly from the application of the PEEL model (Point, Evidence, Explanation, Link). Students in subjects that call for critical analysis favour the approach because of its emphasis on offering evidence to back up a main claim. According to the study, 82% of undergraduates studying the humanities and social sciences, such as history and political science, used the PEEL model in their essays. Given that organised argumentation is a key component of many disciplines, this high usage rate suggests that students in these subjects place a high value on it (Hyland, 2004).

Curiously, the PEEL model was used more frequently in fields where organised arguments are crucial, such political science (88%) and law (94%). On the other hand, only 30–35% of students in STEM fields—which frequently emphasise data-driven writing and outcomes presentation—used the PEEL paradigm. According to Hoffman (2014), this result can be explained by the nature of writing in these subjects, which frequently prioritise technical results and descriptions above discursive or argumentative writing.

The study also discovered that although PEEL works well for creating arguments with evidence, it presents difficulties for students. For example, 65% of students found it challenging to relate the supporting evidence to the main thesis in the Link section. This challenge shows that although PEEL is an effective argumentation tool, students

need more help using it, particularly when doing longer-form writing or more involved research (Harris, 2016). This is in accordance with the difficulties described by Badger and White (2000), who pointed out that one of the most challenging parts of academic writing is connecting evidence to the main point.

6.3 TEEL Model: A Structured Approach for Analytical Essays

Students also frequently choose the TEEL approach (Topic, Explanation, Evidence, Link), particularly in subjects that call for in-depth explanation and analysis. It offers a coherent flow of concepts, beginning with the subject and going into great depth before offering evidence to support it. Expository and analytical essays benefit greatly from this strategy. According to the survey, 77% of undergraduate students in fields including literature, sociology, and education employed the TEEL model when completing their writing projects. These findings imply that activities requiring a coherent, structured development of concepts and arguments are a good fit for the TEEL model (Jordan, 2003).

However, just 42% of students in STEM subjects used the TEEL paradigm, making its use less widespread. This discrepancy is probably explained by the desire for shorter, data-driven writing in these domains. Although TEEL is excellent at providing concise arguments backed up by evidence, students in technical fields, where accuracy and conciseness are valued, may find that its emphasis on in-depth explanations is not a good fit for their writing requirements (Wallace, 2005).

Additionally, students frequently experienced difficulties with the Explanation phase, despite the fact that TEEL provides a clear and organised framework. The need to provide detailed explanations of concepts may result in paragraphs that are excessively long, which may undermine the argument's overall coherence. Furthermore, students found the Link section challenging, especially in larger research papers when it becomes more difficult to maintain the connection between the topic, supporting details, and primary thesis (Dodd, 2011). This is consistent with the difficulties that students encounter in sustaining a coherent flow in academic writing, as pointed out by Badger and White (2000).

6.4 CARS Model: Specialized for Research Introductions

The main purposes of the CARS model (Create a Research Space) in research writing are to define the research gap and organise the introduction. It highlights how crucial it is to provide the body of existing literature, point out any gaps, and support the research topic. It was discovered that this paradigm was extremely well-liked in scholarly research articles and proposals, notably in the social sciences and humanities. According to the study, the CARS model was applied in 92% of research introductions in these fields. Given that establishing the research background and gap is crucial for defending the study, this high adoption rate suggests that CARS is a vital tool for researchers working in these domains (Swales, 1990).

However, just 60% of students used CARS in their STEM research articles, indicating a lower level of use. STEM disciplines frequently prefer shorter, more straightforward introductions that concentrate on the goals and methods of the study rather than the larger background or literature review. Additionally, research papers (70%) used CARS more often than full-length theses (45%), according to the study. This finding suggests that as students advance in their research, they typically adopt more complex structures that accommodate additional like methods results components and (Thompson, 2018, Yakhontova 2021).

The CARS model's emphasis on establishing a research space is especially useful in theoretical domains, but the emphasis on data-driven writing may make it more difficult to apply in STEM professions. Its extensive usage in research introductions, however, indicates that it is still a valuable resource for students studying subjects that call for in-depth literature reviews and context-setting (Bitchener, 2016).

