



Qualitative Adjectives in Education Research Articles: The Case of Lifelong Learning and Adult Education¹

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Abstract

Language is often the determining factor in authors' success in publishing their papers. Among various language features authors utilize is adjectives. There is a lack of consensus about their use in academic writing. This study investigated qualitative adjective use in research articles in one sub-discipline of educational sciences. The corpus was comprised of 30 journal articles. Online software was used to describe the adjective profile. A scheme was borrowed from the literature to classify adjectives according to their semantic use. Results showed that adjectives accounted for 7.9% of the corpus. A significant number of adjectives belonged to the Academic Words List and the Off-list Words (50.9%). Results also showed that the Abstract included the biggest percentage of adjectives (10.4%), which was followed by the Conclusion and Recommendations (8.9%) and the Introduction and Literature Review (8.8%). Adjectives occurred in Methods and Results less frequently. The most common semantic use of adjectives was related to the sub-domain of descriptors. Evaluative adjectives were also used frequently. The second sub-domain of classifiers included topical (8.3%) and relational adjectives (2.4%). Results are discussed and recommendations are made future studies.

Keywords

Adjectives
Academic writing
Adult education
Lifelong learning
Research article

Article Info

Received: 21.09.2020
Accepted: 24.02.2021
Online Published: 29.04.2021



¹ This paper was presented at 4th International Symposium of Limitless Education and Research & 7th International Conference on Education and Social Sciences

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Introduction

Writing is the sine qua non of successful performance in scholarly publishing. So much so that it is this skill that enables scholars to spread the scientific knowledge they generate through research. Only when this knowledge is shared with their scientific communities can science further progress and benefit the society. Otherwise, the envisioned impact of research remains limited, with a variety of ramifications on scholars' academic endeavors. To circumvent this, researchers are obliged to refine their academic literacy skills with a particular focus on writing. Towards this end, both inexperienced and emerging scholars consult publication manuals and instructional texts. These sources give authors insights into several aspects of academic writing. However, it seems that language-use is the taproot of success in academic writing. In the case of research papers (RA), generic features such as a strong methodology, and effective interpretation of data are insufficient for journals. It is often the language competence displayed in the manuscript that determines its success (Deveci & Nunn, 2018).

For authors to succeed in expressing themselves in ways deemed appropriate in their disciplines, they ought to use a variety of language elements at their best. This requires grammatical and discourse competences (Canale & Swain, 1980). The former involves sentence formation, word formation, spelling, vocabulary rules, and pronunciation, while the latter involves "the ability of a user/learner to arrange sentences in sequences so as to produce coherent stretches of language" (Council of Europe, 2001, p. 123). Knowledge of grammar helps authors "make their writing more descriptive, clear, or interesting" (Ruday, 2014, p. 153). It also provides authors with a set of rules for choosing words and putting them together to make sense (Wang, 2010).

Related to these is the concept of "discourse community." Just as academics in any particular discipline make up a discourse community, so do scholars of educational sciences. Being members of a particular discourse community, these scholars share a particular set of mechanisms of intercommunication, which include a specific lexis (Swales, 1990). This is not to deny that any text of a particular genre in a discourse community includes general lexical items, too. It has in fact been noted that 87% of a typical academic text includes general words (Coady & Huckin, 1997). Education RAs, as a distinct genre, are expected to exhibit a particular set of lexes in addition to general ones. Therefore, it is essential that the members of this discourse community be familiar with a variety of lexes that may be specific to the discipline or very commonly used by their fellow scholars. Considering that "discourse communities recruit their members through specific forms of knowledge" (Fox & Fox, 2004, p. 47), this familiarity will reinforce their place in their community. Prompted by this sentiment, this research describes adjectives as a sub-domain of lexis specific to one particular educational discipline, namely Lifelong Learning and Adult Education.

Literature Review

Lexis in academic studies

Lexis plays a key role in academic performance. For instance, comprehension of texts is heavily dependent on lexical knowledge. It is argued that success in academic reading entails that a reader understand approximately 95 of the lexical items covered in texts (Pecorari, Shaw & Malmström, 2019). Also, "as learners gradually progress in reading and delve into the topics, they require to expand their lexis and get involved in multiple comprehension processes to grasp the meaning of the texts they are exposed to" (Rosado & Caro, 2018, p. 137). Similarly, students' speaking skills are heavily influenced by their active use of lexis. Florez (1999) points out that effective users of a language are those who can select vocabulary that is context and topic appropriate as well as understandable to the audience. Therefore, different genres in the academic context require speakers to adjust their vocabulary use.

Finally yet importantly, students' lexical knowledge determines the developmental stage of their writing ability (Vo, 2019). For students to achieve lexical richness in their writing, they need to learn new vocabulary continuously and active the vocabulary they learned previously (Laufer & Nation, 1995). A link also exists between reading and writing (Coxhead & Byrd, 2007). Critical to this is the grammatical knowledge surrounding academic vocabulary. Students need to "handle the whole

set of characteristic vocabulary and grammar within the context of creating appropriately worded academic prose” (Coxhead & Byrd, 2007, p. 134).

Starfield (2005) notes that lexical resources at writers’ disposal help them establish “writerly” identities. Drawing on these resources, authors textually convey a sense of who they are. “The authorial self reflects the extent to which writers are able to project an identity for themselves as authoritative” (Starfield, 2005, p. 69).

