

A comparative study of lexical bundles in IELTS Writing Task 1 and 2 simulation essays and tertiary academic writing

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(Received 12 August, 2020. Published online 18 March, 2021.)

Higher education institutions place considerable trust in the IELTS (International English Language Testing System) Writing test to predict the linguistic readiness of non-native English-speaking individuals for tertiary academic study. One aspect of the test's validity is the extent tertiary study readiness encompasses the linguistic forms characteristic of academic writing on English-medium degree programmes. In this comparative study, a bespoke corpus of 1,000 IELTS Academic Writing Task 1 and 2 rehearsal compositions was investigated to uncover the lexical bundles prospective test candidates use most frequently (overall, by structure, and by function), compared with novice and expert tertiary academic writing. It was found simulated essays heavily featured four-word lexical bundles, with a prevalence of: 1) clausal constructions (*vis-à-vis* nominal structures), 2) discourse-organising 'template' forms (*on the one hand, on the other hand*), 3) epistemic stance bundles (*it is clear that*), and 4) active verb constructions (*I firmly believe that*). The results indicate that candidates adopt personalised and persuasive language forms that mark them as novice writers compared with expert L2 and native speakers, likely stemming from the design of the test. The study's findings are consistent with the theory that writers move from a clausal to phrasal written style as their proficiency develops. The implications for institutional decision-making based on test outcomes are discussed.

Keywords: IELTS, language testing, lexical bundles, comparative study, corpus linguistics.

1. Introduction

1.1. The role of the IELTS Academic Writing test

The Academic Writing component of IELTS provides evidence of the sufficiency of test-takers' written proficiency in English for tertiary education admission purposes. Performance is assessed on a nine-band scale (see IELTS, 2019b), with Anglophone institutions that accept IELTS scores (predominantly in Australia, Canada, New Zealand, and the UK) often setting minimum requirements of 5.5 ('modest user') to 6.0 ('competent user') for undergraduate and postgraduate programmes (MacDonald, 2019; Pearson, 2020). Some institutions implement tougher minimum standards in Writing, by demanding a band score that is 0.5 higher than the other skills (Pearson, 2020). Importance is attributed to the scores candidates achieve in Writing owing to the complexities involved in learning to write in a second language and because proficient writing is integral to success on many academic programmes (Flowerdew, 2016; Müller, 2015). However, Writing constitutes the test component in which the global IELTS candidature performs least successfully

(averaging 5.55 in 2018) (IELTS, 2019c), with outcomes approximately half of those in Listening, Reading, and Speaking (Müller, 2015). As such, poor performance in Writing can result in a candidate failing to meet an institution's cut-off score, for the reason that the individual did not achieve the minimum requirements in all test components in a single sitting (Hamid, 2016) or because a low writing score dragged down the overall (calculated as an average of the four components) below the required threshold.

IELTS Academic Writing is a direct assessment of written English proficiency, comprising two tasks, summarised in Table 1. Task 1 requires candidates to interpret some visually presented information, usually a chart, table, graph, or diagram in a short written report (Yu et al., 2017). Task 2, a form of discursive essay, involves test-takers presenting a stance on a given prompt with reference to their ideas, opinions, and evidence. The task is conceptualised in genre terms as analytical or hortatory exposition (Coffin, 2004; Mickan & Slater, 2003; Moghaddam, 2010). The former denotes the writer constructing a position concerning 'how something is', while the latter involves persuading the reader 'how something should be' (Mickan & Slater, 2003). Since IELTS does not precisely specify the language functions or structures test-takers are required to demonstrate, a candidate's general communicative proficiency is sampled in the test (Davies, 2008). Performance is supposed to generalise to real-life communicative contexts (Quaid, 2018) and predict an individual's potential to operate in tertiary-level contexts. As a consequence, the degree to which the writing elicited in IELTS coheres with the expectations of tertiary academic settings, evidence of the test's authenticity and predictive validity, is both a notable and controversial issue (Moore & Morton, 2005; Priyanti, 2017; Uysal, 2009).

Table 1. Summary of the tasks required in the IELTS Academic Writing test.

	Task 1	Task 2
Anticipated completion time	20 minutes	40 minutes
Minimum expected word count	150 words	250 words
Task requirements	Candidates write a report interpreting data contained in a diagram, table, chart, or graph	Candidates write a short essay or general report in response to an argument or problem
Assessment criteria	Task Achievement, Coherence and Cohesion, Lexical Resource, Grammatical Range and Accuracy	Task Response, Coherence and Cohesion, Lexical Resource, Grammatical Range and Accuracy
Assessed weighting	One-third overall	Two-thirds overall

Adapted from (IELTS, 2019b)

Recent official IELTS information/marketing brochures aimed at institutions provide surprisingly few arguments supporting the authenticity of the Writing test (or other components). In its *Guide for educational institutions, governments, professional bodies and commercial organisations* (2019), the IELTS partners purport that the Writing test provides "a fair, reliable, and valid" assessment of a non-native English-speaking (NNEs) student's proficiency (IELTS, 2019b, p. 2), yet emphasise explanations of the test's fairness and reliability over validity. Where validity is explicitly addressed, the co-owners outline that the Writing test assesses candidates' "academic language skills" and "practical communication ability" (IELTS, 2019a). Davies (2007) delineates academic language proficiency as "the language of argument, of analysis, and of explanation and reporting", which is "not specific to any particular academic area" (p. 85). The de-emphasis of candidates' background knowledge (Moore & Morton, 2005) results in the selection of task topics

that are considered of “general interest and suitable for test takers entering undergraduate or postgraduate studies” (IELTS, 2019b, p. 13). The authenticity of this generalised conception of academic writing proficiency is contentious, not least since proficient writing requires socialisation into specific communities of discourse (Flowerdew, 2016; Hyland, 2002). It is apparent prospective students are expected to attend to their own disciplinary socialisation separate from the process of English proficiency screening, although universities offer support in the form of pre- and in-session EAP programmes.

A number of empirical studies and critical reviews have found fault with the authenticity of the IELTS Writing test (Cooper, 2013; Moore & Morton, 1999, 2005; Priyanti, 2017; Uysal, 2009). Moore and Morton's (2005) comparative study of 20 IELTS Writing Task 2 rubrics with 155 undergraduate and postgraduate items of coursework generated a range of rhetorical variations. The authors noted that Task 2 encompasses writing that was overly anecdotal, spontaneous, and hortatory. Differences stem from the impromptu nature of the test, the strict time limitation, topics not being within the writer's area of expertise, and the inability to utilise external sources of evidence (Moore & Morton, 2005; Priyanti, 2017). Consequently, IELTS Writing test outcomes should be treated cautiously as indications of pre-study ability or learning-to-write aptitude (Davies, 2008), rather than a prediction of a candidate's ability to perform in discipline-specific academic writing. For the IELTS partners, this state of affairs seems favourable compared with incorporating measures of field-specific language knowledge to make the test more authentic, which would raise notable logistical challenges in the global production and delivery of tests (Davies, 2008; Taylor & Weir, 2012).

1.2. Examining the “academicness” of academic writing through lexical bundles

Through the investigation of computerised corpora of academic texts, much is now known about the linguistic choices of writers of varying academic experience/expertise. One feature of academic writing, lexical bundles, also referred to as “clusters” (Hyland, 2008a) and “formulaic sequences” (Staples et al., 2013; Wang, 2018), are defined by their frequency of occurrence and breadth of use in corpora of academic texts (Cortes, 2013; Hyland, 2008b). Lexical bundles exist as “recurrent string[s] of uninterrupted words” (Hyland, 2008b, p. 5), consisting of a pattern of usually three (*based on the*), four (*the nature of the*), or five words (*it is possible that the*) (Biber et al., 1999). As extended collocations, they serve to establish and perpetuate expected register norms within specific disciplines (Hyland, 2008a, 2008b). The skilful use of bundles signals the competent, native-like participation of the author in the discourse community (Hyland, 2008b, 2008c; Staples et al., 2013). As such, it is important for novice L2 writers in academic settings to demonstrate some degree of skill in their use in academic writing, particularly in high-stakes, assessed written coursework, which determines degree outcomes in many disciplines.