6.5 SOFT Model: Prevalent in Technical and Factual Writing

Clarity and objectivity are crucial in technical and factual writing, where the SOFT model (Statement, Observation, Fact, Tie) is frequently employed. The findings show that The SOF strategy model was especially common in disciplines like business, engineering, and medicine where students must clearly and systematically convey data and facts. The survey further discovered that the SOFT model was utilised by 80% of students in technical subjects like engineering and medicine when completing their writing assignments. The model's high utilisation rate is indicative of its applicability to data-driven writing, where factual clarity is crucial (Hyland, 2004, Swales&Feak 2004).

In comparison, just 20–30% of students in the humanities and social sciences used SOFT, indicating a substantially lower adoption rate. This result implies that the objective, fact-based framework of the model is less suitable for pupils studying subjects that call for more subjective or interpretive writing. However, 78% of students utilised the SOFT model in subjects like business and economics, which integrate data analysis and decision-making, demonstrating its usefulness in delivering company reports and market analysis (Hoffman, 2014).

Although SOFT works well for factual and technical writing, its limited application in other fields indicates that it is not a universally applicable model. Though it might not provide the flexibility required for more intricate argumentative or analytical writing assignments, the methodical, fact-based approach is perfect for technical professions (Dodd, 2011, Rahman 2022).

6.6 Strengths and Weaknesses of the Models

The simplicity of the PIE model is highly regarded, making it especially helpful for beginning writers, such as high school students and those just starting their university studies. PIE's fundamental structure aids students in organising their thoughts in a coherent manner, which makes it a useful tool for introductory and descriptive writing, as noted by Williams (2011) and Pritchard and Honeycutt (2006). However, the model's efficacy is limited at higher academic levels due to its simplicity. The fundamental framework of the PIE model is insufficient as students advance to increasingly difficult writing assignments that call for in-depth analysis and critical interaction with sources (Hyland, 2004). As a result, although PIE is still a great place for students to start, it is unable to meet the requirements of sophisticated academic writing.

Particularly in the arts and social sciences, where coherent reasoning and the incorporation of evidence are essential, the PEEL model is widely

applied in argumentative and analytical writing. According to Booth et al. (2008) and the Harvard Writing Centre (2015), PEEL is especially useful for organising research papers since it clearly ties the argument being made to evidence and the paragraph back to the main body of the work. But because PEEL's strict framework can stifle analysis, originality and nuanced it can occasionally lead to formulaic writing (Bitchener, 2010; Swales, 1990). When applied in situations that call for greater adaptability and creative thinking, the model's concentration on structure over content can occasionally make the writing seem robotic and unduly straightforward.

Further, the TEEL model, which emphasizes a clear topic sentence followed by detailed explanations and supporting evidence, works well in expository and analytical writing. It is particularly effective in disciplines such as business and law, where clarity and logical progression of ideas are essential (Cottrell, 2011: Hood, 2010). The model helps maintain coherence and ensures that each paragraph is well-supported. However, one limitation of TEEL that its focus on providing detailed is explanations can lead to redundancy, especially when it is applied in contexts where conciseness is valued. In disciplines that prioritize brevity and succinctness, such as technical writing or STEM fields, TEEL's extensive explanations can feel overly verbose and hinder the flow of the argument (Bruce, 2017, Ramdani 2019).

By finding gaps in the body of current literature, the CARS model is mostly employed in academic research writing to frame introductions and establish the significance of a study (Swales, 1990). This style works particularly well in beginnings research paper because it establishes the contribution of the current study to the larger field and frames the research challenge. Beyond the introduction, the CARS model's usefulness is further constrained. Students may find it challenging to apply it to other parts of their writing, like the body or conclusion, because of its emphasis on placing the research within the body of current knowledge (Hyland, 2009). This restriction is especially apparent in fields where writing demands greater flexibility and where the emphasis is less on literature review and more on original research findings (McCarthy 2001)

In subjects like technical fields and scientific research that prioritise factual, objective, and data-driven writing, the SOFT model performs

exceptionally well. According to Peacock (2010).SOFT's structured methodology makes it possible to communicate facts and observations in a straightforward and accurate manner, which makes it especially appropriate for domains like business and engineering where arguments supported by evidence are crucial. In fields like the humanities and social sciences, where writing frequently entails theoretical analysis and interpretive effort, the SOFT approach is less successful. The SOFT model's structure may appear unduly restrictive in certain domains, where adaptability and critical thinking are valued more highly than the strict presentation of facts (Becher & Trowler, 2001, Dewi et al. 2023).