The importance of lexis is highlighted in publication manuals, too. To give an example, it is noted in the American Psychological Association (APA) (2009) that “[t]he prime objective of scientific reporting is clear communication [which is achieved] by presenting ideas in an orderly manner and by expressing yourself smoothly and precisely” (p. 65). Without effective use of lexis, this is not possible. Concerning lexis, APA (2009) advises authors to refrain from informal lexis and colloquial expressions. Authors are also warned not to utilize continuous technical vocabulary continuously. Naturally, this requires authors to use a wide variety of lexis in their manuscripts. This includes adjectives. Below I first provide a brief explanation of adjectives and then discuss the place of adjectives in academic writing.

Adjectives

According to Mason (1858), “[w]hen we think or speak of anything, we frequently have in mind not only the thing itself, but some quality or attribute that it possesses, or some fact or circumstance respecting it” (p. 12). Adjectives are the words used to describe such qualities, attributes, facts, or circumstances. More formally, Mason (1858, p. 13) defined the term as a word used with a noun to denote some quality, attribute, or fact, which we connect in thought with that for which the noun stands, without making as distinct *assertion* that the quality or attribute belongs to what we are speaking about

Adjectives play a key role in our understanding attributes attached to nouns. They help us see the distinctions made between nouns. Although a sentence without adjectives provides information, it does *not* say much (Murray, 2014).

Biber, Johanson, Leech, Conrad, and Finegan (1999) observe that adjectives are very common in all registers. They are particularly common in written registers, especially academic prose. They also observe that adjectives “add[...] to the informational density of expository registers” (504).

There are three types of adjectives (Mason, 1858, pp. 32–36):

- a) qualitative adjectives denoting some quality or attribute,
- b) quantitative adjectives denoting how much or how many of a particular thing we have in our thoughts. These include the indefinite article, the cardinal numeral adjectives, words such as *all*, *few*, *more*, *most*, *both*, etc., and
- c) demonstrative/determinative adjectives pointing out which thing(s) we are speaking of, out of the class of things denoted by a common noun. These include the definite article, the adjective pronouns, pronominal adjectives, and the ordinal numbers.

Adjective formation

Adjectives can be formed in the following ways (Biber et al., 1999):

- a) Participial adjectives: These are adjectives that are formed using -ing and -ed participle forms (e.g., *following*, *tired*) and nouns (e.g., *interested*).
- b) Derived adjectives: These are adjectives that are derived by affixing an adjectival suffix to a base form as in “home-*homeless*,” “continue-*continuous*,” “interpret-*interpretive*,” and “function-*functional*.”
- c) Adjectival compounds: These are adjectives that are formed by compounding words. They take many shapes such as adjective + adjective (e.g. *greyish-blue*), adjective + noun (e.g. *full-time*), and adverb + adjective (e.g. *overly-protective*)

Defining characteristics of adjectives

There are three main characteristics of adjectives. Table 1 shows these.

Table 1. Characteristics of adjectives*

Characteristics	Explanation	Examples
Morphological	Many adjectives can be inflected to show a degree of comparison	<i>big, bigger, biggest</i>
Semantic	They are descriptive, typically characterizing the referent of a nominal expression.	<i>unhappy</i> childhood
Syntactic	They serve an attributive syntactic role.	<i>chemical</i> analyses
	They serve a predicative syntactic role.	... called it <i>impressive</i>
	They characterize a noun phrase that is a separate clause element.	
	Postposed nominal modifiers	They are doing everything <i>possible</i> to protect the workers.
	Noun phrase heads	In politics the <i>unlikely</i> can happen.
	Adjectives with a clause linking	<i>Worse</i> he had nothing to say.
Exclamations	<i>Good!</i> I like that.	
Detached predicatives	Too <i>tired</i> to move, she stayed there.	

* Adapted from Biber et al. (1999).

The attributive and predicative roles adjectives play are of particular importance. According to Biber et al. (1999), there are two main semantic domains of attributive adjectives: descriptors and classifiers. These are further divided into sub-categories. See Table 2.

Table 2. Semantic domains of adjectives

Semantic domain	Sub-domains	Examples
Descriptors	Size/amount	<i>big, great, high, large,</i>
	Time	<i>new, old</i>
	Color	<i>dark, black</i>
	Evaluative	<i>good, important, right,</i>
	Relational	<i>basic, common, different, final, full</i>
Classifiers	Topical/domain	<i>economic, human, international</i>
	Affiliative	<i>American, European</i>

Some adjectives can serve either a classifier or a descriptor role. Compare “a *secondary* school” to “a useful *secondary* function.” The adjective in the former serves a classifier role, but a descriptor role in the latter (Biber et. al., 1999).

Adjective use in academic writing

Classifiers—especially relational and topical adjectives—occur more frequently in academic writing (Biber et. al., 1999). The use of descriptor categories of size and evaluation, too, is relatively common. Some evaluative attributive adjectives are also common in academic prose. The frequency with which intellectual claims are made is a significant feature of academic prose. To this end, authors tend to use predicative adjectives as well, as in “It will be *clear* that the presence of two slits is *essential* to give an interference pattern.”

Williams (2013) calls attention to several forms of the same term that academic texts contain within the discussion of a subject. These are frequently nouns and adjectives. Some suffixes (e.g., -(i)al, -ful, -ous) are often used by authors to make nouns into adjectives as in ‘*race-racial*,’ and ‘*controversy-controversial*.’ Many attributive adjectives in academic prose are derived from verbs as in ‘*consider-considerable*’ and ‘*vary-various*.’ Adjectives ending in -al are extremely common in academic prose (Biber at al., 1999).

