

DOI: <https://doi.org/10.18485/philologia.2025.23.23.4>

UDC: 811.111'367

37.091.3::811.111'34(4-17) 050(4-17)

■ MODALITY IN DISCOURSE ON EDUCATION FOR SUSTAINABLE DEVELOPMENT: AN ANALYSIS OF RESEARCH ARTICLE ABSTRACTS

OLEKSANDR KAPRANOV¹

NLA University College

English Department

Oslo, Norway

 <https://orcid.org/0000-0002-9056-3311>

U radu polazimo od pretpostavke da apstrakti istraživačkih članaka (AIČ) sami po sebi čine odvojen žanr, koji se karakteriše nizom specifičnih karakteristika, uključujući i različite manifestacije modala u engleskom jeziku. Iako postoji solidan korpus istraživanja o modalnosti u AIČ, na primer, u „tvrdim naukama”, naučna istraživanja o modalnosti u AIČ u diskursu o obrazovanju za održivi razvoj (OOR) nisu dovoljno zastupljena u literaturi. U svetlu toga, cilj ovog rada je da istraži modalnost u korpusu AIČ o OOR. Korpus se sastojao od 200 AIČ objavljenih u časopisu *Journal of Teacher Education for Sustainability (JTES)*, jednom od vodećih časopisa u oblasti OOR. Korpus je analiziran kvantitativno kako bi se identifikovali i kvantifikovali tzv. centralni modalni glagoli – *can, could, may, might, must, shall, should, will* i *would*. Analiza korpusa sprovedena je uz pomoć kompjuterskom programa AntConc (Anthony 2022), koji je izračunao ukupan broj gore pomenutih centralnih modala po svesci časopisa. Nakon toga, korišćen je SPSS (IBM 2011) kako bi se izračunale srednje vrednosti i standardne devijacije centralnih modala u korpusu. Rezultati istraživanja pokazuju da su *can* i *should* najčešći centralni modali u korpusu, a njihova upotreba je u narednom koraku analizirana uz pomoć teorijskog pristupa modalnosti koji je formulisao Palmer (1990), koji je predložio sledeće tipove modalnosti: (i) deontičku, (ii) dinamičku i (iii) epistemičku. Utvrđeno je da je *can* povezan pretežno sa dinamičkom modalnošću, dok je *should* u vezi sa epistemičkom. Rezultati ukazuju na niz lingvodidaktičkih implikacija koje bi mogle biti korisne akademskim autorima koji objavljuju istraživačke članke u časopisima iz oblasti OOR. Iz analize proizilazi da korišćenjem modala *should* može da se stekne utisak pažljivog, obzirnog i neasertivnog akademskog autora, čiji se ton odlikuje ograđivanjem. Korišćenjem *can* kao dinamičkog modala mogu se predstaviti i opisati konkretni akciono orijentisani odgovori na sprovođenje praksi vezanih za OOR. Rezultati dobijeni analizom mogu biti od pomoći akademskim početnicima i autorima postdiplomcima u pripremi efektnog i objavljivog AIČ u oblasti OOR.

Ključne reči: akademski diskurs, obrazovanje za održivi razvoj (OOR), modalnost, apstrakti istraživačkih članaka (AIČ).

1 Kontakt podaci (E-mail): oleksandr.kapranov@nla.no

1. INTRODUCTION

In order to get published in scientific journals, academic writers and researchers should present their articles in an appropriate manner that is expected in academic writing (Paltridge 2017; Lindsay 2018). Arguably, one of the crucial elements of a research article (RA) consists in providing a concise yet informative description of the whole article that is encapsulated in its abstract (Lorés 2004; Martín/León Pérez 2024). In the realm of academic writing, there is a significant bulk of research on RA abstracts (RAAs), which sheds light on a variety of aspects related to discursive, lexical, pragmatic, rhetorical, and syntactic properties of RAAs in a broad range of disciplines (Esteban/Taladngo 2025; Zhang/Wang 2025). In this regard, it should be noted that the majority of current studies seem to address discursive and other properties of RAAs written in the realms of hard (e.g., medicine) and soft (e.g., English as a Foreign Language) sciences (Cox/Original 2023; Kapranov 2023; Liu *et al.* 2025).

At the same time, however, there is a paucity of studies that investigate RAAs on Education for Sustainable Development, or ESD (Lotz-Sisitka 2010). In this light, the present submission involves a quantitative study that aims at exploring English-medium RAAs on ESD through a linguistic lens associated with modality. As known, modality in English is most prototypically manifested by a set of modal verbs that are commonly referred to as the central modals, such as *can*, *could*, *may*, *might*, *must*, *shall*, *should*, *will*, and *would* (Palmer 2003). Considering the role of modality in academic writing, the study seeks to gain insight into the frequency of the central modals in a corpus of RAAs that are published in an ESD-themed outlet titled *Journal of Teacher Education for Sustainability* (*JTES*). The choice of the journal (i.e., *JTES*) is accounted by the following considerations: (i) *JTES* is indexed by several prestigious databases, inclusive of Scopus (Q1); (ii) *JTES* is a peer-reviewed outlet, which means that all the submissions to *JTES* undergo a rigorous peer-review procedure; and (iii) *JTES* is an international English-medium outlet, which is characterised by an international authorship in the field of ESD. Accordingly, the study sets to answer the following **research question (RQ)**:

RQ: What are the most frequent central modal verbs in a corpus of RAAs published in *JTES* from 2015 to 2024?

