

ARGUMENTS IN THE METHODS SECTION OF JOURNAL ARTICLES IN ENGLISH LANGUAGE EDUCATION PUBLISHED IN HIGH-IMPACT JOURNALS

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Abstract

Discourse studies on the methods section of research articles have been mainly conducted on the macrostructure (i.e. moves and steps) of the section, while none have researched further how authors justify the research methods/design. This is crucial because if the method is not convincing, readers may not accept the research findings and will not use them in their own studies. The purpose of this research is to know what research method is often used by the expert authors in English language education articles published in high-impact journals, what elements of research methods are often presented in the methods part of these journal articles and how authors justify the choice of their research method in the methods section of their journal articles. Sixty articles published in six different reputable international journals were chosen to be included in this study. The results show that qualitative design is the most frequently used by the authors, while quantitative and mixed methods are used equally frequently. The most frequent elements presented in the methods section of the articles are participants, data analysis procedures, data collection procedures, and research instruments. Finally, the majority of the authors do not explicitly justify the choice of their research method although some of them do by citing a research methodology book. It can be concluded that the features of the methods section in the journal articles vary widely between journals and from one method/design to the other.

Keywords

argument, high-impact journal, expert authors, methods section, English language education

1 Introduction

Researchers working on discourse analysis of journal articles (henceforth JA) have paid the least attention to the methods section (henceforth MS). According to Kafes (2016), this is most likely because researchers believe that this section is simple and easy to write. However, since the research value is mostly determined by how sound the research procedures are, readers can easily see the significance of the MS. Day (2007) suggests that in the MS writers should, for instance, explain how they approached the problem or issue and defend their decisions, e.g. why they interviewed certain respondents or and why they decided to utilize a statistical package. Similarly, Lim (2006) claims that authors cannot assure

readers of the validity of their findings without having a strong rationale for their MS and, according to Breeze (2023), the way authors assure readers of the soundness of their MS in a study using a qualitative method is different from that of using a quantitative method. In other words, readers may not accept the research results or findings if the authors' justifications for the method is not convincing.

The term 'methodology' refers to anything researchers select to address in the section where they explore different methods, defend the chosen method for the study, and outline the procedures and study participants (Lynch 2014). According to Cargil and O'Connor (2013: 37), possible taxonomies for the MS in a JA are 'Methods', 'Materials and Methods', and 'Experimental' and procedures employed in the study are also normally described in the MS of a JA (Kanoksilapatham 2005). The communicative goals of MSs are to explain how data were gathered, how the experiment or measuring variables was done, and how data analysis was conducted. One goal of the MS is to inform readers about the research techniques employed in a study and to give evidence for the validity and reliability of the research results and findings presented in the results section of the JA (Swales & Feak 1994). Another key role of MS is to provide sufficient information to the reader to ensure the credibility and trustworthiness of the results and findings (Smagorinsky 2008, Cotos et al. 2017). In addition, the method description enables researchers with extensive prior knowledge and interest in a particular field to undertake a replication of the study (Swales 2004). The overall structure of the MS is usually data collection, experiment/variable measurement, and data analysis, which is based on the models found in prior studies (Nwogu 1997, Kanoksilapatham 2005, Lim 2006).

The MS is where the steps and experiments used to gather data for a study are described. As a means of persuading the audience that the methods used were valid, it acts as a crucial section of a research paper (Lim 2006). However, there have not been many earlier studies on this section. Berkenkotter and Huckin (1995) assert that readers pay less attention to the MS than other sections and that there have been very few studies on it in recent years and just a few JAs for each discipline were the subject of these few studies. Berkenkotter and Huckin suggest that the MS is a fascinating area in which the authors must make sure the details provided regarding the experiments are presented to the readers adequately. According to Kanoksilapatham (2013), the MS in all JAs across different fields often lacks a coherent model because many researchers may not give the section any thought. Unlike the introduction section of JAs which have a standard structure and sequence, such as in Swale's CARS model of Moves 1-2-3 (Swales 2004), the MS requires distinct rhetorical patterns for different disciplines.