Academic prose also tends to contain multiple predicative adjectives in separate clauses. See this example: “The feeling of comfort is *basic* to a sense of well-being, but it is *difficult* to define and is often most *notable* in its absence.”

There are arguments against frequent use of adjectives in academic prose. Osmond (2013), for instance, argues that adjectives are used in descriptive writing more often than in other kinds of writing; therefore, authors should be strategic in their use of adjectives. They should utilize adjectives if necessary, and if they are used, they should be powerful. Similarly, Sword (2012, p. 55) notes that adjectives “add color and zest to stylish scholarly prose”, but they can cause clutter as well. She suggests authors check whether or not the same descriptive energy could be supplied using concrete nouns and lively verbs. In the same vein, Zinsser (2006) argues that most adjectives may in fact be redundant. According to him, authors’ tendency to make their prose “lush and pretty” results in unnecessarily long sentences, thus causing a burden for the reader. His rule is to “make your adjectives do work that needs to be done” (p. 69).

Osmond (2013) states that authors surely need to use adjectives in academic writing; however, he argues that they should be used to provide key information as part of the flow to make other points. That is, if description is the focus of a given sentence or a paragraph, authors should provide evidence. This makes the importance of the description clear. In this way, authors could refrain from using adjectives unnecessarily. This in turn helps readability of their texts. In a comparative study on readability levels of research articles (RAs), Okulicz-Kozaryn (2013) found that social science articles used adjectives (and adverbs) more frequently than natural science articles. He argued, however, that most adjectives (and adverbs) were meaningless and even misleading at times.

Despite the arguments above, it is not uncommon to see frequent use of adjectives in academic prose. Note the adjectives³ in the following paragraph from the corpus of the current study (Brooks, 2019):

This article shares the findings of a *qualitative* study of a *community-based* organization in Mexico and the *emancipatory* pedagogy practiced there in a time characterized by a *changing global economic* order, conflict and war, corruption and *geographic* displacement. To make sense of the *transnational philosophical* fusion and the *pedagogical* practices in the organization, I draw on Karen Barad’s ideas to propose an ethico-onto-epistemology of *emancipatory* learning to uncover power in spaces of self/knowledge that are outside the binaries of *critical-theoretical* practice. It suggests an understanding of *emancipatory* learning that is *relational, embodied, ethical, and emergent*.

Out of 95 words in this paragraph, 17 are adjectives, which accounts for 28.4% of the total word count. It would be hard to argue that any of these adjectives are “unnecessary” and add clutter to prose. It is also important to note that a large majority of the adjectives in this paragraph serve an attributive syntactic role while only four of them at the end of the paragraph serve a predicative syntactic role.

A general rule regarding adjective use may be problematic. Authors may as well use their discretion regarding their choices often based on their authorial standing. For instance, a certain section of a research paper (e.g., results) may not require much use of adjectives. However, when discussing their results, authors may be inclined to utilize adjectives to highlight the significance of results. This can support creation of authorial voice through transparency. Based on data derived from “high-impact” academic journals, in our earlier research we posit that “transparency in displaying and thereby acknowledging assumptions, agency and inevitable subjectivity [is] an integral part of reporting knowledge creation as a more tenable position” (Nunn, Brandt & Deveci, 2018, p. 72). In the discussion section in particular, proficient authors likely resort to evaluative meanings explicitly. This is exemplified by the two adjectives in the following example: “Given the error bounds on the

³ Only the qualitative adjectives were identified as per Mason’s (1858) classifications of adjectives since my focus in the current study is on this group of adjectives.

calculations, it is not *possible* to draw any *firm* conclusions about this from the data” (Schleppegrell, 2005).

The Rationale for the Study and Research Questions

Scholars’ careers depend, to a greater or lesser extent, on how well they have mastered English, which is often considered as the language of science. Authors’ choices of grammatical structures and lexical items in English assist in highlighting key aspects of research and in expressing authority and stance. Despite the proliferation of research dedicated to the use of language in academic prose, scant knowledge exists about the use of adjectives. Much of what is available in the literature is scattered, and there does not seem to be a consensus on their use in scholarly publications. To my knowledge, no past research investigated adjective use in research papers, which may be the most common genre in the given discourse community.

Much insight can be gained from describing how researchers utilize adjectives. To this end, in this research I focus on one particular educational sub-discipline: Lifelong Learning and Adult Education⁴. My interest in this sub-discipline stems from my own educational and professional backgrounds. As per the former, I earned my bachelor’s and master’s degrees in adult education and doctorate degree in Lifelong Learning and Adult Education. I also received a master’s degree in English Language Teaching and a Diploma in English Language Teaching to Adults. My professional background, on the other hand, involves twenty-four years of English language teaching experience and publications heavily focused on academic literacies.