The novelty of the study, which is further presented in the article, consists in providing a quantitative account of the frequency of the occurrence of central modals in RAAs published in *JTES*. Hopefully, the results of the study and the associated linguo-didactic implications will be of help to academic authors, who conduct research in the field of ESD and publish it in ESD-themed peer-reviewed journals. Also, the study will provide useful and practical suggestions that pertain to the use of modality by novice and undergraduate academic writers, who are engaged in ESD-related research and its dissemination in ESD-themed journals.

Further, this article proceeds as follows. First, an outline of the theoretical aspects associated with the genre of RAAs will be provided in section 2. Second, an overview of the literature on modality in RAAs will be given in section 3. Third, the present study will be introduced in more detail and discussed in section 4. Fourth, conclusions of the study will be summarised in section 5.

2. AN OUTLINE OF THE THEORETICAL ASPECTS ASSOCIATED WITH THE GENRE OF RAAs

First of all, we should, perhaps, specify the notion of genre in relation to RAAs. Currently, in the Anglophone research community and, essentially, beyond its realms in the globalised scientific world guided by English as a lingua franca, the notion of genre is envisaged along the lines proposed by Swales (2004). The Swalesian take on genres, particularly, on research genre, is characterised by the properties of (i) discourse communities and (ii) communicative purposes (Flowerdew 2015), which are seen as the prototypical criteria that determine genre identity (Swales 2004: 10).

Having outlined the notion of genre, let us observe that the current operationalisation of research genre of RAs in the Anglophone literature mandates the presence of an abstract, i.e., in the Swalesian terms, an RAA is expected by the scientific discourse community (Swales 2004). Evidently, RAAs are “an indispensable tool for researchers in the selection of papers which may be relevant to them in their research projects” (Noguera 2012: 212). Indeed, an RA without an abstract would be quite unusual in hard sciences as well as in the majority of the so-called soft disciplines (Kaplan *et al.* 1994; Kapranov 2023). However, despite the impression that abstracts are, to a certain degree, extensions of RAs, the abstract is deemed to form its own genre (Pearson 2024). In this regard, Jiang and Hyland (2022) indicate that

Few academic genres have received more attention than the research abstract. Its increasing importance, diverse functions and convenient length mean it has been dismembered and dissected by analysts in countless articles. This is a key genre, central to researchers’ reading decisions and therefore to the creation of new knowledge, and as a result writers use a variety of interactive resources to attract readers to the accompanying article. (Jiang/Hyland 2022: 60)

Presumably, the specificity of the genre of RAAs is manifested by a clear rhetorical purpose of “hooking the reader” (Hyland/Tse 2005: 123), i.e. making the readers want to proceed to the reading of the full text of the RA. Put differently, a well-written and genre-confirming RAA is “likely to influence the readers’ decisions to continue to the full paper or go elsewhere” (Jiang/ Hyland 2022: 60). Accordingly, we may argue that some of the pivotal characteristics of the genre of RAAs involve (i) informativeness, which presupposes a textual piece that provides succinct yet sufficient knowledge about the whole text of the RA and (ii) rhetorical persuasiveness, which involves the qualities of the RA that make it memorable and noticeable by the readers (Sword 2012).

Also, we may single out another central component associated with the genre of RAAs, namely structuredness (Hartley/Sydes 1997; Kraus *et al.* 2024). In terms of the structure, the literature distinguishes several strategic approaches to the genre-specific structural organisation of RAAs (El-Dakhs 2018). The first approach is formulated by Bhatia (1993), who indicates that a typical RAA is comprised of the set of scaffolding elements or moves. In this regard, it should be, perhaps, noted that a move in discourse studies is usually seen as a coherent unit of writing, which serves a specific communicative purpose (Swales 2004).

According to Bhatia (1993), an RAA is characterised by the following moves: (i) the introduction of the purpose of the RA, (ii) the description of research methodology in the RA, (iii) a summary of the results, and (v) the formulation of the conclusions. In contrast to Bhatia (1993), however, Santos (1996) posits that the structure of an RAA involves such moves as (i) the situatedness of research, (ii) the presentation of research, (iii) the description of research methodology, (iv) the summary of findings, and (v) the discussion of findings. It should be mentioned that the structural scheme of RAAs proposed by Santos (1996) is similar to that of Hyland (1996, 2000, 2015), who uses the term “product” instead of the results. Apart from this difference, Hyland’s (1996, 2000, 2015) approach to the structure of RAAs can be argued to converge on that of Santos (1996).

Having anchored RAAs in the notion of genre, let us proceed to an outline of the prior studies that investigate how modality is represented in RAAs in a number of scientific disciplines.