1.1 Literature review

The few studies on the MS of JAs were conducted by Lim (2006), Arsyad (2013), Pramoolsook et al. (2015), Morales (2016) and Zang and Wanaruk (2016). Lim (2006: 287) found that JA methods in the discipline of management may contain up to three moves; these are ‘describing data collection procedure/s’, ‘delineating procedure/s for measuring variables’, and ‘elucidating data analysis procedure/s’ with three sub-moves or steps in each move. However, according to Lim, different disciplines may have different rhetorical frameworks for their JA methods, and therefore lecturers or instructors should investigate samples of JAs in a particular discipline to find an appropriate model used by authors in their MSs before using it in teaching and guiding students to write an MS. Later, Pramoolsook et al. (2015) used Lim’s three-move model to investigate JA methods in management and marketing but found that Lim’s three-move framework failed to provide adequate argument for the rhetorical organization of the MSs of the two sub-disciplines, even revealing some differences between the framework and the actual texts. This is probably because articles in Lim’s and Pramoolsook et al.’s studies used different research approaches (i.e. qualitative or quantitative) or different methods (i.e. experimental, case study, survey, etc.).

Other studies on the MS of JAs were conducted in multidisciplinary fields. Peacock (2011: 109) analyzed the rhetorical structure of 288 JA methods in eight different disciplines (i.e. biology, chemistry, physics, environmental science, business, language and linguistics, law, and public and social administration) and found seven possible moves: ‘subjects/materials’, ‘location’, ‘procedure’, ‘data analysis’, ‘limitation’, ‘research aims/questions/hypotheses’, and ‘overview’. However, according to Peacock, only one move (i.e. procedure) appeared in all 288 JAs, while two moves (i.e. subjects/materials & data analysis) were frequently used in biology, chemistry, physics, business, language and linguistics, law, and public and social administration. Other moves, such as locations, limitations, research aims/questions/hypotheses, and overview were frequently used in one or two disciplines but not in others. Peacock claims that it is hard to discuss the distinctions of MS of JAs across disciplines; therefore, studies using a larger corpus in a particular discipline are necessary. Similarly, Arsyad (2013) found that the seven-move rhetorical framework as suggested by Peacock was only effective in capturing the rhetorical structure of JA methods in Indonesian written by Indonesian authors at a macro level or moves but not at micro level or steps in the section. In other words, variations occur in the micro-communicative units or steps among the sub-disciplines in the social sciences and the humanities.

In the field of education, Zhang and Wanaruk (2016) found that the rhetorical style of JA methods is complicated. Although education researchers typically use three rhetorical communicative units or moves (i.e. ‘describing research design’ or Move 1, ‘describing data collection processes’ or Move 2, and ‘describing data analysis procedure’ or Move 3) to achieve the MS’s overall communicative goal, only Move 2 is obligatory, while the other two moves (i.e. Moves 1 and 3) are optional (ibid.: 165). This is because, according to Zhang and Wanaruk, a great proportion of studies in the field of education use a qualitative and mixed design of qualitative and quantitative ones. Another characteristic of JA methods in education, as Zhang and Wanaruk (2016: 165) suggest, is that they have an additional move of ‘describing research design’ and steps of ‘verifying compliance with ethical standards’ and ‘inter-coder reliability’ which are not found in other fields. In other words, the JA method in the field of education is more detailed than those in other disciplines because readers may judge how far the study’s findings are generalizable to different times, environments, contexts, circumstances, and people with the aid of specific information in the MS.

Afsyar and Ranjbar (2016) compared the rhetorical structure of JA methods in English language education (henceforth ELE) published in international journals and those published in Iran using the three-move model from Lim (2006). They found significant differences in the frequency of appearance of particular moves and steps, especially in three steps of Move 1 (i.e. describing the sample, renouncing steps in data collection, and justifying the data collection procedure/s) and two steps of Move 3 (i.e. relating or recounting data analysis procedure/s and justifying the data analysis procedure/s). Afsyar and Ranjbar suggest that this is because international studies have higher involvement with sampling procedures and sample representativeness due to the need of the journals in which these articles are published to appeal to a wide range of readers from international backgrounds who may expect JAs to have more precise and detailed sampling procedures and to relate to larger samples to ensure the generalizability of the findings. Similarly, Morales (2016) compared JAs published in high-impact and non-high impact journal articles in applied linguistics. Following the seven-move model as suggested by Peacock (2011), Morales (2016) found that although the MS in high-impact JAs are longer than those in non-high impact JAs, there is only one obligatory move (i.e. Subjects/Materials) in the section in both sets of JAs; Move 3 (Procedure) and Move 4 (Data Analysis) are obligatory in non-high impact JAs but optional in high-impact JAs. According to Morales, his findings support those of Huang (2014), Kanoksilapatham (2005) and Swales and Feak (1994).