The current study, therefore, is an attempt to bridge the two aspects of my educational and professional background. As a scholar who often writes in English, I believe this study will, first and foremost, help increase my own awareness about the use of a particular language element (i.e., adjectives) in academic prose. Other scholars are also expected to benefit from its results in drafting academic prose, particularly research papers. The findings will also help elucidate arguments on the extent to which adjectives could be utilized in academic writing. It is important to refrain from making sweeping statements regarding the use of a particular language element. Towards this end, it would be useful to identify scholars’ tendency to use adjectives in different sections of research papers. Coxhead and Byrd (2007) note that authors’ use of lexis in different sections of an academic text differ. One reason for this is the wording of sub-sections of academic papers. The words used in the methodology, for instance, likely differ significantly from those used in the discussion section. Another reason is the content development over the length of an article. This likely is the case with the use of adjectives in different sections of research papers.

Lexis commonly occurring in a particular discipline may be considered discipline specific. Identification of frequently used adjectives in Lifelong Learning and Adult Education RAs, therefore, can help raise awareness about adjectives utilized by authors in this sub-discipline. This can help language instructors and scholars, as lifelong learners themselves, devise plans to develop their own academic literacy skills as well as those of their learners. Considering all these reasons, the current research sought answers to the following questions:

1. What is the adjective profile of RAs in Lifelong Learning and Adult Education?
2. How do the adjective frequencies compare across the sub-sections of these articles?
3. What is the distribution of the adjectives relative to their semantic use?

Methodology

Corpus

The corpus of this study consisted of 30 RAs (with a total number of 183,044 running words⁵) published in ten journals. The journals were chosen based on convenience sampling. That is, they were

⁴ Despite the argument that these two fields are distinct from each other, I consider them as two sides of the same coin, if not Lifelong Learning encompassing Adult Education.

⁵ This number excludes words in tables, figures, acknowledgements, reference lists, and direct quotes from research participants.

either downloadable free of charge or my institution had a subscription to them. Also, all of the journals were peer-reviewed. As well, special attention was paid to including RAs with a similar generic organizational structure (i.e. similar sub-sections). This was so that reliable comparisons could be made between different sub-sections. In choosing the articles, authors' L1 were not considered for two reasons. First, it was practically impossible to check their L1 judging by their names per se. Second, English is often used as a lingua franca by scholars—whether they are native or non-native English speakers—in order to share their research with a wider audience.

Analysis

The corpus was analyzed considering adjectives in their various forms as identified by Biber et al. (1999). However, quantitative and demonstrative/determinative adjectives, which were differentiated by Mason (1858), were kept outside of the scope of this study. The following types of adjectives were also excluded: (a) adjectives that occurred as a part of a proper noun phrase (e.g., the *Creative New Media Project*), (b) noun phrase heads (e.g., the *elderly*), and (c) affiliatives (e.g., Turkish).

In identifying total number of adjectives utilized, every single use of adjectives was recorded. Special attention was paid to phrases used as adjectives when they preceded the terms they modified (e.g., *trial-by-trial* analysis) and to compounds with a number as the first element when they preceded the terms they modified (e.g., *two-way* analysis, *12th-grade* students). The range of meanings an adjective might designate was also taken into consideration. Take *poor* as an example. It may refer to financial circumstances as well as other meanings including emotive as in “*poor little bastards*” (Biber et al., 1999, p. 509).

In classifying the identified adjectives, the classification scheme in Table 4 was used. However, adjective frequencies for each sub-domain were calculated considering the head-adjectives analysis. That is, all occurring adjectives were counted once irrespective of the number of times they were used (in different derivational forms—e.g., *high*, *higher*, *highest*) in the corpus.

Table 3. Adjectives classification scheme*

Semantic domain	Sub-domains	Examples
Descriptors	Time	<i>hourly, annual</i>
	Size/amount	<i>five-point, abundant, minute</i>
	Evaluative	<i>salient, necessary, significant</i>
	Location	<i>above-mentioned, off-campus, out-of-school</i>
	Color	<i>white, black, dark</i>
	Probability	<i>likely, possible,</i>
	Characteristics	<i>practical, achievable, stimulating</i>
	Variation	<i>different, alternative, atypical</i>
Classifiers	Topical/domain	<i>social, project-based, (in/non)formal</i>
	Relational	<i>high, similar, same</i>

* Adapted from Biber et al. (1999) and Khoo (2005)

Online software (http://www4.caes.hku.hk/vocabulary/tools_cp.htm) was used to analyze the adjectives in the corpus. Based on Paul Nation's vocabulary profiler, this tool offers three applications:

- the Frequency Analyzer, which identifies the frequency of occurrence of the words in the selected corpus,
- the Vocabulary Profiler, which identifies words according to Nations' Word Frequency Lists of 1,000 words (GSL), 2,000 words (GSL), academic words (AWL) and university words (UWL), and off-list words,
- the Concordancer, which identifies examples of the usage of particular words in the corpus.

Results and Discussion

The first research question aimed to describe the adjective profile of the RAs in the corpus. The results are described in Table 4.

Table 4. Adjective profile of the corpus

	Frequency	Percentage
GSL: 1-1000 Words	5527	38
AWL Words	3705	25.5
Off-list Words	3696	25.4
GSL: 1001-2000 Words	1584	10.9
UWL Words	15	0.1
Total	14527	100

The majority of the adjectives (38%) belonged to the first 1000 General Service List (GSL). The most common two adjectives in this category were *social* ($f=704$) and *lifelong* ($f=605$). Together, they accounted for 23.7% of the adjectives of 1–1000 words. Less common as they were, some other frequently occurring adjectives were *high* ($f=170$), *new* ($f=152$), *different* ($f=145$), *important* ($f=131$), and *personal* ($f=120$).