Increasing amounts of research has explored how novice L2 writers utilise lexical bundles in academic writing by comparing corpora of student texts with those of more proficient L2 users and/or native speakers. Writing quality can be judged by comparing the density of bundles in corpora (Ädel & Erman, 2012), whether L2 writers employ clusters that cohere with high-frequency structures utilised by L1 writers (Chen & Baker, 2010), and the extent particular structures or functions mirror those of L1 users (Bychkovska & Lee, 2017). The literature differentiates between expert and novice academic writing, with the former denoting academics' published work, and the latter, undergraduate or postgraduate student coursework (Wang, 2018). Lexical bundle use by novice L2 writers has been characterised by heavy reliance (Staples et al., 2013), restricted repertoires (Ädel & Erman, 2012), and frequent misuse (Bychkovska & Lee, 2017). Along with their novice L1 counterparts, they demonstrate a dependency on verb-based bundles in relation to expert writers who utilise more noun-based constructions (Biber et al., 2011; Chen & Baker, 2010; Pan et al., 2016). As such, Biber, Gray, and Poonpon (2011) hypothesise that novice writers, regardless of whether English is a first or second language, exhibit a progression from a clausal to a phrasal written style as their proficiency develops, a principle now widely

supported (Bychkovska & Lee, 2017; Pan et al., 2016; Staples et al., 2016). Mirroring research into English language proficiency (ELP) development (Elder, 1993; Knight, 2018), the literature indicates the speed in which learners progress along this trajectory appears slow (Biber et al., 2020; Gray et al., 2019; Staples et al., 2016; Vercellotti, 2017; Zheng, 2016), requiring the expenditure of much effort (Pan et al., 2016).

1.2.1. Lexical bundles in IELTS writing

As with other structures, lexical bundles are not explicitly specified in IELTS Writing at any performance level. However, statements in the *IELTS Task 1 and 2 Writing band descriptors (public version)* suggest the effective use of bundles may enhance how a text is rated at higher levels. In Lexical Resource, the presence of lexical bundles could constitute an “awareness of style and collocation” and “flexibility and precision” (band 7.0), or “natural” and “sophisticated lexical features” (bands 8.0 and 9.0). Discourse-serving lexical bundles, e.g., *on the other hand* and *if you look at*, may improve a text’s Coherence and Cohesion, since they perform organisational and referential roles. Nevertheless, caution should be exercised since shoehorning in formulaic sequences could disturb the natural flow of the text or be penalised as reliance on “memorised phrases”.

Studies that have explored lexical bundle use in IELTS Writing are rare. Cooper (2013) conducted a corpus investigation of the extent four-word lexical bundles employed in inauthentic IELTS Task 2 essays (undertaken in tutorials) corresponded to those utilised in subsequent assessed coursework. The bespoke corpus comprised 208 Task 2 essays (55,946 words) and 600 assignments written by first-year undergraduate psychology students enrolled at a South African university (775,423 words). The author uncovered a mismatch in frequencies of bundle use, with just seven found in the preliminary round of IELTS testing compared with 47 in assessed written work. Certain characteristics of Task 2 (e.g., the time restriction, hortative style) may have attenuated the incidences of lexical bundles. As students’ academic programmes progressed (and their ELP and academic skills developed), verb-based bundles exhibited a near 40% drop in use, while more complex noun-based bundles witnessed a rise of around 16%, providing further support to Biber et al.’s (2011) hypothesis. The generalisability of Cooper’s (2013) findings is limited by the small sample of psychology students in a single institution. Similarly, the author did not include Task 1 essays in the corpus, which would contribute evidence of students’ abilities to employ lexical bundles to aid the comparison, description, and explanation of visual data (Yu et al., 2011), a common cross-disciplinary requirement in academic writing.

1.3. Research aims

Few prior studies have investigated the extent to which IELTS Academic Writing elicits the lexicogrammatical features that writers of varying expertise employ in the academy. Such comparisons generate understandings of whether IELTS is an authentic writing test for the purpose of tertiary programme admission. This is an important line of inquiry since judgements about the sufficiency of prospective students’ written skills are made utilising evidence that differs markedly in terms of genre and the conditions in which academic writing is typically produced (Cho, 2003; Moore & Morton, 2005). Test outcomes may be interpreted as “hard and fast” indicators of academic writing abilities across many institutions, when in fact a greater degree of caution should be applied (Banerjee, 2003; Chalhoub-Deville & Turner, 2000; Green, 2005; O’Loughlin, 2011; Rea-Dickins et al., 2011).

The present study utilises a bespoke corpus of IELTS Academic Writing Task 1 ($n = 500$) and Task 2 ($n = 500$) rehearsal compositions shared on Facebook groups to investigate the most frequently occurring three-, four-, and five-word lexical bundles used by candidate writers at the beginning of their academic writing journeys in English. Four-word bundles that met the study’s cut-off criteria were analysed structurally and functionally (Biber et al., 2004), with the results compared with six corpus studies of bundle use by L1 and L2 novice and expert academic writers

(Ädel & Erman, 2012; Bychkovska & Lee, 2017; Chen & Baker, 2010; Hyland, 2008b, 2008a; Pan et al., 2016) in order to draw conclusions over the authenticity of IELTS Writing and how test outcomes might be interpreted in light of judgements concerning newly enrolled students' continued academic language development. The findings are targeted at practitioners in higher education institution (HEI) settings who commonly interpret IELTS test scores, that is, admissions officers and supervisors, international office staff, programme course directors, and academic staff (Howell et al., 2012), who research has shown do not always possess clear understandings of the content and processes of the IELTS test (Hyatt, 2013).

2. Method

The data analysed in the present study comprises 1,000 simulated compositions posted to the public wall pages by members of five large IELTS-orientated Facebook groups. Such essays were selected for inclusion in the corpus because they reflect the output of novice writers who were unlikely to have received targeted instruction on lexical bundles. Since they had not yet attained the goal of an offer of unconditional tertiary-level academic enrolment, it can be assumed that such individuals would not have progressed onto a pre-sessional EAP programme or have begun self-directed preparations for their academic programme, either of which might encompass awareness raising of lexical bundles. Additionally, as the motivation for sharing rehearsal compositions was for feedback purposes (Pearson, 2019), the cohort likely lacked the financial or physical access to teacher-led IELTS preparation, which studies have shown can integrate a notable EAP strand (Green, 2007; Hayes & Read, 2008).

A number of other noteworthy characteristics are shared by the participant writers in this context. First, they tend to originate from the 40 countries with the largest Academic IELTS test-taker cohorts (see IELTS, 2019c), with individuals from Southern Asia, the Middle East, and North Africa well represented. Not surprisingly, candidates from countries with access restrictions placed on Facebook (notably, the People's Republic of China and the Islamic Republic of Iran) are featured poorly. Additionally, members tend to be young adults (Pearson, 2019) as technology is ingrained in their lives and they more enthusiastically embrace social networking services for educational purposes (Ahern et al., 2016; Wang et al., 2012). As the rehearsal essays were treated as textual or documentary data, consent to utilise the scripts was not solicited (Wilkinson & Thelwall, 2011; Wilson et al., 2012). Indeed, the very act of seeking consent may require authors to become active participants, transforming documentary analysis into human subject research (Wilkinson & Thelwall, 2011). No identifying or background information on the candidates sharing rehearsal essays was collected.