1.2 The rationale for the study and research questions

As discussed above, discourse studies mainly investigated the rhetorical structure (i.e. moves and steps) of MS of JAs in a particular discipline written in a particular language or two or more disciplines in the same language. These studies looked at whether or not certain communicative units of moves and steps are found in a corpus of JAs while no or very rare studies investigated what types of research methodology are often used and how authors justify the choice of their research method to assure readers that their research results or findings are valid and reliable. According to Breeze (2023), less is known about methods sections in the social sciences and the findings of studies on the MS are not yet decisive (Lim 2006). Malte and Tulud (2021) suggest that the MS is crucial, since it contains the data that will ultimately be used to examine a study's validity. Therefore, authors must give a thorough explanation of the research method and a convincing justification for a particular chosen research method. In other words, authors must argue for the choice of their research method. This is the main motivation of this study, i.e. to investigate how authors in ELE published in high-impact journals (i.e. journals indexed by Scopus) justify the choice of their research method addressed in their JA MS. Thus, the precise goal of the current study is to answer the following questions:

1. What research designs/methods are often used by expert authors in English language education articles published in high-impact journals?
2. What elements of methods are often presented in the methods section of journal articles in English language education published in high-impact journals?
3. How do expert authors in English language education articles in high-impact journals argue for their research methods/design?

2 Methods

2.1 The corpus of the study

In this study, 60 JAs were included; these articles were taken from six different reputable journals in ELE. These journals are 1) *Studies in Second Language Learning and Teaching*, 2) *TESOL Quarterly*, 3) *Teaching English with Technology*, 4) *Journal of Asia TEFL*, 5) *Teaching English as a Second or Foreign Language*, and 6) *3L: Language, Linguistic, Literature*. The corpus of the study is presented in the following table.

**ARGUMENTS IN THE METHODS SECTION OF JOURNAL ARTICLES IN ENGLISH LANGUAGE
EDUCATION PUBLISHED IN HIGH-IMPACT JOURNALS**

No.	Journals	Code	Quartile Value	SJR Score	Number of Articles	Country of Publisher
1.	<i>Studies in Second Language Learning and Teaching</i>	SSLT	1	1.76	10	Poland/Europe
2.	<i>TESOL Quarterly</i>	TQ	1	1.78	10	United States of America/North America
3.	<i>Teaching English with Technology</i>	TET	1	0.42	10	Poland/Europe
4.	<i>Journal of Asia TEFL</i>	JAT	1	0.38	10	South Korea/Asia
5.	<i>Teaching English as a Second or Foreign Language</i>	TESL	1	0.35	10	United States of America/North America
6.	<i>3L: Language, Linguistics, Literature</i>	LLL	1	0.33	10	Malaysia/Asia

Table 1: The corpus of the study

To reflect the latest information on the syntactic and content properties of articles published in these journals, we chose articles published in the last five years. There is no significant scholarly justification for selecting only ten articles from each journal, but since they were picked from recent issues, it is thought that the articles reflect the features of other recent publications in the journals. As can be seen in Table 1, all chosen journals are indexed in Scopus with a quartile value of 1 (the highest) and the journal's Scimago Journal Rank (SJR) value varies from journal to journal. Thus, journals with higher SJR scores are better than those with lower ones, and papers published in the journals are read and cited by more authors. It can also be seen in Table 1 that the journals are published in different countries on three different continents (i.e. Asia, Europe, and North America); this is also to ensure the representativeness of the journals in the field of ELE.

2.2 Data analysis procedure

To answer the first research question, the initial part of the MS, where authors usually state the research methods they use in their study, was read. However, since authors may also address similar information in the article title and/or abstract, these two article sections were also thoroughly read and analyzed. The possible research methods used in ELE or applied linguistics studies are “qualitative: case study, content analysis, ethnographic studies, grounded theory studies, historical studies, narrative research, phenomenological research;

quantitative are ‘survey studies, correlational studies, ex post facto studies’, while mixed methods are ‘sequential and concurrent’” (Meihami 2020: 71). Abuhamda et al. (2021) suggest that qualitative research is meant to identify patterns in concepts and viewpoints, while quantitative research measures the problem by generating numerical data or data that may be converted into functional statistics. The primary goal of quantitative research design, according to Abuhamda, is to control the connotation between an independent variable and a population dependent variable or outcome variable. In contrast, qualitative studies typically have what, how, and why questions to address research questions that involve the collection of qualitative data rather than quantitative data. Mixed-methods studies, on the other hand, are more than just combining quantitative and qualitative research methodologies in a study; they address both deductive and inductive reasoning to predict human behaviors (Cresswell 2007).