3. AN OVERVIEW OF THE LITERATURE ON MODALITY IN RAAs

Whilst the bulk of prior studies on modality in RAAs is not substantial, there is a clear scholarly interest in this research topic, which is determined by the peculiarities of RAAs in specific scientific fields, such as medicine (Salager-Meyer 1992; Panocová 2008; Yang *et al.* 2015; Quintana-Toledo/Cuervo 2020; Montkhongtham 2021), arts (Olaniyan/Adeniji 2015), applied linguistics (Kapranov 2022), and tourism (Álvarez-Gil/Domínguez-Morales 2018).

Given that the prior studies, primarily, are related to medical RAAs, let us commence the present overview of the literature with them. Modality in RAAs on medicine is argued to be (i) move-specific and (ii) reflective of tentativeness and hedging (Salager-Meyer 1992). Furthermore, modal verbs in medical RAAs are thought to be involved in manifesting the authorial stance (Quintana-Toledo/Cuervo 2020). Particularly, modal verbs in them are deemed to be reflective of epistemic possibility and/or probability, which is, largely, associated with hedging due to the author’s (i) uncertainty in the proposition and (ii) intention to withhold their views (Panocová 2008).

In this regard, Yang, Zheng, and Ge (2015) seem to agree with Panocová (2008) on the point that an RAA on medicine is characterised by a certain proclivity to employ modal verbs that are associated with epistemic modality (e.g., *may*) in order to convey a lack of commitment to the proposition. Accordingly, these authors suggest that medical RAAs are marked by a range of modal verbs that are involved in expressing claims in a tentative and reserved manner. It should be noted that the aforementioned argument is in contrast with the study conducted by Montkhongtham (2021), who asserts that modal verbs are used in medical RAAs in order to minimise subjectivity associated with epistemic modality and maximise evidence and the description of objective circumstances.

Modality in RAAs on arts has been found to be quite similar to that of RAAs on medicine in the sense that it is indicative of uncertainty and/or subjectivity and hedging (Olaniyan/Adeniji 2015). Moreover, Olaniyan and Adeniji (2015) report that modality in RAAs on arts is reflective of possibility, necessity, prediction, and permission. In addition, Olaniyan and Adeniji (2015) posit that such possibility modals as *might* and *would*, respectively, are used in RAAs on arts for the purposes of stating (i) the analytical scope

and (ii) research goals, whereas such necessity modal as *must* is involved in (iii) declaring the analytical scope of the RAA and (iv) presenting the main argument. According to Olaniyan and Adeniji (2015), prediction modals (e.g., *will*) are used in stating research aims in RAAs.

In a study of modality in RAAs on applied linguistics (Kapranov 2022), modality is posited to reflect the use of the English language by academic writers who hail from the Inner and Outer Circles of English. Specifically, the study is informed by the construal of the Inner Circle, where English is spoken as the mother tongue (e.g., the United Kingdom) and the Outer Circle, where it is used as a second language in the former British colonies (e.g., Malaysia). The study shows that the use of modality in RAAs on applied linguistics does not seem to depend upon the author's association with the Inner or Outer Circles of English. Particularly, the cohorts of academic writers from the Outer Circle of English have been found to employ a fairly similar number of modal verbs as their counterparts from the Inner Circle of English. To further specify the findings, it is indicated in the study that *can* and *may*, which function as hedging devices in RAAs on applied linguistics, are similarly distributed in the RAAs written by the representatives of the Inner and Outer Circles of English (Kapranov 2022).

As far as the use of modal verbs in RAAs in the field of tourism is concerned, Álvarez-Gil and Domínguez-Morales (2018) show that modality is related to the manifestation of the academic authors' intentions. Grounded in the theoretical premises of modality formulated by Palmer (1990), Álvarez-Gil and Domínguez-Morales (2018) have established that modal verbs in scientific papers in the domain of tourism are related, primarily, to dynamic modality (e.g., *can*), whereas epistemic modals (e.g., *might*) and deontic modals (e.g., *must*) occur not so often in RAAs. These researchers demonstrate that obligation in RAAs on tourism is expressed by *should* and *will*, whilst epistemic modality, which is often expressed by *could* and *would*, is used to impart a sense of authorial modesty and a desire to avoid imposition.

4. THE PRESENT STUDY

As evident from the literature outline, there is a relative paucity of studies that delve into the research theme of modality, in particular, central modal verbs, in RAAs. In this regard, let us observe, as already indicated in the introduction, that there is no published research on the central modal verbs in RAAs on ESD. Taking the current research gap into consideration and seeking to contribute to disentangling the issue of modality in RAAs on the topic of ESD, the present study looks into the frequency of the central modal verbs in a corpus of RAAs in the field of ESD published by *JTES*. Accordingly, the aim of the present study is to learn about modality, which is manifested by the central modal verbs in RAAs on ESD and analyse the corpus of the study quantitatively (see RQ of the study in the introductory part of the article).

The corpus of the study is comprised of 200 RAAs published by *JTES* from 2015 to 2024. The RAAs are freely available in open access format on the journal's web site <https://reference-global.com/journal/JTES>. The descriptive statistics of the corpus are further summarised in Table 1 below.

