Academic Language Functions In Arabic Research Articles

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Abstract
A language is a communication tool that has many functions. In academic writing, language performs certain functions, such as providing information, analyzing, comparing, and categorizing. Quality academic writing should show proper educational function through accurate and appropriate language. This study investigated academic language functions in Arabic language research articles. This study is based on several issues, such as the weaknesses of students and researchers in producing quality research reports, the need to understand the diversity of the academic language function in Arabic, as well as the lack of studies in the literary language based on the function of the academic language in Arabic. This study uses the descriptive qualitative approach and content analysis method. The analyzed content was sentenced that contained academic language functions. Sentences containing academic language functions were taken from 30 research articles in the field of Arabic written by native Arabic speakers. The analysis of language functions in the study was done using 12 academic language functions by Chamot and O'Malley (1994) and Dutro and Muran (2003). The study results found that writers use various academic functions to achieve the desired purpose. Various language registers are used for the function to be presented. Similarly, the use of language functions was also influenced by multiple aspects such as the research components (problem statement, objectives, etc), factors of the type of study (quantitative and qualitative), and others. For example, predicting and hypothesizing functions and problem-solving functions are more likely to be used in quantitative studies. This differs from qualitative studies that use other functions, such as informing and summarizing. In conclusion, the writers were seen to be successful in conveying the function of academic language in their writing by using appropriate vocabulary and sentences according to the function they wanted to share.
Keywords: Academic Language Function; Language Register; Arabic Language; Article; Research

INTRODUCTION

The study of language functions was pioneered by Halliday who has brought changes to the study of language from formal and syntactic to the functional and semantic orientation. Halliday's theory gives implications to how humans use language to carry out certain functions. He perceived that language has a function and purpose in human life and does not have rules merely for the purpose of communication. Halliday introduced the theory of Systemic Functional Linguistics (SFL) around the 1960s and he was greatly influenced by the thinking of his teacher, J. Firth (al-Murashi, 2016). According to this theory, language is a system that is used to carry out certain functions. There are seven language functions introduced by Halliday in 1973 in his writing, "Explorations in the Functions of Language". It covers the functions of:

1. Instrumental: function used to express desire (e.g. I want/ I need)
2. Regulatory: function to control listener behavior through instructions, persuasion etc. (e.g. you have to finish the task by tomorrow)
3. Representational/Informative – function to request information and lead to information exchange (e.g 'what's that?' and 'what does that do?')
4. Interaction: to establish relationships, maintain social relationships (e.g. I love you dad)
5. Personal: function to express opinions, feelings, identity etc. (e.g. that's good)
6. Heuristic: functions related to discovery and explanation for the purpose of learning and obtaining information (e.g. questions)
7. Imaginative: function to express imagination or fantasy

Based on the above functions, Halliday perceived language as a social function that allows humans to communicate and live as social entities. In 1985, Halliday introduced the Systemic Functional grammar (SFG), which is said to be very different from the traditional method introduced by previous grammar scholars (Sadighi & Bavali, 2008). If earlier grammar emphasized about grammatical formulas, the grammar proposed by Halliday is different. He thinks grammar is a tool used to create meaning. This is because language is a source for creating meaning and grammar is a tool used to create meaning. SFG analyzes language with reference to the following three metafunctions: interpersonal/ the relationship between the speaker and the listener, ideational/ related knowledge about the discourse/idea to be analyzed, and textual/ related to how the language is written or spoken.

According to Halliday, a text can be analyzed based on four components, namely context, semantics, grammar, lexical, and phonological. The context component is the focus of the theoretical discussion of SFL because it is the main aspect that is an important reference in seeing the meaning of the sentence (Matthiessen & Halliday, 1997). Context in this view refers to two aspects which are the cultural context and the situational context. Cultural context is a system of values, beliefs, and norms that a society adheres to. Meanwhile, the context of the situation is the direct environment that is in a discourse. According to Halliday (1985a; 1994; Halliday & Hasan, 1985; Martin, 1992), the context of the situation consists of three aspects, namely field - language register, the sound of the language - formal/ informal/who the speaker is/the status (tenor), and mode of delivery - written/spoken.

These three elements complement each other to form the context of the situation that produces a certain meaning in the discourse. For example, the language used in research reports is a language within the academic language that is used officially, delivered in writing, and that can only be understood by users in certain groups in society such as students, lecturers, researchers, professionals, and so on. Academic writing is a type of formal writing that is widely used among scholars, students of higher education institutions, lecturers, professors, and researchers. According to Fawzi and al-Hattami (2017), the publication of academic materials and empirical research results is an important asset in higher education institutions. Usually, the characteristics of academic writing are formal, unbiased, clear, concise, focused, well-structured, correct, and consistent. A good mastery of this aspect will determine the quality of writing a research report that is prepared by a student or researcher. Zhihui Fang and Jungyoung Park (2020) stated that the use of good academic language is a significant predictor in

determining the quality of a piece of writing. Fatoni (2020) in his study of a group of Indonesian students who mastered Arabic for academic purposes found that students' success in mastering the academic language depends on the use of everyday language and scholarly discussion activities.