2.1. Procedure

The wall posts containing rehearsal compositions were retrieved using the group pages' search function and the keywords "feedback" and "evaluation". The search results were sorted according to the date/time they were posted, with the most recent posts listed first. Thereafter, typed Task 1 and 2 responses were copied and pasted into individual text files for incorporation into the corpus. Scripts uploaded as a photo of a handwritten response were ignored due to the time required transcribing the text. Search and retrieval processes were continued further back in time until a sample of 500 Task 1 and 2 compositions had been obtained. Three exclusion criteria were applied to the retrieved texts. First, multiple compositions by the same author were excluded to avoid the idiosyncrasies of particular writers skewing the results. Second, scripts that had been posted in more than one group, and thereby duplicated in the corpus, were identified and deleted.

Finally, in order to obtain compositions that were representative of the level required for academic study, all texts were subject to an impressionistic judgement by the researcher using the *IELTS Task 1 or 2 Writing public band descriptors*. Scripts that were deemed below band 5.5, the most commonly occurring institutional minimum entrance requirement in Writing (Pearson, 2020), were not retrieved. The scripts were then subject to cleaning, a process that involved deleting task

prompts, candidates' requests for feedback, salutations, and other text which did not constitute the response. In the next stage, the individual text files were input into AntConc (Anthony, 2018), a freeware corpus software package for data analysis. Baseline data characterising the study's corpus are presented in Table 2.

Table 2. Summary of the corpus featured in the present study.

	Texts	Word types	Word tokens	Mean length of texts
IELTS Writing Task 1	500	4,986	86,743	173 words
IELTS Writing Task 2	500	9,141	149,898	300 words
Total	1,000	14,127	236,641	

2.1.1. Lexical bundle cut-off criteria

Using AntConc's n-gram search feature, the texts were investigated to identify the most frequently occurring three-, four-, and five-word lexical bundles by type (e.g., counting *as a result of* as one bundle type) and token (e.g., all instances of *as a result of*). Exclusion criteria based on prior literature (summarised in Table 3 and with which the results of the present study are compared) were applied to all bundles. First, a minimum raw frequency count of 10 occurrences (normalised to 42 per million words [pmw]) among the compositions was adopted. This higher minimum frequency was chosen owing to the smaller corpus size in relation to the studies with which the results are compared. In terms of dispersion, a minimum distribution across six essays was established to guard against writer idiosyncrasies (Ädel & Erman, 2012). Numerical tokens were included in the analysis, owing to the data-driven focus of Task 1 (reduced to a generic token labelled '%'). Third, bundles interspersed with punctuation marks (e.g., *in my opinion, I and conclusion, although there are*) were manually excluded because they proved incompatible with structural and functional coding schemes. Bundles that were deemed highly task-specific (e.g., *limestone and clay are*) were excluded (Staples et al., 2013), although more generic content bundles (*all over the world, men and women are*) were included. Finally, clusters containing proper nouns were rejected (Ädel & Erman, 2012; Chen & Baker, 2010).

Table 3. Comparison of the cut-off criteria for four-word bundles between the present study and the compared studies.

Study	Minimum frequency	Minimum dispersion	Proper nouns	Dispersion across punctuation	Overlapping bundles
The present study	42 pmw	6	Omitted	Omitted	Checked and merged
Ädel and Erman (2012)	25 pmw	3/9	Omitted	Not reported, appear omitted	Checked and merged
Bychkovska and Lee (2017)	40 pmw	5	Not reported	Not reported, appear omitted	Checked and merged
Chen and Baker (2010)	25 pmw	3	Omitted	Not reported	Checked and merged
Hyland (2008a, 2008b)	20 pmw	10%	Not reported	Not reported, appear included	Not reported
Pan et al. (2016)	40 pmw	5/10	Not reported	Not reported, appear omitted	Not reported

2.2. Data analysis

Four-word lexical bundles that met the cut-off criteria were analysed structurally and functionally based on the taxonomy of Biber and colleagues (Biber et al., 1999, 2004), later employed by Bychkovska and Lee (2017) and Pan et al. (2016). Four-word clusters were chosen because of their prevalence in research (Cortes, 2013), due to their higher frequency counts compared with five-word bundles, and because they often self-contain three-word bundles (Cortes, 2013). Structural coding involved manually applying three main structural patterns, noun phrase (NP)-, prepositional phrase (PP)-, and verb phrase (VP)-based (and the inclusion of an “others” category) along with a number of sub-structures (e.g., “noun phrases with *of*”) to the bundles. The semantic functions of the bundles were then deductively coded using Biber et al.’s (2004) categories of referential, stance, and discourse, outlined as follows:

Referential bundles make direct reference to physical or abstract entities, or to the textual context itself, either to identify the entity or to single out some particular attribute of the entity. Stance bundles express attitudes or assessments of certainty that frame some other proposition. Discourse organisers reflect relationships between prior and coming discourse (p. 384).

As with the structural coding, secondary tier functions based on the prior literature were coded, and in the case of stance bundles, a third level of sub-functions were catalogued.

The manual deductive coding of bundles is rarely cited as problematic in lexical bundle research. However, as Ädel and Erman (2012) point out, there exist no clear criteria to allocate functional categories and sub-divisions to specific bundles. The authors highlight discrepancies in the structural coding of “framing” bundles as both referential (Chen & Baker, 2010) and discourse (Cortes, 2004). Difficulties in the coding process were mitigated by recourse to examples in the literature and manually checking problematic bundles using concordance lines. Nevertheless, there was sufficient uncertainty for all four-word bundles to be re-coded after a three-month interval by the researcher. Discrepancies in the coding were accounted for by a third coding of the problematic bundles. The overall frequencies and proportions of three-, four-, and five-word bundles are reported first, followed by frequencies and proportions of four-word lexical bundle structures and functions. Thereafter, analysis of concordance lines of the most prevalent structural/functional patterns is presented before the results are discussed in the context of the authenticity of the IELTS Writing test. Frequency counts for bundle types are presented as raw, while token counts have been normalised to pmw to enable comparison with other studies.

3. Results

3.1. Occurrences of lexical bundles

Initially, the corpus of IELTS Writing rehearsal essays was investigated to obtain the frequencies and proportions of three-, four-, and five-word lexical bundles. As expected, three-word clusters featured by far the highest number of bundle types (631) and tokens (13,281 raw/56,123 pmw) accounting for 5.6% of all corpus tokens. Occurring approximately six times less frequently, 102 four-word bundle types (comprising 1,966 tokens [8,308 pmw] and representing 0.8% of the corpus) met the cut-off criteria. Less frequent by approximately the same order of magnitude, five-word bundles were rare in rehearsal compositions. Only 19 types were uncovered, resulting in 317 tokens (1,340 pmw), 0.1% of the corpus.

Table 4 indicates the 20 most frequently occurring three-, four-, and five-word lexical bundles uncovered in IELTS Writing rehearsal essays. It is evident the transition signal *on the other hand* (997 pmw) and minor variations (e.g., *on the other side*) constituted the most common four- and three-word bundles (1,056 pmw) overall. This was followed by *the number of* (832 pmw) and *the one hand* (634 pmw). All three-word bundles occurred with a prevalence higher than *on the one hand* (304 pmw), the second most common four-word cluster and one that was over three times less frequent than *on the other hand*. Five-word bundles featured both a low frequency and

proportion, with only two (*it can be seen that* and *the line graph illustrates the*) occurring more often than *at the same time* and *in the form of*, the 19th and 20th most common four-word bundles. It was also apparent that, as the lengths of prevalent bundles increased, it became possible to align them to their clear rhetorical roles in Task 1 (*the line graph illustrates the*) or Task 2 (*this essay will discuss both*).