#	Descriptive Statistics	Value
1	Total number of RAAs	200
2	Total number of words	38 908
3	Mean words	194.5
4	Standard deviation words	63.5
5	Maximum words	489
6	Minimum words	92

Table 1. The Descriptive Statistics of the Corpus

It should be specified that the corpus is comprised of RAAs only, i.e. the whole texts of RAs, editorials, book reviews, and announcements are excluded from the corpus collection.

The corpus is analysed by means of applying a computer concordance program AncConc (Anthony 2022) in order to identify and compute the frequency of the occurrence of the following central modal verbs: *can*, *could*, *may*, *might*, *must*, *shall*, *should*, *will*, and *would*. The procedure of the identification of the aforementioned central modals in the corpus is as follows. First, the RAAs are downloaded from the journal's web site <https://reference-global.com/journal/JTES>. Second, the RAAs are converted into Word files as one Word file per journal issue. Third, the Word documents are fed into AntConc (Anthony 2022) in order to compute the frequency of the occurrence of the central modals. Fourth, the data that have been garnered by AntConc are processed in the Statistical Package for Social Sciences (SPSS), version 20 (IBM 2011) in order to calculate means and standard deviations of the central modals in the corpus.

Prior to presenting the results of the quantitative corpus analysis, one important remark should be made concerning the theoretical foundations of modality in the study. In terms of its theoretical premises, the study follows the approach to modality that is formulated by Frank Robert Palmer (1990) in his seminal monograph *Modality and the English Modals*. According to Palmer (1990), there are several types of modality, which are prototypically manifested by the central modals in English: (i) deontic modality, which conveys a speaker's command, permission, obligation, a promise or a threat; (ii) dynamic modality, which conveys physical possibility, judgments about the degree or extent that an action is possible, the ability of the subject that typically collocates with self-mentions and the sense verbs; and (iii) epistemic modality, which conveys the degree of possibility, weak probability, subjectivity, and tentativeness. Palmer's (1990) approach to the central modal verbs is further employed in the discussion of the results of the corpus analysis.

4.1. RESULTS AND DISCUSSION

The results of the quantitative analysis provide the following answer to the RQ of the study. The most frequent central modals in the corpus are *can* and *should*, respectively. These findings are illustrated by Table 2 below.

#	Modals	Total N	Mean	SD	Max.	Min.
1	<i>Can</i>	77	1.5	1.0	6	1
2	<i>Could</i>	28	1.2	0.6	3	1
3	<i>May</i>	11	1.4	1.0	4	1
4	<i>Might</i>	6	1.2	0.4	2	1
5	<i>Must</i>	7	1.2	0.4	2	1
6	<i>Shall</i>	-	-	-	-	-
7	<i>Should</i>	40	1.3	0.5	3	1
8	<i>Will</i>	22	1.3	0.7	4	1
9	<i>Would</i>	17	1.0	0.2	2	1

Table 2. The Results of the Quantitative Analysis

Let us focus our discussion on shedding light on the major findings. To reiterate, judging from Table 2, the most frequent modals in the corpus are *can* and *should*. As far as the dominance of the central modal *can* in the corpus is concerned, it can be posited that this finding lends indirect support to the study conducted by Álvarez-Gil and Domínguez-Morales (2018), who note that *can* is the most frequent central modal in RAAs in their corpus. Furthermore, this discovery bolsters the literature (Montkhongtham 2021; Kapranov 2022), which demonstrates that the central modal *can* is one of the most frequently occurring modals in RAAs.

Presumably, the highest frequency of the occurrence of *can* in RAAs on ESD-related topics could be explained by the considerations that are associated with the genre of the ESD-themed discourses. To specify, ESD is thought to capitalise on the discourses on climate change, environmental sustainability, ecopedagogy, sustainable pedagogy, and other sustainability-related disciplines (Kapranov 2024; Eilam 2025). In this light, the ESD discourses are argued to be reflective of sustainability awareness (Kapranov 2021) as well as concrete action-oriented responses to the implementation of sustainable practices by the cohorts of teachers and learners (Kirsner *et al.* 2007; Meinhold *et al.* 2025). Accordingly, it is, perhaps, not at all surprising that *can* in the present corpus of RAAs on the topics of ESD is related, predominantly, to dynamic modality. Following Palmer (1990), dynamic modality expressed by *can* renders possibility, which is subject-oriented and indicative of the ability and/or volition of the subject of the sentence.

The dominance of *can* as a representative of the dynamic type of modality (83%) is concomitant in the corpus with the preponderance of active constructions with *can* (62%), such as "*can* + proceed", "*can* + serve", etc., whereas the occurrence of *can* in passive constructions (e.g., "*can* + be + built") is less frequent. For instance, the occurrence of *can* in a passive construction (38% in total) is seen in excerpt (1) below:

- (1) Second, distributed leadership **can be constructed** as an indispensable component of inclusive education, and this has implications for how the target groups of inclusive education are conceptualised. This paper also discusses the wider social and political contexts of the two primary schools and how in each case context significantly constrained and shaped understandings and practices of inclusion and distributed leadership in the practice of teachers and principals. (Miškolci *et al.* 2016: 53)

Furthermore, *can* in the corpus occurs in its affirmative form (88%), whereas *can* in its negative form and in negative constructions is infrequent (12%). The occurrence of *can* in a negative construction is illustrated by excerpt (2) below.