The second place was held by the Academic Words Lists (AWL) with a 25.5% coverage. The most frequently occurring three adjectives in the AWL were *academic* ($f=260$), *significant* ($f=203$), and *positive* ($f=182$). Collectively, these accounted for 43.6% of all the AWL adjectives in the corpus.

The Off-list Words had almost the same coverage as the AWL ones (25.4%). The most frequently occurring two adjectives were technology-related: *online* ($f=163$) and *blended* ($f=121$). These were followed by *sexualized* ($f=116$), *interpersonal* ($f=110$), and *non-traditional* ($f=103$). The next most common one was “the noun + -ed participle” type with a frequency of 95. There were also instances of “the adverb + -ed participle” type such as *religiously-based* and *relationally-based*. Other Off-list adjectives were *self-directed* ($f=73$), *transformative* ($f=71$), *cognitive* ($f=56$), *andragogical* ($f=47$), *emancipatory* ($f=46$), *emotional* ($f=42$), and *pedagogical* ($f=38$). Collectively, these accounted for 29.2% of the adjectives in the corpus. Compared to the other lists in the profiler, the Off-list words showed a greater variety of adjective use. This is probably because of the variations in the topics covered.

The percentage of the adjectives belonging to the 1000–2000 GSL was 10.9%. The most common adjective in this group was *critical* ($f=269$), and the second most common one was *educational* ($f=163$). These were followed by *female* ($f=90$), *formal* ($f=78$), *male* ($f=65$), and *hidden* ($f=56$). Collectively, these accounted for the 52.2% of the 1000–2000 GSL.

Finally, there were 15 uses of adjectives that belonged to the University Word List (UWL). *Pragmatic* was used 11 times, while *rural* and *superior* each was used twice.

When the above-given results are considered as a whole, the lexical composition of the corpus becomes interesting. According to Coady and Huckin (1997), 87% of a typical academic text is normally based on the first 2000 GSL words. On the other hand, academic words account for 8% and technical words for 3% of it. However, the numbers in Table 5 above describe quite a different picture pertaining to adjective use. Accordingly, results of the current study indicate that adjective use in academic prose may seriously influence lexical composition of a typical academic text. As is seen in the data above, AWL, UWL, and the Off-list Words combined make up 51% of the adjectives in the corpus. A highly possible reason for this is the genre the corpus was based on. It seems plausible to suggest that researchers tend to opt for more academic and unconventional adjectives in describing ideas, people, things, and research procedures as well as in organizing prose. Naturally, inclusion of other word forms would impact the composition. This is more apparent below where data related to the second research question are presented.

The second research question asked how adjective frequencies compare across the subsections of RAs. Results are summarized in Table 5.

Table 5. Adjective frequencies in sub-sections of RAs

	Word count				Number of adjectives				Ratio of adjectives		
	Total	Min	Max	\bar{x}	Total	Min	Max	\bar{x}	Min	Max	\bar{x}
Abstract	4836	95	284	163	494	4	31	17	2.7	17.9	10.4
Introduction	13219	107	815	442	1161	11	83	39	4.9	12.9	8.8
Literature review	50561	336	3935	1714	4211	25	322	142	5.4	11.4	8.3
Method	22622	331	1525	765	1473	15	117	50	4.1	10	6.6
Results	43761	269	2804	1464	3091	23	224	104	3.4	14.9	7.6
Discussion	34400	289	2796	1171	2988	20	291	103	4.8	11.6	8.5
Conc/ Recom	13645	49	1474	474	1109	3	128	39	4	18.3	8.9
<i>Total</i>	<i>183044</i>	<i>3062</i>	<i>9584</i>	<i>6115</i>	<i>14527</i>	<i>190</i>	<i>889</i>	<i>488</i>	<i>5.2</i>	<i>12</i>	<i>7.9</i>

Table 5 shows that adjectives accounted for 7.9% of the whole corpus. When the sub-sections are considered, it is seen that adjectives were most common in the abstract (10.4%). A closer look at the types of adjectives used in the abstract showed that many of them were used to define the topic/domain (e.g., *social*, *andragogical*, *blended*), methodology (e.g., *male*, *female*, *quantitative*, *thirty-item*), and results (e.g., *significant*, *statistical*). There were also only some instances of evaluative adjectives such as *important* and *necessary* used to underscore the importance of the study. Having limited space and a strictly defined word count, the authors likely felt obliged to describe their research at their best. Content required in an abstract together with authors' desire to grab readers' attention from the very outset would naturally lead them to employ adjectives under various semantic domains. APA (2009, p. 26) instructs authors that they "[u]se the specific words in [their] abstract that [they] think [their] audience will use in their electronic searches." Topic-related adjectives fall under this category. This is a possible reason why such adjectives were used frequently in the corpus of the current study. APA (2009) also warns authors not to be evaluative, but rather report findings in the abstract without commenting on what is in the body of the manuscript. Likewise, ERIC (n.d.) instructs that authors should use descriptive language, which necessitates the use of adjectives, particularly when defining research tools, participants, and research design type. ERIC (n.d.) also asks authors to write from an objective point of view refraining from evaluations. This sentiment was probably shared by the authors in this study too since there was a lower number of evaluative adjectives in the abstracts.

Adjectives account for 8.9% of the conclusion/recommendations section and for 8.7% of the introduction section. Regarding the former, Labaree (2009) recommends that in the conclusion section authors should not be "shy" to highlight the importance of their research. In doing so, they are recommended to elaborate on the impact and significance of their studies. The following extracts from the corpus of the current study illustrate some ways in which adjectives can play a key role in achieving this.