Table 4. Twenty most common lexical bundles in IELTS Writing simulation compositions, ranked by normalised frequency (pmw).

3-word bundles		4-word bundles		5-word bundles	
on the other	1056	on the other hand	997	it can be seen that	249
the number of	832	on the one hand	304	the line graph illustrates the	135
the one hand	634	it can be seen	279	the end of the period	76
it can be	600	it is clear that	275	in this essay I will	68
in my opinion	566	this essay will discuss	190	it can be clearly seen	68
in order to	490	it is evident that	177	the bar chart illustrates the	68
as well as	482	the line graph illustrates	173	there is no doubt that	68
the line graph	469	at the end of	131	it is evident that the	63
the percentage of	431	all over the world	114	the line graph compares the	59
in the year	380	in the number of	114	this essay will discuss both	59
as a result	376	is one of the	110	over a period of years	55
I believe that	376	the total number of	101	this essay will discuss why	55
the amount of	376	the bar chart illustrates	97	it is clear that the	51
can be seen	368	some people believe that	97	are of the opinion that	46
in terms of	363	that the number of	97	at the start of the	46
most of the	351	it is argued that	93	the given bar chart illustrates	46
that it is	351	it is true that	89	increase in the number of	42
one of the	347	the number of people	89	the bar chart compares the	42
this essay will	342	at the same time	85	this essay will discuss the	42
it is clear	338	in the form of	85		

3.2. Structural analysis

Table 5 outlines the distributions of four-word bundles according to main and secondary structural classifications. It is evident that rehearsed IELTS essays elicit predominantly clausal constructions from candidates in preparation, with verb phrase-based bundles being the most common syntactic type (51.0% of types and 48.3% of tokens). They are followed by preposition phrase-based (27.5% of types and 35.5% of tokens), noun phrase-based (20.6% of types and 15.6% of tokens), and others (1% of types and 0.6% of tokens). In terms of subsidiary structures, the picture is more complex. While VP-based bundles constituted the category with the highest number of sub-divisions, certain structures were uncommon in rehearsed IELTS Writing, specifically “pronoun/noun + *be* fragment” and “passive verb + prepositional phrase fragment”. The second most common sub-structure was “other prepositional phrase fragment”, evinced by the frequent

instances of *on the one hand*, *on the other hand*, and *at the end of*. Interestingly, informationally dense NPs, while uncommon overall, constituted the third most widespread sub-structure in “noun phrases with *of*”. However, only two were common enough to register in the top 20 overall (*the total number of* and *the number of people*).

Table 5. Structural analysis of the four-word bundles in IELTS Writing rehearsal essays.

Structure	Sub-structure	Types (raw)	Tokens (pmw)
NP-based		21	1,297
	Noun phrase with <i>of</i>	16	972
	Noun phrase with other postmodifier fragment	4	254
PP-based		28	2,950
	Prepositional phrase with embedded <i>of</i>	13	917
	Other prepositional phrase fragment	15	2,033
VP-based		52	4,015
	Copula <i>be</i> + noun/adjective phrase	5	347
	Verb phrase with active verb	28	1,859
	Pronoun/noun + <i>be</i> fragment	1	72
	Anticipatory <i>it</i> + noun/adjective phrase	7	811
	Passive verb + prepositional phrase fragment	4	482
	(Verb phrase) + <i>that</i> clause fragment	5	330
	(Verb phrase) + <i>to</i> clause fragment	3	186
Other		1	46
Total		102	8,308

3.3. Functional analysis

Table 6 shows the distribution of bundles by main and subordinate functions, using Biber et al.'s (2004) typology. Discourse and referential bundles exhibited similar proportions of types (38.2% and 37.3% respectively). However, in the analysis of tokens, discourse clusters accounted for 48.5% of all four-word bundles, while referential bundle tokens were noticeably less frequent (29.8%). Stance bundles accounted for the lowest proportion of functions (24.5% of types and 21.8% of tokens), probably because Task 1 compositions, where the writer's stance is not explicitly required, constituted one-third of all corpus tokens. In spite of this, epistemic stance was the most frequent sub-function overall, structured most commonly using the anticipatory *it* (*it is evident that*), active verbs (*I strongly believe that*), and the copula *be* (*is the best way*). All three structures allow the writer to convey a strong and clear position on a Task 2 prompt.

Table 6. Functional analysis of the four-word bundles in IELTS Writing rehearsal essays.

Function	Sub-function	Types (raw)	Tokens (pmw)
Stance		25	1,809
	Epistemic	23	1,699
	Attitudinal	2	110
	Obligatory	0	0
	Ability	1	46
	Desire	1	63
Discourse		39	4,027
	Topic introduction	13	1,044
	Topic elaboration/clarification	6	1,500
	Identification/focus	17	1,318
	Inferential	3	165
Referential		38	2,472
	Framing attributes	6	330
	Quantity specification	14	917
	Place/time/text-deixis	18	1,225
Total		102	8,308

3.4. Concordance analysis of prevalent structural/functional patterns

3.4.1. Active verb phrases

The most common sub-structure by type and token were verb phrases with an active verb. Typical occurrences featured variations of the three-word bundle *this essay will*; notably *this essay will discuss* (190 pmw), which was often followed by *both* (59 pmw) and *why* (55 pmw), announcing the writer's intentions in Task 2:

- (1) *This essay will discuss* the causes of this phenomenon such as the increasing number of people consuming unhealthy food.

Given the topic is only introduced once in a response, it can be surmised that *this essay will* plus active verb is widely used among candidates rehearsing for Task 2. Formulaic frames for Task 1 involving active verbs were also prevalent, such as *the (given) line graph/bar chart/diagram/pie chart illustrates*. Other uses of active verbs involved Task 2 writers directly framing their personal position towards the prompt, such as:

- (2) In the following paragraphs I will explain why *I agree with the* statement, giving my opinion.

Explicit statement of stance in the first person was also employed in Task 2 essay introductions and conclusions, notably *I strongly/firmly believe that*:

- (3) Therefore *I firmly believe that* mass media is an integrated part in people's life.

3.4.2. Other prevalent structures

Many of the high occurring prepositional phrase fragments (excluding *on the one hand* or *on the other hand*, which constituted 44% of this sub-category) and prepositional phrases embedded with *of* served clear referential or discourse-framing roles in Task 1:

- (4) Both temperature and rainfall show wide fluctuations *over a period of* twelve months.
- (5) Overall, UK and Germany increased their household recycling rates *over the given period*.

Noun phrases with *of* were a similarly prevalent sub-structure to other prepositional phrase fragments (15.7% of types). The most frequently occurring noun phrases with *of* appeared to be employed in the deliberate description and reporting of graphical information in Task 1, notably *the total number of*, *the number of people*, *end of the period*, and *a period of years*. The clausal anticipatory *it* + noun/adjective phrase constituted 6.9% of types and 9.8% of tokens and contributed four structures within the top 20 most used bundles. The structures *it is true/argued that* were used to present the author's epistemic stance in Task 2 in all cases:

- (6) In contemporary life, *it is true that* many students cannot live under one roof with their family.

In contrast, *it is clear/evident that* were employed respectively 68% and 74% of the time in Task 1 scripts, signalling the author's explicit understanding of the task information:

- (7) Overall, *it is clear that* the literacy rate continued to increase gradually over the years and has improved tremendously in all the three age groups.