- (2) Although lecturers believe communication skills are very important, they also think that they are not developed as much as they should be in their classes, so trainee teachers **cannot communicate** as effectively as they should. (Gallego Ortega/Rodríguez Fuentes 2015: 86)

Moreover, *can* in the corpus seems to occur, largely, in declarative clauses (96%), whereas *can* in interrogative ones is rare, as evident from excerpt (3):

- (3) Over the last decades the nature and form of what children **can** choose to read has changed radically, partly as a consequence of rapid technological advances and the increasing dominance of the image. The research questions were: 1) How do children learn to read and write by computer? 2) How **can** one support children's learning during the transition from pre-school to primary school? and 3) How **can** we support learning during the transition from pre-school to primary school in the future? This work is based on a questionnaire that was sent to kindergarten and primary school teachers in the Helsinki area. (Nurmilaakso 2015: 99)

Further, the aforementioned statistics are summarised in Figure 1, which illustrates the distribution of *can* (in percentage) along the types of modality, active/passive constructions, affirmative/negative forms and constructions, and declarative/interrogative clauses.

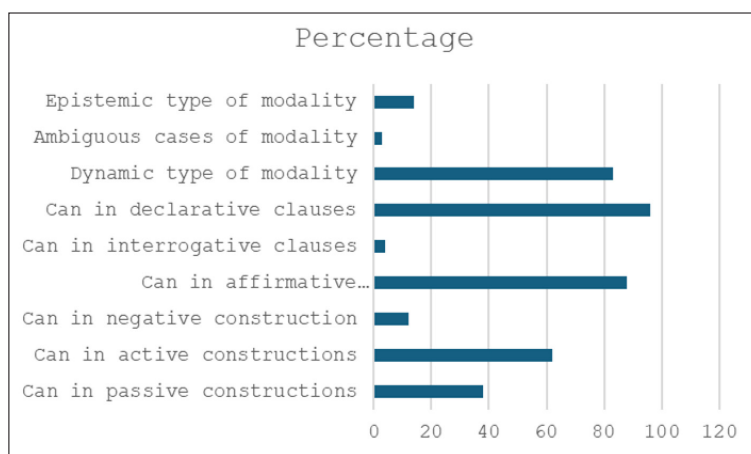


Figure 1. The Properties of *Can* in the Corpus

Judging from Figure 1 above, it seems possible to summarise so far that *can* is frequently employed in RAAs on ESD as a dynamic modal that occurs in declarative clauses as well as affirmative and active constructions.

A relatively high frequency of the occurrence of the modal verb *should* in the corpus is explicable, perhaps, by the academic authors' intention to manifest epistemic modality, which, according to Palmer (1990), refers to what is reasonable to expect and can be paraphrased as "A reasonable inference is that ...", as illustrated by excerpt (4):

- (4) Research on teacher training often focuses on learners' perceptions of that training. The focus of this paper, which uses a research-to-practice approach, is instead on the views of the trainers. It evaluates the perceptions of university lecturers teaching classes as part of primary teachers' training degrees and assesses their views of the communication skills developed by their students to be used in their future careers. The study uses a 17-item ad-hoc questionnaire, completed by 152 lecturers from the University of Granada. Descriptive and inferential analyses are then carried out on the data collected using SPSS. The analysis results show how important lecturers believe it is for trainee teachers to develop communication skills, which they often lack. Although lecturers believe communication skills are very important, they also think that they are not developed as much as they **should** be in their classes, so trainee teachers cannot communicate as effectively as they **should**. (Gallego Ortega/Rodríguez Fuentes 2015: 86).

Whereas *should* in (4) can have a reading associated with a reasonable expectation, there are several cases of *should* in the corpus that appear ambiguous due to their possible interpretation associated with obligation, as illustrated by excerpt (5):

- (5) A questionnaire was administered to members of the public (n = 200) at three different locations. The study found that although the Maltese public strongly appreciates the beauty of Malta's marine environment, the level of knowledge surrounding the marine environment is low. Furthermore, the research indicates that while the public agrees that the marine environment **should** be protected, there is a notable lack of awareness of the five local MPAs. Based on the research findings, a model linking ESD to MPAs and aiming to foster a sense of ownership among the public by encouraging their involvement in the management of local MPAs is proposed. (Mifsud/Verret 2015: 48).

The high frequency of the occurrence of *should* in the corpus seems to support the literature (Panocová 2008; Quintana-Toledo/Cuervo 2020), which demonstrates that epistemic *should* is routinely used by academic writers in order to impart (epistemic) possibility and/or probability that, essentially, is used as a hedging device to signal the authors' lack of certainty and commitment to the results that are, perhaps, tentative, as indicated in the prior studies by Olaniyan/Adeniji (2015), as well as Álvarez-Gil and Domínguez-Morales (2018).

In addition to being predominantly used as an epistemic modal, *should* in the present corpus occurs fairly equally in passive constructions (48%), such as "*should* + be + protected", "*should* + be + used", etc. and in active constructions (52%), for instance, "*should* + go", "*should* + examine", and "*should* + include", as seen in Figure 2.