In this study, the research designs/methods used in the articles were classified into one of three big categories: qualitative, quantitative or mixed methods. This was done by relying on the explicit word/s used by the authors to announce their research methods/designs in the titles, abstracts and/or MSs. However, if there are no explicit labels found in the titles, abstracts and MSs of the articles, then research method elements, research instruments and data types presented in the articles were used to help decide the research methods/designs of the articles. If in an article, the dominant data were qualitative, then the study was considered as using a qualitative method, and, if the dominant data were quantitative, the study was classified as using a quantitative method, and if both types of data were equally found, then the study was classified as using a mixed method design.

The second research question was answered by looking at the elements presented in the MSs; this was done by looking at subheadings found in the methods section of the articles. From a preliminary analysis, it was found that the possible subheadings in the methods section of a research article are: 1) Inclusion criteria, 2) Coding procedure, 3) Data analysis procedure, 4) Research context, 5) Data collection procedure, 6) Data analysis technique, 7) Research participants, 8) Corpus selection, 9) The course, 10) Study design, 11) Materials, 12) Research instrument(s), 13) Research setting, and 14) Limitations.

The third research question was answered by determining the reasons why the authors use a particular research design/method (i.e. qualitative, quantitative or mixed methods) in their study. In this analysis, we focused only on the authors’ statements to justify or argue for their research designs or methods. This is because a journal article is a piece of writing that attempts to persuade readers to believe something (Belcher 2009). In this study, the rhetorical attempts are referred to as an author argument (henceforth AA). From a pilot study, we

found three possible types of AAs; these are 1) citing a previous study/s using the same or similar methods, AA-1, 2) citing a research methodology book, AA-2, and 3) no argument addressed at all, AA-3. Examples of AA-1 and AA-2 are given below while no example for AA-3 is given because there is no argument addressed.

AA-1: Citing previous studies which use the same or similar methods

- (1) *This section overviews how data searches were carried out along five criteria for inclusion and discusses the data analysis procedure. We followed the guidelines of the **Preferred Items for Systematic Reviews and Meta-Analysis (PRISMA)** statement (Moher et al., 2009) to ensure that our review is systematic. ... Then, the coding scheme was developed drawing on **a framework for analyzing error correction studies** (Ferris, 2003). ... (TESL-EJ-1)*

As can be seen in the above example, the authors cite a reference from journal articles by Moher et al. (2009) and Ferris (2003) to support the choice of their research method.

AA-2: Citing the research methodology book

- (2) *To investigate the factors influencing the achievement of the CEFR's action-oriented approach implementation in Thai EFL classrooms after teachers' exposure into Boot Camp, a teacher training programme with the focus on communicative English use, a case study based on a social constructivist paradigm was adopted. Such an approach allows the researcher to study meanings, ideologies, and socially constructed realities within their participants' context (Creswell, 2014). To this end, the current study used this paradigm to view the meanings that were socially constructed by Thai in-service EFL teachers, concerning the factors influencing the implementation of an action-oriented approach in their own pedagogical context. Semi-structured in-depth interviews were applied as a main heuristic (see Instrument). (LLL-3)*

In the above example, the authors cite a reference book (Creswell 2014) to justify the choice of research method/design used in their study.

2.3 Validating data analysis results

To determine the accuracy of the research data, an independent coder was requested to review the abstracts and MSs of randomly selected articles. A professor from the University of Bengkulu's English study programme with a doctorate in English language education served as the study's independent coder.

For the independent coder to properly examine the approach, he was instructed on how to do so using the research instrument (see Appendix 1). After that, the independent coder examined the potential AAs in a sample of twelve (20%) JAs (two JAs were chosen at random from the six sets of the JAs in the corpus of this research). After that, the researcher and the independent coder discussed any instances of incorrect labeling or conflicting coding findings. Last but not least, the independent coder used the same research technique to code the sample articles.

The inter-coder agreement was analyzed using Cohen's kappa. According to Brown (1996, as quoted in Corder & Foreman 2009), Cohen's kappa statistical analysis has a maximum score of 1.00 and a minimum value of 0.00. A Cohen's kappa score below 0.40 was considered bad, between 0.40 and 0.59 acceptable, between 0.60 and 0.74 outstanding, and at 0.75 or higher remarkable. The kappa coefficient value was computed after comparing the coding results on the chosen samples of JA introductions from the researcher and the independent coder. The results of the independent coder's and the researcher's analyses were compared, and the result was the kappa coefficient score of 0.75. Then, further discussions were held between the researcher and the independent coder to solve the remaining differences to reach complete agreement.