3.4.3. Discourse bundles

An assortment of identification/focus bundles constituted the largest sub-function of discourse bundles. Many of these formed an explicit connection to the visual data in Task 1, such as *it can be seen* (279 pmw) and *is one of the* (110 pmw). Although only the sixth most common in terms of type, topic elaboration/clarification featured the second highest token count, unusual among bundle functions. This can be explained by the prevalence of the contrastive discourse markers *on the one hand* and *on the other hand*, which were the two most frequently occurring of the 102 clusters and constituted over a third of all topic elaboration/clarification bundles. Inspection of the concordance lines revealed both forms were commonly utilised at the beginning of paragraphs, particularly in Task 2 compositions to signpost the writer's position on the prompt, with one paragraph devoted to one side of the issue and the other, the opposing side:

- (8) *On the one hand*, an international sporting event could bring people from all over the world to one country and hence enhance the tourism department of the host nation.
- (9) *On the other hand*, hosting an international sporting event can have a huge drain on the finances of the country.

3.4.4. Referential bundles

Place/time/text deixis and quantity specification constituted the second and third most common functional type among the four-word bundles (accounting for 17.6% and 13.7% of types respectively). Inspection of the concordance lines showed a tendency for deictic bundles to be time-based and utilised in descriptions of Task 1 trends:

- (10) Furthermore, it continued to rise until it reached its peak at just above 30 million travelers *at the end of* the timetable in the year 2005.

Time-based deictic bundles were also apparent in Task 2 responses (to a lesser extent), and served to orientate the reader towards the time dimensions of proposition:

(11) *In the modern era*, littering has become a serious problem, especially in the major cities...

There were fewer prevalent place-based deictic bundles since many contained country/regional names and were eliminated in the cut-off.

Examination of concordance lines revealed that the most frequent bundles utilised for quantity specification usually featured the words *number*, *amount*, and *percentage* and explicitly concerned Task 1:

(12) Overall, the most striking feature is *that the number of* male employees outweighed that of females in all age groups.

Some were also exhibited in Task 2, often employed by the author to outline the scope of the issue discussed:

(13) To illustrate, museums and art galleries which are maintained by government funding provide employment to *a lot of people*.

It was apparent some quantification bundles missed the cut off, owing to the presence of proper nouns or content-specific words (e.g., *the number of tourists*). Frequencies of particular quantification bundles are clearly dependent upon task topics and, for Task 1, how the information was visually presented. The prevalence of quantification bundles may have been higher if not for the variety of Task 1 prompts, with topic-specific lexical items preventing some bundles from reaching the minimally required dispersion of six texts.

4. Discussion

4.1. Prevalence of lexical bundles

Comparison of the frequencies of four-word bundle types and tokens used by the study's cohort of candidates preparing for IELTS with L1 and L2 novice and expert academic writers from a range of corpus studies (Table 7) showed notable differences in overall bundle prevalence. It can be seen writers in the present study exhibited noticeably higher frequencies of both bundle types and tokens compared with tertiary-level academic writing (regardless of proficiency level or first language). This indicates the writers of IELTS rehearsal essays adhere to more formulaic lexicogrammatical patterning that suits the narrow purposes of the tasks. This is supported by Cooper (2013), who revealed a similarly high dependence on bundles drawn from a corpora of Task 2 compositions. An obvious explanation for this is that IELTS writing, undertaken in time-restricted conditions, elicits responses that are far shorter than genres of assessed academic writing. Additionally, Task 1 and 2 prompts, while differing in topic and the framing of response, feature predictable demands and a narrow range of rhetorical moves (Mickan & Slater, 2003; Moore & Morton, 2005; Yu et al., 2017). In contrast, the various sub-sections of lengthy pieces of assessed academic writing and published research articles require diverse and complex rhetorical moves from authors, the integration of subject knowledge expertise, and reference to outside scholarship, thereby increasing the diversity of lexical bundles.

Table 7. Frequencies of four-word bundle types (raw)/tokens (pmw) in L1 and L2 novice and expert writing.

	Novice L2 writers		Expert L2 writers	Novice L1 writers	Expert L1 writers
	Preparing for IELTS	Tertiary programmes			
The present study	102/8,308				
Ädel and Erman (2012)		60/NR		130/NR	
Bychkovska and Lee (2017)		52/3,846		23/1,530	
Chen and Baker (2010)		90/554		120/757	118/749
Hyland (2008b)				240/4,571	
Pan et al. (2016)			71/2,649		55/1,845

NR = Not reported

One consequence of heavy bundle use is the danger that such an approach, if transferred to assessed writing in the academy by a learner who perceives he/she has met the ELP requirements (Atherton, 2006), could diminish the writer's credibility. However, caution should be exercised when adopting this position. As is later discussed, the requirements of the written genre play a notable mediating role in bundle usage (Gray et al., 2019; Staples et al., 2016; Zheng, 2016). Thus, it should not be assumed that the high density of lexical bundles would necessarily translate into tertiary-level coursework. In addition, research does not present a clear picture that an abundance of lexical bundles is indicative of unsuccessful or novice writing (Zheng, 2016). While a number of studies do indeed show that lower incidences of lexical bundles associate with professional academic writing (Hyland, 2008a; Staples et al., 2013), others indicate more proficient L2 learners utilise lexical bundles at higher frequencies than weaker ones (Ädel & Erman, 2012; Chen & Baker, 2010). As an implication for practitioners of IELTS preparation, it may not simply be a matter of dissuading candidates from employing formulaic sequences (e.g., through written feedback), particularly as they may lessen the cognitive burden of writing (Liu & Stapleton, 2015) and enhance how a test-taker's Coherence and Cohesion and Lexical Resource are judged. Instead, developing writers' mastery of lexical bundles may be a more worthwhile endeavour for teachers (Li & Schmitt, 2009; Schmitt et al., 2004).

In spite of the high incidence of bundle use, comparison with the top 20 most frequent three-, four-, and five-word sequences used in cross-disciplinary novice and expert L1 academic writing (Hyland, 2008b, 2008a) indicates limited correspondence. Six of the most widespread three-word bundles employed in IELTS simulation compositions (*on the other [hand]*, *the number of*, *in order to*, *as well as*, *in terms of*, *most of the*, *one of the*) co-occurred in the top 25 lexical bundles from a 3.5 million word corpus of novice and expert L1 academic writing, as uncovered by Hyland (2008b). This figure drops to five corresponding four-word bundles (see Table 8), and only two five-word bundles (*it can be seen that* and *at the end of the*). As shown in Table 8, when compared with the top 50 bundles found in master's assignments, PhD theses, and research articles (Hyland, 2008a), it was found the greatest correspondence with IELTS rehearsal essays was in doctoral level writing, with seven co-occurring bundles. This is likely due to PhD theses being substantially longer and, thus, resulting in higher frequencies of lexical bundles. The outcomes of these comparisons do not necessarily suggest a need for concern. Li and Schmitt (2009) showed NNES students can increase their repertoires of formulaic sequences by over 166 items during one academic year. Since it is more conducive for learners to commence their programmes with a heightened level of language awareness, Schmitt et al.'s (2004) evidence of gains of 157 items across a one-semester pre-sessional EAP programme indicates such courses' value in addressing the uncovered deficit.

Considering four-word lexical bundles only, comparison with various tertiary disciplines (Hyland, 2008b, 2008a) yields further discrepancies between candidates preparing for IELTS and L1 academic writing of varying proficiency. Table 8 indicates that the five bundles present in Hyland's (2008b) top 25 in L1 academic writing tend to co-occur with the top 50 bundles uncovered across the disciplines of biology, electrical engineering, applied linguistics, and business studies (Hyland, 2008a). Most prevalent were *on the other hand* and *at the same time*, common to IELTS and all four disciplines, while *at the end of [the]*, *is one of the*, and *in the form of* co-occurred in three. When those not among the top 25 in Hyland's (2008b) academic writing corpus are included, bundle use in applied linguistics and business studies most closely coheres with simulated IELTS writing, with six co-occurring bundles each. L1 academic writing in biology is the least congruent, although the difference is just two bundles. IELTS claims to be a fair test (IELTS, 2019b), with no subject-specific requirements (and thus no related discourse conventions) favouring certain candidates over others. The lack of clear alignment with any tertiary discipline offers evidence the test does not indeed favour particular disciplinary registers.