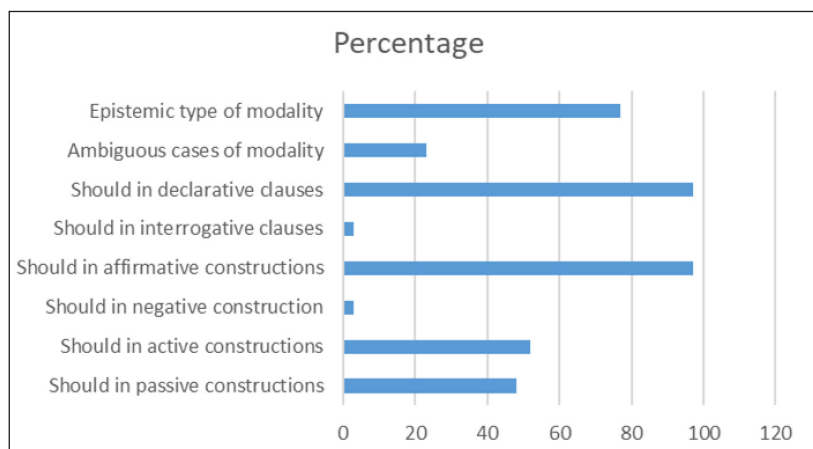


Figure 2. The Properties of *Should* in the Corpus

Similarly to the distribution of *can*, the modal verb *should* occurs, mostly, in its affirmative form and, accordingly, in affirmative constructions (97%), whereas it is not at all common in the negative constructions (3%). Notably, the use of *should* in the corpus seems to be, essentially, restricted to declarative clauses (97%), whilst its occurrence in the interrogative clauses is epiphenomenal (3%), as evident from Figure 2 above.

5. CONCLUSIONS

This article has presented a quantitative study whose aim is to answer the RQ that is related to establishing the most frequent central modal verbs in the corpus of RAAs published in *JTES*, a leading journal in the field of ESD, between 2015 and 2024. The quantitative analysis reveals that *can* and *should*, respectively, are the most frequent central modals in the corpus.

These findings are suggestive of a number of linguo-didactic implications that could be of use to academic writers who publish research in ESD-themed journals. Given that RAAs published in *JTES* are characterised by a substantial presence of *can*, it could be suggested to the academic writers to employ this central modal in order to convey dynamic modality, which is, typically, characterised by the ability of the subject. The use of the dynamic *can* would contribute to the creation of an action-oriented tonality in the RAAs on ESD, which conveys the authorial image of a knowledgeable and action-oriented researcher. Another suggestion that follows from the findings in the present study would be to use the central modal *should*, which is employed by the *JTES* authors in order to render epistemic modality. Assuming that epistemic modality is normally associated with degrees of (un)certainly, the use of *should* adds to the image of a careful, considerate, and non-assertive academic author, whose tonality is characterised by hedging. Hopefully, these suggestions would be of help to novice and post-graduate academic writers in their preparation of an effective and publishable RAA in the field of ESD.

ACKNOWLEDGMENTS

The author wishes to acknowledge the editor and anonymous reviewers for their comments on the article draft.

PRIMARY SOURCES

Journal of Teacher Education for Sustainability. [Internet]. Available at: <https://reference-global.com/journal/JTES> [01.09.2025].

REREFENCES

- Álvarez-Gil, F. J. and E. Domínguez-Morales. 2018. Modal verbs in the abstract genre in the field of tourism. *Revista de Lenguas para Fines Específicos* 24(2), 27–37. <http://dx.doi.org/10.20420/rlfe.2018.232>
- Anthony, L. 2022. *AntConc Version 4.0.11*. Tokyo: Waseda University.
- Bhatia, V. K. 1993. *Analyzing Genre: Language Use in Professional Settings*. Harlow: Longman.
- Cox, A. and E. Frigal. 2023. Comparing research articles in pulmonology and other disciplines. *Focus on ELT Journal* 5(2), 21–41. <https://doi.org/10.14744/felt.2023.5.2.2>
- Eilam, E. 2025. Interrogating climate change education epistemology: Identifying hindrances to curriculum development. *ECNU Review of Education* 8(1), 112–143. <https://doi.org/10.1177/20965311241240491>
- El-Dakhs, D. A. S. 2018. Comparative genre analysis of research article abstracts in more and less prestigious journals: Linguistics journals in focus. *Research in Language (RiL)* 16(1), 47–63. <https://doi.org/10.2478/rela-2018-0002>
- Esteban, R. H. and U. Taladngo. 2025. Evidential shifts in EFL manuscripts: A study of novice writers across three diverse learning contexts. *THAITESOL Journal* 38(1), 111–145.
- Flowerdew, J. 2015. John Swales's approach to pedagogy in Genre Analysis: A perspective from 25 years on. *Journal of English for Academic Purposes* 19, 102–112. <https://doi.org/10.1016/j.jeap.2015.02.003>
- Gallego Ortega, J. L. and A. V. Rodríguez Fuentes. 2015. Communication skills training in trainee primary school teachers in Spain. *Journal of Teacher Education for Sustainability* 17(1), 86–98. <https://doi.org/10.1515/jtes-2015-0007>
- Hartley, J. and M. Sydes. 1997. Are structured abstracts easier to read than traditional ones?. *Journal of Research in Reading* 20(2), 122–136. <https://doi.org/10.1111/1467-9817.00025>
- Hyland, K. 1996. Talking to the academy: Forms of hedging in science research articles. *Written Communication* 13(2), 251–281. <https://doi.org/10.1177/0741088396013002004>
- Hyland, K. 2000. *Disciplinary Discourses: Social Interactions in Academic Writing*. London: Longman.
- Hyland, K. 2015. Genre, discipline and identity. *Journal of English for Academic Purposes* 19, 32–43. <https://doi.org/10.1016/j.jeap.2015.02.005>
- Hyland, K. and P. Tse. 2005. Hooking the reader: A corpus study of evaluative that in abstracts. *English for Specific Purposes* 24(2), 123–139. <https://doi.org/10.1016/j.esp.2004.02.002>