- (1) The findings of this *current* research are particularly *important* since they offer at least some insight into ...
- (2) This study found no *substantial* differences ...
- (3) as *evident* from the interviews,
- (4) it might have been *possible* to ...
- (5) the findings would be most *generalizable* with a *similar* population
- (6) Online learner-learner interaction seems to be *necessary*,
- (7) Although the assertion of this paper is *different* from the others, as it emphasizes *autonomous* learning, ...

In the recommendations section, authors can utilize adjectives to indicate the usefulness of their recommendations for application and future research. The following extracts show how the authors did this in this study:

- (8) ... might be *beneficial* for increasing ...*cognitive* skills ...
- (9) This study is an *initial* phase in a *longer* project to track ...

- (10) To complement the work of this study, it would be *interesting* to explore ...
- (11) ...this study was a *quantitative* one, limiting the understanding of ...
- (12) *Future* studies could provide *richer* data by ...
- (13) While this *current* study was highly *descriptive*, *future* studies could ...
- (14) This may be *useful* to deepen the findings of this *quantitative* study with more *nuanced* and *in-depth* information concerning adults' perception of change in *social* inclusion and *social* capital
- (15) A more *rigorous* study, including *larger* sample size, *multiple* institutions, and *varied* disciplines, would provide a more *thorough* view of ... Studies to evaluate ... may also use a *larger*, more *diverse* collection of ... deepen the understanding of human nature and of the *social*, *moral*, and *philosophical* issues associated with *everyday* life.

On the other hand, the introduction section of RAs is where the research domain and the territory within that domain are established (Swales & Feak, 2012). Likewise, APA (2009, p. p. 27) notes the introduction section “presents the specific problem under study and describes the research strategy” and advises authors to sufficiently explore the importance of the problem by explicitly stating the reason why it deserves new research. For these purposes, authors can use different types of adjectives, primarily topical and evaluative ones. The latter likely occur more frequently where researchers indicate a gap in the literature. Swales (1990) notes that adjectives and adjective phrases such as *time-consuming*, *expensive*, *limited* are among the linguistic tools authors can implement to do this. Past research also found that the introductions in social sciences use adjectives, particularly evaluative ones, to justify and promote their work (Tutin, 2010). Moreover, in cases where an introduction section presents information on methodology and principal findings, there may occur other types of adjectives (e.g., time-, size-, and location-related adjectives).

The adjective coverage was quite close in the discussion and literature review sections (8.5% and 8.3% respectively). It is posited by some that the discussion section of RAs “is the only section ... that is subjective in nature, although authors still need to be as objective as possible” (Omori, 2017, p. 1885). In this section, authors may indeed be encouraged to resort to language elements highlighting the significance of their results as well as interpreting their data in relation to previous research findings. Therefore, they may be expected to use a higher number of evaluative adjectives such as *important*, *interesting*, and *noteworthy*. Omori (2017) suggests authors use a scholarly tone that is clear, engaging, and dynamic. This may have prompted at least some of the authors in the current study to utilize adjectives more frequently in the discussion section. Also, authors are often warned to avoid language of certainty in the discussion section. They are recommended to use hedging terms, which often include adjectives such as “It is *possible* that ...,” “One *likely* reason for ...,” and “a *probable* factor....”

The relatively more frequent occurrence of adjectives in the literature review, on the other hand, may be because of topical adjectives used to define key concepts, phenomena, and relevant literature. The authors may have also felt the need to underscore the relevance in this section by using adjectives along with other language features.

It is important to note the relatively less frequent use of adjectives in the method and results sections (6.6% and 7.6% respectively). This may be because of authors' general attitude towards being more “neutral” in these sections. When drafting these sections, authors are often warned not to include any conclusions or opinions. Miller and Blessing (2016, p. 170) state that “[t]he results section should be neutral in every aspect, allowing readers to form their own conclusion. [It] must demonstrate outcomes clearly and in language that will allow readers to make their own conclusions.” Moved by a similar sentiment, the authors of the RAs in the study may have reduced the number of adjectives (particularly the evaluative ones) they could otherwise have used.

This finding, however, also becomes interesting when advice in at least some instructional materials is considered. For example, Wallwork (2016, p. 135) advises that authors use adjectives rather than nouns in describing methods. He favors, for instance, “Calculations with this method are

quite *efficient*” to “This method shows quite a good efficiency in the calculation process.” This, to him, makes messages clearer. This is not to suggest that the authors of the RAs in the corpus never heeded such advice, but it is possible that they opted for other word forms such as nouns/noun phrases based on the assertion in other instructional materials that nouns make academic prose more formal. To exemplify, Bailey (2003) compares “The efficiency of the machine depends on the precision of its construction” to “*Precise* construction results in an *efficient* machine” and concludes the former is more formal and therefore a more accurate use.

The third research question was related to the distribution of the adjectives relative to their semantic use. Results are summarized in Table 6.