Table 8. Correspondence of the top 20 four-word lexical bundles in IELTS Writing with the top 50 in novice and expert L1 academic writing.

The present study	Hyland (2008a)				Hyland (2008b)		
	Mas- ter's theses	PhD the- ses	Re- search articles	Biol- ogy	Electrical engineer- ing	Applied linguis- tics	Busi- ness studies
on the other hand*	✓	✓	✓	✓	✓	✓	✓
on the one hand		✓				✓	
it can be seen [that]					✓		
at the end of [the]*		✓	✓	✓		✓	✓
in the number of							✓
is one of the*	✓	✓		✓	✓	✓	
the total number of		✓					✓
at the same time*	✓	✓	✓	✓	✓	✓	✓
in the form of*	✓	✓			✓	✓	✓

*Among the top 25 bundles in (Hyland, 2008b) 3.5 million word corpus of novice and expert L1 academic writing

4.2. Disparities in distributions of bundle functions and structures

The findings of the functional analysis reveal disparities with tertiary-level academic writing according to writer origin and proficiency level, shown in Table 9. It is apparent that rehearsed IELTS Writing elicits a higher proportion of stance bundles relative to more expert forms of academic writing. This supports the findings of Ädel and Erman (2012) and Bychkovska and Lee (2017), yet diverge from Chen and Baker (2010). It is unclear why these proportions vary, particularly as both Bychkovska and Lee (2017) and Chen and Baker (2010) employ corpora of L2 texts written by Chinese learners. In addition, candidates preparing for IELTS evince among the lowest proportion of referential bundles, noticeably fewer than all other writers except L2 experts. This result is surprising, since half of the corpus consisted of Task 1 compositions, which usually requires quantification of pictorial data, a sub-function of referential bundles. One explanation for

this is the variation in prompts across compositions, where the physical and abstract entities writers reported on varied to such an extent that certain referential bundles were not able to meet the cut-off criteria. Since bundle functions were deemed to be heavily moderated by the design of tasks and conditions of the test, they are addressed in further detail in 4.3.

Results of the structural analysis showed IELTS Writing candidates employed mostly clausal four-word sequences (constituting 48.3% of all tokens). Noun bundles were rare, particularly when counted as tokens, standing at just 15.6%. Table 10 presents a comparison of the distribution of bundles across the three main structural categories with corpus research into the distributions of these features in novice and expert L1 and L2 writing. The figures suggest that the authors of IELTS rehearsal compositions rely more heavily on clausal constructions, reflecting high proportions of verb-based structures as a feature of novice writing generally (Biber et al., 2011; Bychkovska & Lee, 2017; Pan et al., 2016; Staples et al., 2016). The deficit of noun-based sequences in IELTS is notable in comparison to other forms of academic writing, with the exception of the findings generated by Chen and Baker (2010). While Pan et al. (2016) suggest that a predilection for clausal constructions may be a permanent feature of L2 academic writing regardless of proficiency level/academic expertise, Bychkovska and Lee (2017) and Cooper (2013) provide evidence that L2 writers can learn to incorporate noun-based forms in their writing to a similar extent to expert L1 academic writing. In spite of the somewhat mixed picture concerning bundle use by novice and L2 expert writers, the data suggest a more equal spread across the three types of structures in L1 expert writing, not in evidence in rehearsed IELTS writing.

Table 9. Distribution of main functional categories in the present study compared with research into L1 and L2 novice and expert academic writing.

	Stance		Discourse		Referential	
	Types (%)	Tokens (%)	Types (%)	Tokens (%)	Types (%)	Tokens (%)
The present study	24.5	21.8	38.2	48.5	37.3	29.8
L2 novice writers						
Ädel and Erman (2012)	28.0		27.0		45.0	
Bychkovska and Lee (2017)	32.1	27.1	9.4	13.4	58.5	59.5
Chen and Baker (2010)	13.0	16.0	42.0	48.0	41.0	39.0
L1 novice writers						
Ädel and Erman (2012)	31.0		22.0		47.0	
Bychkovska and Lee (2017)	13.0	13.6	17.4	18.1	69.6	68.3
Chen and Baker (2010)	24.0	24.0	39.0	39.0	37.0	37.0
L2 expert writers						
Pan et al. (2016)	17.0	13.0	45.0	49.0	38.0	38.0
L1 expert writers						
Chen and Baker (2010)	19.0	18.0	39.0	39.0	60.0	62.0
Pan et al. (2016)	9.0	8.0	49.0	49.0	42.0	43.0

A notable finding of the present study were the low incidences of nominal bundles, especially when measured as tokens (15.6%). Nominalisation in written texts has been shown to increase the density of information, aiding the efficient coding and decoding of information in academic texts (Biber & Gray, 2011; Parkinson & Musgrave, 2014). A natural consequence of

nominalisation is increased syntactic complexity (Parkinson & Musgrave, 2014), resulting in the mastery of nominal formulaic sequences being achieved as writers mature (Biber et al., 2011; Gray et al., 2019). By virtue of IELTS' status as a gatekeeping entry-level test, candidates in preparation can be considered at the start of their journeys in academic writing. Hence, these writers may have lacked the linguistic awareness to produce appropriate NP bundles in their compositions. This reliance on verbal constructions at the expense of nominal sequences provides further credence to the existence of a proficiency trajectory among developing L2 writers from clausal to phrasal constructions (Biber et al., 2011; Chen & Baker, 2010; Gray et al., 2019; Pan et al., 2016; Parkinson & Musgrave, 2014).

It is unclear whether the imbalance between clausal and nominal patterns vis-à-vis more proficient L1/L2 writing should be treated as a cause for concern. One reason is that individuals who have not achieved their required goals in IELTS would not be expected to demonstrate comparable usage of constructions that mark writers' texts as proficient. Lexical bundles may develop as unsuccessful candidates make further investments in developing their ELP, although the relationship between the two remains unclear (Zheng, 2016). While this study suggests novice L2 writers who have not yet achieved unconditional academic enrolment need to develop a greater repertoire of phrasal constructions, this may occur naturally over the course of their tertiary programme (Li & Schmitt, 2009) or be successfully addressed by institutions either pre-sessionally (Schmitt et al., 2004) or as a discrete in-session module (Crosthwaite, 2016). One caveat is that institutions should adopt disciplinary writing classes to account for the boundedness of lexical bundles to specific academic registers (Cortes, 2004; Hyland, 2008b; Qin, 2014).

Table 10. Distribution of main structural categories^a in the present study compared with L1 and L2 novice and expert academic writing.