- IBM. 2011. *IBM SPSS Statistics for Windows, Version 20.0*. New York: IBM.
- Jiang, F. K. and K. Hyland. 2022. "The datasets do not agree": Negation in research abstracts. *English for Specific Purposes* 68, 60–72. <https://doi.org/10.1016/j.esp.2022.06.003>
- Kaplan, R. B. et al. 1994. On abstract writing. *Text – Interdisciplinary Journal for the Study of Discourse* 14(3), 401–426.
- Kapranov, O. 2021. Discursive representations of education for sustainable development in policy documents by English medium instruction schools in Estonia and Norway. *Discourse and Communication for Sustainable Education* 12(1), 55–66. <https://doi.org/10.2478/dcse-2021-0005>
- Kapranov, O. 2022. Modal verbs in research article abstracts in applied linguistics: Juxtaposing discursive practices of the Inner and Outer Circles of English. *East-West Cultural Passage* 22(2), 6–34. <https://doi.org/10.2478/ewcp-2022-0013>
- Kapranov, O. 2023. "Would" in research article abstracts across three disciplines. In M. Skoraszinska (ed.) *Modal Verbs and Modality: From Literary to Non-Literary Texts*. Newcastle upon Tyne: Cambridge Scholars Publishing, 29–58.
- Kapranov, O. 2024. Between a burden and green technology: Rishi Sunak's framing of climate change discourse on Facebook and X (Twitter). *Information & Media* 99, 85–105. <https://doi.org/10.15388/Im.2024.99.5>
- Kirsner, K. et al. 2007. How long does it take to learn a second language? *Forum on Public Policy A Journal of the Oxford Round Table* 3(2), 161–170.
- Kraus, S, R. B. Bouncken and A. Yela Aránega. 2024. The burgeoning role of literature review articles in management research: an introduction and outlook. *Review of Managerial Science* 18(2), 299–314. <https://doi.org/10.1007/s11846-024-00729-1>
- Lindsay, J. B. 2018. A practical guide to academic writing and publishing. *European Business Review* 18(6), 479–490.
- Liu, K, H. Yin and A. K. Cheung. 2025. Interactional metadiscourse in translated and non-translated medical research article abstracts: a corpus-assisted study. *Perspectives* 33(3), 542–562. <https://doi.org/10.1080/0907676X.2024.2328756>
- Lorés, R. 2004. On RA abstracts: From rhetorical structure to thematic organisation. *English for Specific Purposes* 23(3), 280–302. <https://doi.org/10.1016/j.esp.2003.06.001>
- Lotz-Sisitka, H. 2010. Education for Sustainable Development and retention: unravelling a research agenda. *International Review of Education* 56(2), 207–220. <https://doi.org/10.1007/s11159-010-9165-9>
- Martín, P. and I. León Pérez. 2024. The rise of promotional communicative functions in medical research article abstracts: A diachronic (1940–2022) perspective. *Higher Education* 88(1), 209–223. <https://doi.org/10.1007/s10734-023-01112-x>
- Meinhold, R, C. Wagner and B. K. Dhar. 2025. Digital sustainability and eco-environmental sustainability: A review of emerging technologies, resource challenges, and policy implications. *Sustainable Development* 33(2), 2323–2338. <https://doi.org/10.1002/sd.3240>
- Mifsud, M. C. and M. Verret. 2015. Perceptions of the Maltese public towards local marine protected areas. *Journal of Teacher Education for Sustainability* 17(1), 48–57. <https://doi.org/10.1515/jtes-2015-0004>