3 Results and discussion

3.1 Results

3.1.1 Research methods used in the studies

Data analysis results on the research method frequently used by researchers in ELE articles published in high-impact journals are presented in Table 2.

No.	Research Designs/ Methods	Frequency N=60	Total (%)
1.	Qualitative	32	53.33
2.	Quantitative	14	23.33
3.	Mixed methods	14	23.33
	Total	60	100.00

Table 2: Research methods used in the journal articles

As can be seen in Table 2, the most frequent method used by the expert researchers in ELE publishing in high-impact international journals was the qualitative method (32 or 53.33%). The following example is extracted from the data of this study.

(3) *Abstract*

This study aims to explore the complex phenomenon hidden in Thai EFL students' minds and to detect the different strategies used by two groups of readers with different levels of L2 reading proficiency whilst reading four English reading texts through think-aloud activities.

Data Analysis

The data collected involved verbatim transcripts of think-aloud protocols and interview data. Both data types were transcribed in Thai and then translated into English. During the analysis process, the data from the think-aloud activities and retrospective interviews were repeatedly analyzed to ensure their triangulation. An open-coding analysis was initially used to allow for an overview of data segmentation and coding to occur naturally. This stage was then followed by a constant recursive coding with the use of the conceptual framework as a coding guide, as illustrated in Table 1, to ensure that data categorization was consistent. The codified data were categorized into four main themes: cognitive (bottom-up), cognitive (top-down), metacognitive, and social. Inter-rater checks were employed to establish the validity and reliability of the data detected. (LLL-1)

Example 3 was obtained from an article titled 'A Think-Aloud Study: L2 Reading Strategies Used by Higher and Lower Proficiency Thai EFL Readers' by Pattapong (2022). In the abstract of the article, the author mentions that the research data took the form of verbal reports from think-aloud and retrospective interviews, while in the MS he explicitly mentions two types of data (verbatim transcripts of think-aloud protocols and interview data). This is why this research is categorized as using a qualitative method.

Table 2 also shows that quantitative methods and mixed methods are equally frequently used by the authors in the corpus of this study: 14 or 23.33 per cent. The following are examples extracted from the corpus of the study.

- (4) *... To examine the first research question on the relative effectiveness of recasts, explicit correction, and metalinguistic prompts on the L2 development of the past progressive, one-way ANOVAs were conducted on gains in scores (immediate or delayed posttest scores - pretest scores) of the UGJT and the EIT with group as a between-subject variable. Gain scores were used to factor out the effects of pretest scores on the results of statistical analyses as much as possible. When the ANOVA detected significant differences, Bonferroni-adjusted post-hoc analyses were carried out to locate where the differences lay. To compare the magnitudes of the effects of CF, effect sizes (Cohen's d) were also reported. Effect sizes larger than 0.2, 0.5 and 0.8 were considered small, medium, and large, respectively. Subsequently, to investigate the second research question on whether L2 proficiency differentially influences the effectiveness of the three CF types, simple linear regression analyses were conducted with the UGJT or the EIT gain scores as a dependent variable and L2 proficiency scores as an independent variable... (JAT-2).*

Example 4 was taken from an article titled ‘Associations between L2 Proficiency and Efficacy of Corrective Feedback Types’ by Sato (2022). This study used an experimental method to examine the relative effectiveness of recasts, explicit correction, and metalinguistic prompts on developing English past progressive forms among second language learners, and whether the effectiveness of each feedback type was differently associated with L2 proficiency. In the MS of the article, the author mentions that he/she used an ANOVA statistical analysis to see the differences between the three different groups of students involved in their study. This is why this research is categorized as using a quantitative method.

- (5) ... *The data collection process took place in two academic semesters in which there were three phases: pre-survey, task implementation, and post-survey. Pre-survey included questions regarding the competency in performing authentic tasks and technology use. In post-survey, pre-survey questions were included and tasks were assessed in terms of their contribution to language learning. **Quantitative** data were analysed via Descriptive Statistics, ANOVA Test, and Paired-Samples T-Test whereas the **qualitative** data were analyzed via constant comparison method...* (TESL-EJ-9)

Example 5 was taken from an article titled ‘Enhancing Authenticity in College Level English Classrooms via Instructional Technology’ by Bal and Savas (2021). In the abstract, the authors explicitly mention that they used mixed methods consisting of two types of data (quantitative and qualitative) in their study. This is why this article is categorized as using a mixed method design.