	Noun-based		Preposition-based		Verb-based	
	Types (%)	Tokens (%)	Types (%)	Tokens (%)	Types (%)	Tokens (%)
The present study	20.6	15.6	27.5	35.5	51.0	48.3
L2 novice writers						
Bychkovska and Lee (2017)	32.1	32.2	18.9	25.1	47.1	41.5
Chen and Baker (2010)	15.0		32.5		52.5	
L1 novice writers						
Bychkovska and Lee (2017)	34.8	34.7	43.5	42.4	17.4	17.5
Chen and Baker (2010)	15.4		28.8		55.8	
L2 expert writers						
Pan et al. (2016)	21.1	18.4	12.7	12.8	57.7	55.8
L1 expert writers						
Chen and Baker (2010)	32.5		36.0		31.5	
Hyland (2008b) ^b		35.0		31.0		21.8
Pan et al. (2016)	36.4	33.9	32.6	33.2	25.5	26.6

^a 'Others' have been excluded from the analysis; ^b includes L1 novice writers' texts

It would seem implausible to establish a concrete threshold in which the prevalence of particular bundle structures (notably nominal ones) is deemed acceptable (e.g., a ratio of bundle types or tokens in rehearsed IELTS writing relative to more proficient L1 or L2 writers), either as an

indicator in IELTS Writing by the IELTS partners or through an institution's in-house entry-level writing test. This is due to the lack of a clear relationship between language proficiency and lexical bundles (Zheng, 2016) and the mediating effects of discipline and genre (Gray et al., 2019; Staples et al., 2016; Zheng, 2016). Similarly, it is possible to envisage developing writers artificially shoehorning in nominal sequences as a form of memorised material (Liu & Stapleton, 2015; Wray & Pegg, 2005) in a bid to meet an established cut-off frequency, efforts that may prove harmful for the development of their academic language and writing skills.

This does not mean nothing should be done about the patterns of prospective students' lexical bundle usages revealed in the present study. It would appear salient for institutions to raise the awareness of NNES students, freshly enrolled after undertaking IELTS, that their academic language lies on a continuum of development. One possibility could be mandatory EAP inductions for all NNES students, since there may be precious time available on an individual's degree course to attend to complexifying academic language, while the necessity to develop language above and beyond initial expectations during a demanding tertiary course can result in anxiety or frustration for many learners (Allwright & Banerjee, 1997). Depending on the outcomes of IELTS and other entry-level tests, institutions need to carefully manage learners' expectations of the requirements for academic language development during induction in order that they are aware of the considerable time and energy needed to develop the abundance, range, and accuracy of lexical patterns during their degree programmes. This would help combat perceptions held by some students that their English language development is considered 'finished' or incidental to the tertiary programme (Atherton, 2006).

4.3. The mediating role of the task and approaches to preparation

In concordance with other studies (Gray et al., 2019; Staples et al., 2016; Zheng, 2016), the idiosyncratic requirements of the investigated written genre mediated the patterns of lexical bundle use, especially by function. As the single largest sub-category of tokens (20.4%), the prevalence of epistemic stance bundles reflects the analytical and hortatory expository requirements of IELTS Writing Task 2 (Coffin, 2004; Mickan & Slater, 2003; Moghaddam, 2010), and perhaps candidates who ventured their opinion in Task 1. Prompted to '*use your own ideas, knowledge, and experience*' on situations and actions in the real world vis-à-vis more abstract concepts like ideas, theories, and laws (Moore & Morton, 2005), it is hardly surprising that active verb constructions (*I strongly believe that, I agree with the*) were a common way of framing the writer's position towards the prompt. Additionally, since some prompts constitute hortatory exposition, the ubiquity of active verb and other clausal structures reflects the need for candidates to state possible courses of action to address the particular issue presented. The findings add to mounting evidence that novice L2 writers in high-stakes proficiency testing contexts tend to convey their positions overly personally and forcefully (Bychkovska & Lee, 2017; Staples et al., 2013). Such sequences would appear problematic in supposedly more expert academic writing. As Hyland (2008b) notes, utilising bundles to express stance is done almost entirely impersonally in academic writing, which could pose problems in the future for candidates who adopt active verb bundles to convey their arguments.

It was also common for stance to be expressed through the anticipatory *it*, a structure encompassing the postponement of the sentence subject with the empty pronoun *it* (Hewings & Hewings, 2002). Its pervasiveness appears unexpected, as candidates cannot know the topic or framing of the prompt beforehand. It would seem the proclivity towards the anticipatory *it* may be underpinned by a perceived need to present a clear and confident stance to the examiner, whereas a more nuanced or qualified position could be seen to compromise the assessment of the task. However, post-IELTS candidates should be wary of transferring this structure to tertiary-level writing. The anticipatory *it* is known to disguise authorial interpretations by foregrounding evaluation without explicitly identifying the source of evidence (Hyland, 2008a). Similarly, the incorporation of subjective adjectives, such as *clear, evident, and true* serves to project personal opinions

without providing evidence (Bychkovska & Lee, 2017). Hewings and Hewings (2002) note the structure conveys an emphatic impression, accentuating the writer's certainty on the subject, while also telling the reader to reach the same conclusion. In contrast, in proficient academic writing, claims tend to be expressed cautiously or are qualified (Hyland, 2008c), since propositions can be deconstructed.

While some IELTS Writing Task 2 rubrics explicitly require the discussion of two opposing perspectives on an issue, candidates may have perceived the need to provide a balanced position on the given issue, even if this requirement is not explicitly stated in the prompt. Consequently, *on the one hand* and *on the other hand* could have performed a supporting template role (Hasselgren, 1994; Liu & Stapleton, 2015), providing test-takers with a memorisable, formulaic, and re-assuring way to structure their response, an inevitable outcome of the testing process (Wray & Pegg, 2005). Unlike *on the other hand*, which has been shown to be common in both novice and expert academic writing (Hyland, 2008a; Staples et al., 2013), *on the one hand* is infrequent in academic texts (Biber et al., 2004; Cortes, 2004). Candidate reliance on these two bundles for signposting their responses to the (explicitly or implicitly) diverging perspectives stated in the prompts indicates the cohort possessed a limited repertoire of four-word bundles to perform a contrastive role in textual coherence. Instead, the writers probably relied upon single word expressions or smaller bundles emphasised in IELTS preparation materials (e.g., *nevertheless*, *in contrast*). Expressing complex causal relationships using multi-word bundles is clearly challenging for novice L2 writers, a difficulty accentuated by the restrictive conditions of the test and the inability to properly reflect on and revise a composition.

The nature of task topics also moderated the impact of formulaic sequences (Zheng, 2016), particularly referential bundles (*the number of visitors*, *a period of years*), which are more sensitive to the subject matter of task prompts (notably in the descriptive Task 1). The unfamiliar topics of Task 2 may also have attenuated writers' abilities to draw on their emerging resource of disciplinary-specific formulaic patterns. Furthermore, the conditions in which the texts were written likely generated a mediating effect, a phenomenon yet-to-be explored in the literature. Since it is not a requirement to draw on the pronouncements of other scholars (Moore & Morton, 2005), candidates are unlikely to employ referential bundles that report/interpret the findings of other research (e.g., *the results of the*, *is consistent with the*), evident in tertiary-level academic writing (Hyland, 2008b, 2008a). Similarly, the pen-and-paper nature of the test and the pressure to complete two tasks within 60 minutes constrains one's ability to undertake substantial revisions, a key process in which developing writers complexify their language, e.g., through nominalisation (Cho, 2003).

A further mediating factor is candidates' anticipated behaviours in preparing for IELTS Writing and producing rehearsal essays. Predictable task demands may have resulted in test-takers utilising rote-learned lexical chunks to evince lexical credibility (Liu & Stapleton, 2015; Wray & Pegg, 2005; Yu et al., 2017). As discussed, bundles such as *on the one hand* and *on the other hand* perform a supporting template role (Hasselgren, 1994; Liu & Stapleton, 2015), providing weaker writers with a discourse-organising skeleton upon which to 'hang' the content of the essay. Alternatively, since the compositions employed in this study's corpus were shared on a public social media platform, writers may have been influenced by the discourse conventions of their peers, limiting risk-taking and creativity when seeking written feedback from an audience that may have numbered thousands. Finally, as novices writing in restricted and pressurised conditions, writers may have unwittingly engaged in lexical mimicry. Such behaviour is associated with lower-level learners (Banerjee et al., 2007), although it cannot be known for certain how closely the student writers followed the expected test conditions when generating their rehearsal compositions.