- Miškolci, J., D. Armstrong and I. Spandagou. 2016. Teachers' perceptions of the relationship between inclusive education and distributed leadership in two primary schools in Slovakia and New South Wales (Australia). *Journal of Teacher Education for Sustainability* 18(2), 53–65. <https://doi.org/10.1515/jtes-2016-0014>
- Montkhongtham, N. 2021. Medical uncertainty and the art of communication: Exploring modality applied in medical journal abstracts. *LEARN Journal: Language Education and Acquisition Research Network* 14(1), 604–646.
- Noguera, C. P. 2012. Writing business research article abstracts: A genre approach. *Ibérica: Revista de la Asociación Europea de Lenguas para Fines Específicos (AELFE)* 24, 211–232.
- Nurmilaakso, M. 2015. How children can support their learning to write and read by computer in the early years of school. *Journal of Teacher Education for Sustainability* 17(1), 99–107. <https://doi.org/10.1515/jtes-2015-0008>
- Olaniyan, K. and A. Adeniji. 2015. Modality in statement of objectives in arts-based research article abstracts. *British Journal of English Linguistics* 3(1), 42–51.
- Palmer, F. R. 1990. *Modality and the English Modals*. London: Longman.
- Palmer, F. R. 2003. Modality in English: Theoretical, descriptive and typological issues. In R. Facchinetti, M. Krug and F. Palmer (eds.) *Modality in Contemporary English*. Berlin: Mouton de Gruyter, 1–17.
- Paltridge, B. 2017. *The Discourse of Peer Review: Reviewing Submissions to Academic Journals*. London: Palgrave Macmillan. <https://doi.org/10.1057/978-1-137-48736-0>
- Panocová, R. 2008. Expression of modality in biomedical texts. *SKASE Journal of Translation and Interpretation* 3(1), 82–90.
- Pearson, W. S. 2024. Research topics in applied linguistics as keywords from authors and keywords from abstracts: A bibliometric study. In H. Meihami and R. Esfandiari (eds.) *A Scientometrics Research Perspective in Applied Linguistics*. Cham: Springer, 113–134.
- Quintana-Toledo, E. and M. E. S. Cuervo. 2020. Modal verb categories in medical abstracts. In M. L. Carrió-Pastor (ed.) *Corpus Analysis in Different Genres*. New York: Routledge, 75–92.
- Salager-Meyer, F. 1992. A text-type and move analysis study of verb tense and modality distribution in medical English abstracts. *English for Specific Purposes* 11(2), 93–113. [https://doi.org/10.1016/S0889-4906\(05\)80002-X](https://doi.org/10.1016/S0889-4906(05)80002-X)
- Santos, M. B. D. 1996. The textual organization of research paper abstracts in Applied Linguistics. *Text* 16(4), 481–499. <https://doi.org/10.1515/text.1.1996.16.4.481>
- Swales, J. M. 2004. *Research Genres: Explorations and Applications*. Cambridge: Cambridge University Press.
- Sword, H. 2012. *Stylish Academic Writing*. Cambridge, MA: Harvard University Press.
- Yang, A., S. Y. Zheng and G. C. Ge. 2015. Epistemic modality in English-medium medical research articles: A systemic functional perspective. *English for Specific Purposes* 38, 1–10. <https://doi.org/10.1016/j.esp.2014.10.005>
- Zhang, Y. and H. Wang. 2025. Local grammar, discourse acts, and disciplinarity: A case study of definition. *Journal of English for Academic Purposes* 74, 1–18. <https://doi.org/10.1016/j.jeap.2025.101485>

SUMMARY

MODALITY IN DISCOURSE ON EDUCATION FOR SUSTAINABLE DEVELOPMENT: AN ANALYSIS OF RESEARCH ARTICLE ABSTRACTS

Research article abstracts (RAAs) are argued to form a genre in their own right, which is characterised by a number of genre-specific features, such as the discursive manifestation of modality. Whereas there is a solid body of research on modality in RAAs in, for instance, hard disciplines, currently, however, scientific enquiry into modality in RAAs in discourse on education for sustainable development (ESD) seems to be underrepresented in the literature. In this light, the article presents a study that seeks to explore modality in a corpus of English-medium RAAs on ESD. The corpus was comprised of 200 RAAs published by *Journal of Teacher Education for Sustainability (JTES)*, one of the leading ESD-themed journals. The corpus was analysed quantitatively in order to identify and quantify the so-called central modals in English, namely *can*, *could*, *may*, *might*, *must*, *shall*, *should*, *will*, and *would*. The corpus analysis was facilitated by the computer software program AntConc (Anthony 2022), which calculated the total number of the aforementioned central modal verbs per issue. Thereafter, SPSS (IBM 2011) was used in order to compute means and standard deviations of the central modals in the corpus. The results of the investigation indicated that *can* and *should* are the most frequent central modals in the corpus. Furthermore, the findings were discussed through the lens of the theoretical approach to modality formulated by Palmer (1990), who proposed the following types of modality: (i) deontic, (ii) dynamic, and (iii) epistemic. It was established that *can* was associated, predominantly, with dynamic modality, whereas *should* was related to epistemic modality. The findings are suggestive of a number of linguo-didactic implications that could be of use to academic writers, who publish research articles in ESD-themed journals. It could be suggested to employ *should* in order to create the image of a careful, considerate, and non-assertive academic author, whose tonality is characterised by hedging. Additionally, it could be advised to use *can* as a dynamic modal in order to present and describe concrete action-oriented responses to the implementation of ESD-related practices. Hopefully, these suggestions would be of help to novice and post-graduate academic writers in their preparation of an effective and publishable RAA in the field of ESD.

KEYWORDS: academic discourse, education for sustainable development (ESD), modality, research article abstracts (RAAs).

ARTICLE INFO:

Original research article

Received: October 9, 2025

Revised: October 20, 2025

Accepted: November 11, 2025