If the authors do not explicitly state the research method/design of their study, we identified the research method/design they used by looking at the elements of research stated in the MS of the article, the types of data they present in the results section, and the research instrument(s) they used. To illustrate this, the following example is given.

- (6) **Data collection and analysis**
... *Furthermore, a **qualitative analysis** was performed to identify interactional discourse moves or language-related episodes in the chat scripts. The moves were coded and categorized according to Golonka, et al.'s (2017) framework: language assistance (e.g., meaning negotiation, partner-correction, and self-correction), using partner as resource (e.g., clarifying instructions, modeling, helping with vocabulary and technical problems), and providing encouragement (e.g., helping with task completion, eliciting, providing positive affect...* (TESL-EJ-4)

The above example was taken from an article titled ‘Vocabulary Transfer from Reading to Writing: A Comparison of Essay Writing and Synchronous CMC’ by Kim and Kim (2022). Under the subheading of data collection and analysis in the MS of the article, the authors explicitly mention that they analyzed their research data qualitatively in identifying interactional discourse structure in the students’ compositions. This is why this article is categorized as using a qualitative method/design.

3.1.2 Research elements presented in the methods section of the journal articles

The second analysis in this research was on the method elements presented in the MS of the journal articles. The data are displayed in Table 3.

No.	Research Methods Elements	Frequency N=60	Percentage
1.	Research participants	37	61.66%
2.	Data analysis/procedure	36	60.00%
3.	Data collection/procedure	35	58.33%
4.	Research instrument	23	38.33%
5.	Study design/method	11	18.33%
6.	Research questions/ objectives	9	15.00%
7.	Research context/setting	6	10.00%
8.	Inclusion criteria	5	8.33%
9.	Coding procedure	5	8.33%
10.	The course	2	3.33%
11.	Limitation	2	3.33%
12.	Corpus of the study	2	3.33%
13.	Search strategy	2	3.33%
14.	Review strategy	2	3.33%

Table 3: Research method elements presented in the JA methods section

Table 3 shows that the most frequent elements in the methods section of the journal articles are research participants (37 or 61.66%), data analysis procedure (36 or 60%), data collection procedure (35 or 58.33%), research instrument (23 or 38.33%), study design or method (11 or 18.33%), and research questions/objectives (9 or 15%). Other elements such as research context/setting, inclusion criteria, and coding procedure are found much less frequently. Other elements such as the course, corpus of the study, search strategy, and limitations are found only once or twice in all 60 journal articles. This implies that these elements are not commonly used in the methods section of journal articles in ELE.

3.1.3 Strategies for justifying the choice of research method

The third analysis was on the way international authors rhetorically justify the choice of their research method. Results of the data analysis on this matter are presented in Table 4.

No.	AA	Description	High Impact Journals					Total	
			SSLLT	TQ	TET	JAT	TESL		LLL
1.	AA-1	Justifying the research methods by citing previous studies which use the same or similar methods	-	-	-	2	1	-	3
2.	AA-2	Justifying the research methods by citing a research methodology book	-	1	2	1	4	7	15
3.	AA-3	No argument is addressed	10	9	8	7	5	3	42

Table 4: Justifying research method strategies

As indicated in Table 4, the majority of the journal articles (42 or 70%) do not explicitly mention information about the method/design used for their study either in the titles, abstracts or MSs of the articles. However, the research method/design used in the study can be inferred from the type of research instrument, research participants, data collection procedure, and/or data analysis procedure used in the study. In other words, the research methods/design used in the articles can be recognized from the elements of research addressed in the MS of the articles although the authors do not justify it. Also, in some articles, information about the research method is mentioned in the article abstract, as in the following example.

(7) **Abstract**

... *Quantitative instruments of three 5-Likert scales were used to measure the number and frequency of classroom activities used in the English class, the level of classroom anxiety of students as well as their perceptions of teacher roles...* (JAT-3)

Example 7 was taken from the abstract of an article titled ‘Classroom Activities, Classroom Anxiety and Teacher Roles: Three Dimensions Revealing Class Reality of a University English Course’ by Huang (2022). In the article abstract, the author mentions that she used a quantitative research instrument of a 5-Likert scale questionnaire for his/her study.

Table 4 also shows that 15 (25%) of authors justify the choice of their research method or design by citing research methodology books; an example is given below.