Table 6. Semantic domains

Semantic domains	Sub-domains	f	%
Descriptors	Characteristics	1233	68.6
	Evaluative	131	7.3
	Time	109	6.1
	Size/amount	94	5.2
	Location	23	1.3
	Color	5	0.3
	Variation	6	0.3
	Probability	4	0.2
Classifiers	Topical/domain	149	8.3
	Relational	43	2.4
<i>Total</i>		<i>1797</i>	<i>100</i>

Table 6 shows that the majority of the adjectives in the corpus belonged to the semantic domain of descriptors. These were predominantly adjectives used to modify nouns relative to characteristics ($f=1233$). In this category, there were various adjectives used to describe personality such as *careful*, *violent*, and *happy*. Added to these were those denoting self-directedness: *self-actualizing*, *self-calming*, *self-confident*, and *self-governed*. Some other adjectives were pertaining to people’s ideological and philosophical orientations, examples of which are *apolitical*, and *conservative*.

There were also adjectives used to define the attributes of learning tasks, activities, and content. Examples include *feasible*, *generic*, *practical*, and *fun*. Similar adjectives were used to describe learning/teaching experiences: *easy*, *enjoyable*, *fascinating*, *(ir)relevant*, *painstaking*, *thought-provoking*, etc.

Some adjectives were also used to describe the methods adopted by the researchers. Examples of these include *self-reported*, *limited*, *negative*, *rich*, *transcribed*, *computer-supported*, *comparative*, *confirmatory*, *cross-sectional*, *comparative*, *semi-structured*, and *cross-sectional*.

Evaluative adjectives were also used by authors ($f=131$). A commonly utilized one was *significant*, with a total frequency of 202. Of this number, the majority ($f=180$) served an attributive role. See these examples: *significant* difference ($f=52$), *significant* level ($f=46$), *significant* effect ($f=17$), *significant* correlation ($f=12$), *significant* role ($f=6$), and *significant* number ($f=4$).

Another frequent adjective was *important*, which occurred 176 times. The frequency of the predicative syntactic role it served was 115, a significant proportion of which ($f=51$) included a dummy subject and an infinitive as in “It is *important* to [V1].” The most commonly used infinitive was *to note*. Here are sample concordance lines from the corpus:

ingful” (p. 435). It is also *important* to note that there are
 knowledge. It is *important* to note that establishing
 expansive. However, it is *important* to note that narrowing the

Among other infinitives used with *important* were *to recognize* ($f=3$), *to understand* ($f=2$), and *to consider* ($f=2$). As well, the following infinitives each occurred once: *to determine*, *to examine*, *to*

highlight, to identify, to investigate, to know, to move, to acknowledge, to address, to appreciate, to be, to broaden, to clarify.

The adjective *important* was also used with a clause linking twice: “Equally *important*, ...” and “Most *important*, ...” Authors also used the word 59 times in its attributive syntactic role. The nouns this adjective frequently modified were *factor* ($f=7$), *role* ($f=5$), *skill* ($f=5$), and *aspect* ($f=3$).

The frequent use of evaluative adjectives in the corpus is particularly important since it provides evidence for presence of authorial voice in the corpus. One way in which voice can be established is through expression of attitude. Hood (2005) states that adjectives assist authors in expressing attitude, therefore managing an evaluative stance. Hood states that authors evaluate the field of research and position their own study. Evaluative adjectives also contribute to authors’ efforts in arguing about the significance of their results in the discussion section of their research papers. This is supported by previous research findings showing that authors in other disciplines such as Economics and Linguistics also use evaluative adjectives to highlight their authorial self-promotion (Tutin, 2010). Kartal (2017), in fact, found that as high as 40% of the adjectives covered in his corpora of academic texts were evaluative.

Less common as they were, time-related adjectives were also used ($f=109$). Some of these referred to length such as *daily*, *monthly*, *five-class*, *one-term-long*, etc. The second most commonly occurring adjective in the whole corpus was *lifelong* ($f=605$) predominantly used in its attributive syntactic role. Here are some nouns it accompanied: *learning* ($f=3527$), *learner* ($f=351$), *endeavor* ($f=310$), *education* ($f=3$), and *striving* ($f=31$). On the other hand, it served a predicative syntactic role only twice: “motivation could be expected to be intrinsic for learning to be *lifelong*” and “Only when the attitude to learning is persistent can learning become *lifelong*.”

Another group of descriptive adjectives was those relating to size/amount ($f=94$). Some of these were used in relation to data collection tools. Examples include *five-point*, *four-item*, and *two-way*. Some others were pertaining to magnitude, examples of which are *abundant*, *big*, *countless*, *university-wide*, *profound*, and *substantial*. Others with opposite meanings were also used: *low*, *minimal*, *minor*, *once-for-all*, and *slight*.

Another sub-domain of descriptors was location ($f=23$). However, their use was significantly infrequent. Some of these were used as signposts (e.g., *above-mentioned*, *above-identified*). Among other uses were *in-class*, *off-campus*, *offline*, *out-of-school*, *on-site*, and *on-screen*.

Similarly, color-related adjectives were less frequently used ones ($f=5$). The adjectives *white* and *black* were used to denote race, while *dark* was used to denote hardship as in *dark* times and *dark* moments.

Another sub-category under descriptors was variation, which included six adjectives: *different*, *variable*, *alternative*, *atypical*, and *unorthodox*. Sample concordance lines for these adjectives are as follows.

des “smaller learning spaces, es. Taken together, these y not be accomplished and an ssociated with studying in an that they take risks through	<i>variable</i> <i>different</i> <i>alternative</i> <i>atypical</i> <i>unorthodox</i>	acing of instruction, variab approaches to lifelong learni or unanticipated goal may be field. This, in turn, likely modes of actions. Lastly,
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It is seen in Table 6 that four distinct adjectives were used to denote probability. These included *likely*, *(im)possible*, and *probable*. In most cases, *likely* served a predicative role and was followed by an infinitive. There were also instances of its use with the dummy subject *it*. See the sample concordance lines below.