7. CONCLUSION

This study has provided a thorough analysis of how the structured paragraphing models-PIE, PEEL, TEEL, CARS, and SOFT-are applied differently in various academic fields and educational levels. The results highlight how crucial it is to comprehend the unique requirements of students in many settings in order to improve their academic writing abilities. The results of the study point to the fact that more complicated models like PEEL and TEEL are preferred in undergraduate and graduatelevel writing, especially in fields that place an emphasis on analytical and argumentative abilities, whereas simpler models like PIE are mostly utilised in introductory levels. However, the more specialised CARS and SOFT models are mostly utilised in technical writing and research, respectively.

According to statistics, the study shows that there are notable variations in how these models are applied, with the SOFT model being more frequently used in technical and data-driven domains like business and engineering, while PEEL and TEEL are more commonly used in the humanities and social sciences. The extensive application of the CARS model in research writing highlights how crucial it is for students to define the research gap and support the applicability of their findings. The study does, however, also note the difficulties students encounter when attempting to use these models successfully. Problems with maintaining coherence in long-form writing, giving adequate explanation, and connecting evidence to the main argument all point to the need for more instructional support. The differences in how different models are applied suggest that there is no one framework that works for all writing

assignments, and teachers should modify their instruction to meet the needs of the discipline, the students' level of study, and the type of writing.

study highlights However, the also the challenges students face when trying to effectively employ these models. The need for more instructional support is indicated by issues with providing sufficient explanation, preserving coherence in lengthy writing, and tying evidence to the main argument. Teachers should adapt their instruction to fit the demands of the discipline, the students' level of study, and the style of writing because there is no one framework that works for all writing projects, as indicated by the variations in how many models are implemented.

8. RECOMMENDATIONS

The study's conclusions lead to a number of suggestions for enhancing the instruction and use of organised paragraphing models in academic writing:

- 1. Educators should adapt their teaching methodologies to the unique requirements of each subject so that students may acquire discipline-specific writing techniques that improve the coherence and persuasiveness of their arguments.
- As students go through their academic careers, teachers should modify their teaching methods according to their academic levels in order to support them in developing their writing abilities.
- In order to assist students get beyond these typical obstacles, educators should provide additional instructional support in their classes.
- 4. Educators should promote adaptability in the use of paragraphing models by giving students the chance to try out many models and choose the one that best suits their individual writing objectives and the assignment's environment.

9. LIMITATIONS AND IMPLICATIONS FOR FUTURE STUDIES

This study contains a number of limitations that should be taken into account, even if it offers insightful information.

1. Peer-reviewed studies published between 2000 and 2023 are the study's primary

emphasis, which could not adequately represent the most recent advancements in writing pedagogy or the historical development of paragraphing models. The focus of future studies may be broadened to cover more time periods or take into account new writing models.

- 2. The study only looks at how paragraphing strategies are used in higher education contexts. Even if this is suitable for comprehending university-level academic writing, it might not accurately represent how these concepts are applied in other educational contexts, such professional writing or secondary schooling. The use of these models in a larger variety of educational contexts may be investigated in future studies.
- 3. This study's conclusions may not be typical of the full corpus of research on paragraphing models because they are based on a small sample of peer-reviewed papers. More case studies and real-world examples might be investigated in future study to confirm the conclusions and make them more broadly applicable.
- 4. The study concentrates on five distinct types of paragraphing: PIE, PEEL, TEEL, CARS, and SOFT. Even though these are popular models, there may be alternative paragraphing frameworks that provide useful information as well. A more thorough comprehension of successful academic writing techniques could be possible by broadening the models used for further research.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

The author(s) hereby declare that generative AI technologies, including Grammarly (for grammar and style suggestions) and Consensus (for clarity and alignment of ideas), were used during the writing and editing of this manuscript.

Details of the AI usage are given below:

- 1. Grammar and spelling checks
- 2. Suggestions for improving sentence clarity and coherence
- 3. Enhancing style consistency throughout the manuscript

The Al-generated suggestions were reviewed and incorporated by the author(s) where appropriate. The content, including research and writing, was fully developed by the author(s), and Al tools were used solely for language refinement and enhancing readability.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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