- (8) ...*To answer the research question, the researchers employed the principles of the **qualitative** case study method. The qualitative case study is an empirical study that aims to discover phenomena in real-life contexts, which are then to be analyzed and described intensively (Duff, 2008). It is popular among qualitative researchers because it offers a framework for analysis of the entity and context in which social action occurs (Hood, 2009)...*(TET-5)

Example 8 was taken from an article titled ‘Leveraging Gamification into EFL Grammar Class to Boost Student Engagement’ by Ardi and Rianita (2022). In the methods section, the authors mention that they use a qualitative method/design for their study and to justify the choice of method they cite references from books by Duff (2008) and Hood (2009).

Table 4 shows that only 3 (5%) of authors justify the choice of their research method/design by citing reference/s, as in the following example.

- (9) ...*This study employs a **mixed methods** research approach, Q methodology, in its endeavor to survey the contemporary landscape across Australian EAL settings. Q methodology (henceforth referred to as Q) combines the strengths of qualitative and quantitative data to explore attitudes (Newman & Ramlo, 2010) ...* (TESOL Q-9)

Example 9 was taken from an article titled ‘The Role of Membership Viewpoints in Shaping Language Teacher Associations: A Q Methodology Analysis’ by Slaughter et al. (2022). In the example, the authors used a mixed method design in their study and to justify their design choice they cite a reference from a journal article by Newman and Ramlo (2010).

In the case of AA-3, the authors did not state the reason for using a particular method/design or explicitly state the method/design of their research. The method/design used by the authors can be inferred from the elements of the research method presented in the methods section of their articles, such as research instrument, research participants, data collection procedure, or data collection procedure, as in the following example.

- (10) ...*This study adopted a **quantitative research approach**. First, details about the context and participants of this study are given. Next, the procedural details of data collection and analysis are explained...* (SSLLT-10)

Example 10 was taken from an article titled ‘Investigating academic achievement of English medium instruction courses in Turkey’, published in the *Journal of Studies in Second Language Learning and Teaching* by Altay et al. (2022). As can be seen in the above example, the authors state the research method/design they used in their study (i.e. quantitative research approach) but do not address the rationale for the choice of the method.

3.2 Discussion

The first objective of this research was to know the research designs/methods often used by authors in ELE articles published in high-impact journals. The results show that the most dominant research design/method is a qualitative one. This is probably because qualitative research can offer understanding that is difficult to obtain from quantitative data. Qualitative methods provide a way to investigate and comprehend the meaning people or groups assign to social or human issues, as well as the attitudes that underlie human behavior and the social environment (Kandel 2020). According to Kandel, we can better comprehend our surroundings and the reasons behind why things happen the way they do via qualitative research. Thus, through qualitative research, we can create theories that aid in our comprehension of social phenomena in their natural environments since properly emphasizing the meanings, experiences, and viewpoints of all participants is the aim of qualitative research. In other words, the qualitative method or design is more suitable to investigate many issues in ELE since the majority of the issues are social issues, such as those dealing with students, teachers and language users at large.

This study’s findings are consistent with those of Meihami (2020), who notes that between 1980 and 2000, quantitative research methods dominated the field of applied linguistics; from 2001 to 2019, qualitative research methods predominated; nevertheless, between 2010 and 2019, there was a growing tendency toward using mixed approaches. According to Meihami, this is because applied linguists inquire into the issues to obtain the core story about learning and teaching a second or foreign language with a complex concept to be empirically investigated. In other words, authors in applied linguistics address issues of language-based problems in the real world which can be better approached using qualitative research methods. Zhang and Wanaruk (2016) also found that the majority of studies reported in JAs in education used qualitative methods. This, according to Zhang and Wanaruk (*ibid.*: 176), is because “qualitative research, largely concerned with understanding complex issues, embraces an interpretivist research paradigm and relies on such methods as interview, observation, ethnography, content analysis, etc. which are highly context sensitive and

flexible”. Similarly, Jackson (2019) discovered that authors in educational leadership journals employed qualitative methods more frequently than other methods, with a broader range of data-collection sources, with interviews and surveys being the most popular data sources.

The second objective of this study was to investigate the elements of methods presented in the methods section of JAs in ELE published in high-impact journals. The results show that the most frequent elements are the data analysis procedure, data collection procedure, research participants, and research instrument. This implies that the important aspects of methods in ELE studies are data and how to get them to answer research questions. This is probably because a study must respond to five basic questions: 1) what is the scientific question; 2) what kind of investigation is to be carried out; 3) what measurements are to be taken; 4) what kind of data analysis is to be used; and 5) whether or not the data have enough statistical power to provide a meaningful response to the questions (Ford 2009). According to Ford, the first question is usually discussed in the introduction section of a JA, while the other four questions are addressed in the MS of the article.