They were also less the respondent, the less educated adults are more	<i>likely</i> <i>likely</i> <i>likely</i>	to attend devotionals (81%) t they were to show cross-cultu than others to be open to
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It is also important to note authors' use of *possible* and *probable* in discussing results for lowering certainty, among other purposes. The following concordance lines exemplify this usage:

their instructors. This is a *probable* reason why social influence
ademic confidence. It is *probable* that their eager attitudes in

Collectively, the data related to the ubiquitous use of descriptive adjectives appear to support the observation in past research that different types of adjectives are used in recent research articles much more commonly than they used to be in the eighteenth century (Biber & Gray, 2016). Adjectives are among the building blocks of descriptive writing, which "is an important element in the academic process as it supports other writing objectives such as developing an argument, as well as examining issues in critical reflection on practice" (Keeling, Chapman & Williams, 2013, p. 65). Tyrkkö (2014) still warns that the context in which adjectives are used makes them different from other, more general descriptive adjectives. In support of this, he cites Taavitsainen's (2011) research showing that medical texts include high frequencies of technical terminology in the form of adjectives. There is at least some indication of this in the current study, too. For instance, some adjectives describing location (e.g., *off-campus*, *out-of-school*) and time-related adjectives (e.g., *five-class*, *one-term-long*) can be considered terminology specific to educational sciences.

Table 6 also shows that there was a total number of 192 adjectives used in their classifier semantic meaning. Of this number, 149 were topical and/or domain-related. The most frequent adjective in this category was *social* with a staggering frequency of 704 in the whole corpus. All of its uses, except for one, served an attributive role. Below, the nouns modified by this adjective are categorized semantically:

- (16) capital ($f=198$)
- (17) presence ($f=18$), inclusion ($f=112$), exclusion ($f=16$), connectedness ($f=27$), participation ($f=31$)
- (18) relationship ($f=16$), network ($f=28$)
- (19) support ($f=14$)
- (20) class ($f=13$), status ($f=4$)
- (21) media ($f=17$)

Data analysis also showed that the suffix *-based* was used to form topic-/domain-specific adjectives. Examples include *community-based* ($f=20$), *project-based* ($f=17$), *technology-based* ($f=7$), *religiously-based* ($f=17$), *arts-based* ($f=4$), and *work-based* ($f=2$).

Interpersonal was another adjective that occurred frequently. It mainly served an attributive semantic role. It was used with the nouns *communication* ($f=84$), *skills* ($f=12$), and *relationships* ($f=11$). Another frequent adjective in the topical sub-domain was *(in/non)formal*. It, too, mainly served an attributive semantic role. It modified these nouns: *learning* ($f=50$), *education* ($f=37$), *settings* ($f=9$), *curricula* ($f=5$).

Forty-three adjectives were used in their relational meaning. *High(er)* was one of these that occurred frequently ($f=190$). It was used in its attributive role to define several nouns: *education* ($f=60$), *school* ($f=25$), *score* ($f=50$), and *level* ($f=38$).

Similar occurred 94 times in the corpus. Of this number, 22 included the preposition *to* right after the adjective. Also, the adjective *same* was used 67 times in the corpus. It mainly served an attributive role. This included its use as an organization marker as in "at the *same* time" ($f=8$).

Conclusion and Recommendations for Future Research Directions

Results of this study showed that the RAs included in the corpus based on Lifelong Learning and Adult Education contained a significant number of adjectives. The fact that adjectives were more frequently utilized by some authors more frequently than others is considered to be authorial orientation with a view towards creating a personal voice. Indisputably, content covered in research plays a significant role in deciding the kind of lexis to be used. As well, the nature of research determines the extent to which certain lexis is used. Qualitative studies, for instance, likely encourage use of more descriptive adjectives. This could indeed merit investigation.

It is also important to note the use of evaluative adjectives in particular sections of the RAs, which supports the observation that such adjectives express authorial presence. Anecdotal experience indicates that oftentimes authors are discouraged from using “strong” language for “objectivity” purposes. This likely results in restricted language use by authors. This is often to the detriment of emerging authors’ engagement in meaningful writing that is not only personally relevant but also wise within their discipline.

Results also showed that certain adjectives tend to be discipline specific. This further supports Swale’s (1990) notion of discourse community. For those aiming to find a place in their discourse community, then, it is essential to raise their awareness of such adjectives in addition to jargon and terminology used by peers. This, however, does not disregard authors’ creative use of the language in ways they deem appropriate without losing sight of their readers’ schemata. This is due to the fact that writing is both an intrapersonal and interpersonal activity. The former includes authors’ own rationalization in expressing arguments in addition to research activities. As a creative act, writing involves a lot of introspection. And for creative introspection, authors should be able to use language as they deem appropriate.

Recommendations can be made for future researchers. Language use is affected by culture, which includes many aspects such as age, gender, and traditions. Future research can investigate adjectives across cultures. As well, comparisons can be made between different disciplines, possibly between hard and soft sciences. As is also mentioned above, there may be unique uses of adjectives in quantitative and qualitative studies, which would be worthy of investigation.

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