In light of these findings, the study joins a body of research evidence that advocates universities interpret IELTS Academic Writing test outcomes cautiously, as a loose indicator of pre-study learning ability (Davies, 2008) within the context of the merits of the individual's wider

application (Banerjee, 2003; Chalhoub-Deville & Turner, 2000; O'Loughlin, 2011). Since the design of the test tasks seems to elicit the structural and functional conventions characteristic of novice NNES academic writers, institutions should refrain from making judgements of L2 writing ability based on IELTS Writing scores alone. A supplementary, (and possibly) in-house EAP test/assignment is recommended at the point of enrolment, even for a student who meets the conditions of their offer, in order to ascertain more precisely where the individual stands on the clausal to nominal proficiency trajectory (Biber et al., 2011; Chen & Baker, 2010; Pan et al., 2016; Parkinson & Musgrave, 2014), the degree their writing reflects socialisation into the specific discourse community of the discipline (Flowerdew, 2016; Hyland, 2002), and the extent they are able to improve a text through making revisions (Cho, 2003).

Such a supplementary test ought to more closely elicit the academic literacies expected in the academy, being grounded in the discourse community of the candidate's discipline, requiring reading-into-writing, and allowing time for reflection and revision (Cho, 2003; Flowerdew, 2016; Moore & Morton, 2005). Test outcomes would offer more valid insights into whether and to what extent a newly enrolled NNES student requires in-session support to develop their academic writing to expected standards. Given that HEIs frame IELTS cut-off scores in terms of sufficiency to undertake the relevant programme (Hyatt & Brooks, 2009; Thorpe et al., 2017), it may come as a surprise to some students that their writing requires considerable development in order to meet course outcomes. Therefore, institutions should ensure measures are adopted to manage newly enrolled students' expectations of continued ELP development, perhaps through intensive mandatory EAP induction programmes for all NNES students.

5. Conclusions

This study is bound by a number of limitations, primarily owing to the source of IELTS Writing compositions and the adopted lexical bundle cut-off criteria. First, the sample of texts was limited to Facebook users. Simulation essays written by individuals from the People's Republic of China or the Islamic Republic of Iran, where Facebook is blocked were likely poorly represented in the sample. Similarly, it has been reported in studies of Facebook for educational purposes that younger people tend to be overrepresented (Wang et al., 2012). As such, the results are skewed towards younger writers who were keen to use social media to enhance their prospects in IELTS. In addition, caution should be applied when interpreting the findings in light of the compared studies, owing to variations in bundle cut-off criteria. Even the reduction of the minimum raw frequency threshold from 10 to 9 would have generated 25 additional four-word bundles (although some would have been omitted for other reasons in the criteria). It must also be emphasised that comparison across corpus research of L1 and L2 academic writing is impacted by inconsistencies in how the terms "novice" and "expert" academic writers are defined. More nuanced descriptors of written proficiencies in corpus studies of academic writer behaviour are required beyond these poorly demarcated concepts.

The present corpus study investigated the most frequently occurring lexical bundles used by 1,000 student writers deemed to have reached a minimum score of 5.5 overall in IELTS Writing. It was discovered that candidates heavily utilised lexical bundles in relation to L1 and L2 novice and expert academic writing. Comparison of the distribution of bundles by structure and function demonstrated that simulated IELTS Writing tasks elicit language behaviours that are commensurate with novice L2 writing, and if employed in tertiary academic writing could be perceived as overly personal, confident, and persuasive. These included prevalent instances of the anticipatory *it* to convey epistemic stance (*it is clear that*) (Hewings & Hewings, 2002), active verb-based stance constructions (*I firmly believe that*) (Hyland, 2008b), and prepositional phrases not often featured in academic writing (*on the one hand, in my opinion*) (Cortes, 2004). In contrast, noun-based syntactic forms, known for their high information load and complexity were rare in rehearsed IELTS Writing, usually performing a referential role to the object of a Task 1 prompt (*the number of people*).

The lack of authenticity of the IELTS Writing test (Cooper, 2013; Moore & Morton, 1999, 2005; Priyanti, 2017; Uysal, 2009) likely played a prominent role in mediating lexical bundle use. The high-pressure conditions (even during rehearsal), lack of reading-into-writing, inability to draw on external sources of evidence, and the limited time to edit and redraft text spawned overly personal or forceful stance constructions at the expense of nominalised structures. Additionally, the frequent instances of discourse organising bundles, notably *on the one hand*, *on the other hand*, and *the line graph/bar chart/diagram/pie chart shows*, suggests candidates may have employed bundles as part of a memorised ‘template’ strategy (Hasselgren, 1994; Liu & Stapleton, 2015; Yu et al., 2017) that could be reassuringly replicated in the test. The mismatch in bundle use between IELTS preparation candidates and more expert L1 and L2 academic writers is not necessarily a source of concern, reflecting the conception of the IELTS Writing test as a measure of test-takers’ pre-study readiness or writing aptitude (Davies, 2008), rather than their proficiency in EAP (Banerjee & Wall, 2006).

Since it cannot be stated with certainty that overreliance on clausal bundles at the cost of nominal constructions stems from writer unfamiliarity or the design of the IELTS Writing test, higher education institutions should interpret IELTS test scores cautiously (Banerjee, 2003; Chalhoub-Deville & Turner, 2000; Green, 2005; O’Loughlin, 2011; Rea-Dickins et al., 2011). It is recommended universities utilise more authentic supplementary assessments when judging the sufficiency of newly enrolled students’ abilities in academic writing, particularly in the determination of future in-session EAP provision. Further cross-sectional investigations are required to address the uncertainty in ‘ideal’ proportions of lexical bundles, both overall and across disciplines (Zheng, 2016), along with longitudinal studies (i.e., Li & Schmitt, 2009; Schmitt et al., 2004) that illuminate the time and effort typically required for NNES students to make substantial gains along the trajectory of clausal to phrasal proficiency. The outcomes of such research could usefully inform higher education policies on setting linguistic cut-off scores as well as the provision of pre- and in-session EAP support.

Appendix. Structural and functional coding scheme

Outline of structural categories for data analysis.

Structure	Sub-structure	Example
NP-based	Noun phrase with <i>of</i>	<i>the size of the</i>
	Noun phrase with other postmodifier fragment	<i>the difference between the</i>
PP-based	Prepositional phrase with embedded <i>of</i>	<i>in the case of</i>
	Other prepositional phrase fragment	<i>at the same time</i>
VP-based	Copula <i>be</i> + noun/adjective phrase	<i>are careful not to</i>
	Verb phrase with active verb	<i>we can get the</i>
	Pronoun/noun + <i>be</i> fragment	<i>there is a huge</i>
	Anticipatory <i>it</i> + noun/adjective phrase	<i>it is easy to</i>
	Passive verb + prepositional phrase fragment	<i>can be seen in</i>
	(Verb phrase) + <i>to</i> clause fragment	<i>to make matters worse</i>
	(Verb phrase) + <i>that</i> clause fragment	<i>that it is a</i>
Other		<i>as well as the</i>

Outline of functional categories for data analysis.

Function	Sub-function	Example
Stance	Epistemic	<i>it is clear that</i>
	Attitudinal/modality	
	Obligatory	<i>it is important to</i>
	Ability	<i>it is difficult to</i>
	Desire	<i>they do not want</i>
Discourse	Topic introduction	<i>this essay will discuss</i>
	Topic elaboration/clarification	<i>on the other hand</i>
	Inferential	<i>as a result of</i>
	Identification/focus	<i>is one of the</i>
Referential	Framing attributes	<i>a vital role in</i>
	Quantity specification	<i>a great deal of</i>
	Place/time/text-deixis	<i>the end of the</i>

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