The last objective of this study was to find out how authors in ELE articles in high-impact journals justify the choice of their research method/design. The findings reveal that the majority of authors do not explicitly mention their research method in the titles, abstracts or MSs, although the research method used in the study can be recognized from the description of research instruments, research participants, data collection procedure and data analysis procedure mentioned in the methods section of the article. Thus, by describing the important research elements, the authors believe that readers will find out what research method/design they used in their research and therefore the authors do not have to explicitly state it.

The description of research design/method is only optional in the MS of JAs in education; only half of the JAs in the data of their research have this communicative unit, and the only obligatory element in the section is a description of the data collection procedures with a series of constituent steps (Zhang & Wanaruk 2016). However, Zhang and Wanaruk did not discuss why such a communicative unit is rare in the MSs of JAs in education. Similarly, Jackson (2019) found a significant number of articles in his data without methodological references cited in their MS. Jackson asserts that the absence of methods information can make it more challenging for other researchers, including the less experienced ones, to repeat the studies, draw inferences about the generalizability of results to a new context or population, or evaluate the studies’ rigor and reliability. Jackson claims further that citing earlier studies or references provides methodological inspiration or an example that can aid newer researchers in the design of their work.

4 Conclusions and suggestions

It can be concluded from the findings of this study that the most frequent research method used by expert authors in ELE articles published in high-impact journals is qualitative, and the most frequent elements of methods described in the MS of the journal articles are data analysis procedure, data collection procedure, research participants and research instrument. In addition, the majority of the expert authors do not explicitly mention their research method in the method sections or the abstract of their journal articles although it can be inferred from the elements of research presented in the method chunk, such as research instrument, data collection procedure, data analysis procedure or research participants.

This study is not without limitations; only 60 articles were included taken from six different high-impact international journals. Also, this study only investigated what methods are often addressed by the authors in ELE, what elements of research are presented in the methods section of the articles and how authors justify their research methods/designs. Future studies should include more articles taken from more high-impact journals in ELE to represent all high-impact journals in the field. Future studies should also investigate other aspects of methods of research, such as how authors rhetorically justify their research methods and what linguistic elements are often used in the justification.

The findings of this study have implications for less experienced authors or postgraduate students. They should study the guidelines for authors or study an example of an article published in a particular journal, especially how authors address the research methods and other elements, before submitting a manuscript to the journal since different journals use different preferred templates of articles. Also, different research methods need different elements to be presented in the article MS, and this is why it is very important to study how the MS of articles published in a particular journal should be written. This is aimed at increasing the probability of the manuscript being accepted for publication by a high-impact journal from the language point of view.

Appendix 1

Research instrument

Check list for Author Argument Analysis

- Journal title & code :
Journal title :
Article number :
A. Research methods/Design
Qualitative/Quantitative/Mixed Methods

B. Research Method Elements

No.	Research Method Elements	Notes
1.	Research participants	
2.	Data collection/procedure	
3.	Research instrument	
4.	Study design/method	
5.	Research questions/objectives	
6.	Research context/setting	
7.	Inclusion criteria	
8.	Coding procedure	
9.	The course	
10.	Limitation	
11.	Corpus of the study	
12.	Search strategy	
13.	Review strategy	

C. Author Argument Strategy

Strategy	Description	Example	Notes
AA-1	Justifying the research method or design by citing previous studies which use the same or similar methods	<i>This section overviews how data searches were carried out along five criteria for inclusion and discusses the data analysis procedure. We followed the guidelines of the Preferred Items for Systematic Reviews and Meta-Analysis (PRISMA) statement (Moher et al., 2009) to ensure that our review is systematic. ... Then, the coding scheme was developed drawing on a framework for analyzing error correction studies (Ferris, 2003). ... (TESL-EJ-1)</i>	
AA-2	Justifying the research method or design by citing the research methodology book	<i>Embedded mixed-method design includes one or more forms of data (quantitative or/and qualitative) within a larger design. Qualitative data can be collected before an experiment starts, during the experiment, or after the experiment. This design is preferred when the researcher 'tests an intervention or program in an applied setting i.e. school' (Creswell, 2014, p. 228). In this study, the quantitative data were collected via pre-survey and post-survey. The qualitative data (open-ended questions) were embedded in post-survey to reach the underlying reasons for learners' perceptions regarding the implementation of ten authentic tasks. (TESL-EJ-9)</i>	
AA-3	No justification	The authors do not explicitly justify the choice of their research methods/design.	

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(.....)

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