In academic writing, mastery of academic language function writing is very necessary. Each function of academic language should be written clearly using appropriate and accurate grammar. There are many functions of academic language that are commonly used in the research report of an academic article, such as the functions of explaining, providing information, justifying, comparing, explaining, categorizing, proving, debating, persuading, and evaluating (Chamot and O'Malley, 1994). Prioritizing the mastery of academic language functional writing is important in all types of academic content writing. In the field of mathematics, for example, in order to explain how word problems in mathematics have been solved, a student needs to organize the explanation so that it conveys the desired message in a mathematically appropriate way. In cultural studies, the function of academic language is used to justify values in one culture and to analyze different values in another culture. For example, to justify conclusions about the values of democracy as a form of government, a student may need to analyze the important characteristics of democracy and compare it with other types of government (Mufidah et al., 2012). In the field of science, Freeman and Freeman (2009) explained that students may need to justify conclusions from an experiment that requires them to analyze and reject alternative hypotheses. Thus, the need to understand the diversity of academic language functions and its adjustment is important to ensure that information delivery can be done effectively.

However, some students or researchers are seen as less proficient with the use of proper academic language register, and this ultimately results in a poor quality report. Eaton (2012) said that a manuscript submitted to a peer-reviewed journal was less likely to receive a favorable response from the editors if the tone is too conversational. Chamot and O'Malley (1994) suggest that the teaching of academic language and opportunities to practice it should be integrated with the teaching of academic content. Similarly, Fatoni (2020) also found that students' mastery of academic language is dependent on the extent to which they use everyday language and academic discussion activities. The students or researchers should be able to master the writing of each academic function before completing a report of an assignment or research.

One thing that can be observed in research articles is that writers who are skilled in academic writing can diversify the writing of language functions in different ways. It is interesting and important to understand the variety of language used by writers in expressing how an academic function is used. It can provide exposure and authentic examples used by the writer. For students who are in the learning process, they can benefit by imitating the use of the language functions used by the writers. The examples below show the diversity of writers in explaining the function of justification in Arabic academic writing:

1. Some specialists believe that the video should not exceed 5-10 minutes per lesson, so as not to bore the students (يرى بعض المختصين أن الفيديو يجب ألا يتعدى من ٥-١٠ دقائق

(للدرس الواحد؛ لئلا يتسبب بالملل للطلاب

2. Perhaps choosing the semantic applied linguistic aspect has a high value for reading the text, because the traditional study of grammar that is full of words and their expression often misses the semantic and aesthetic value of the sentence (ولعل في

اختيار الجانب اللغوي التطبيقي الدلالي قيمة عالية لقراءة النص ذلك أن الدراسة التقليدية

للنحو التي تحفل بالألفاظ وإعرابها كثيرا ما تُغيب القيمة الدلالية والجمالية للجملة)

3. As for our selection of pragmatics as an approach in linguistic study, it is because pragmatics is concerned with the elements of the conversational process with the aim of revealing the apparent contents of the discourse (أما انتقاؤنا التداولية كمقاربة في

الدراسة اللغوية ذلك لأن التداولية تهتم بعناصر العملية التخاطبية بهدف الكشف عن

مضامين الخطاب الظاهرة)

METHOD

This study aims to identify the use of academic language functions in research articles. This study is a descriptive study and uses a qualitative approach. The researcher used content analysis techniques to analyze the data. The content unit analyzed in this study include sentences of academic language used in carrying out academic language functions. Academic language is analyzed using the approach of Ure and Ellis (1977), which focuses on the use of vocabulary and sentences. The researcher used 12 academic functions which has been adapted from the approach of Chamot and O'Malley (1994) and Dutro and Moran (2003). The 12 academic language functions used in this study include (1) informing, (2) summarizing, (3) comparing, (4) inferring/predicting and hypothesizing, (5) classifying, (6) analyzing, (7) evaluation, (8) justifying, (9) sequencing, (10) synthesizing, (11) hypothesizing, and (12) solving problems.

This research sample consists of 30 research articles written in Arabic by native Arabic speakers. The article was published from 2014 to 2022. The title of the selected article is related to the field of Arabic language research such as syntax, morphology, semantics, pragmatics, information technology, teaching and learning, translation, language register, language acquisition, phonology, error analysis, and more. The research methods used in the articles were carried out both quantitatively and qualitatively with various forms such as descriptive, experimental and library research. The collection and analysis of research data were done through the following process:

1. Selecting articles related to the Arabic language by referring to the title of the article and the year the article was published
2. Checking the author's name and making sure the author is a native speaker
3. Understanding each function of the academic language used first
4. Reading each article briefly to find out the objectives of the study, research methods, data analysis and conclusions.
5. Identifying the use of functions used in each article
6. Identifying the language used in each function
7. Construct 12 categories of academic language functions
8. Coding the selected sentences in each article according to the 12 categories of language functions specified

9. Verifying the appropriate selection of language (words and sentence structure) related to the function of the academic language used

RESULTS AND DISCUSSION
Academic Language Feature

Several researchers claimed that academic language differs fundamentally from everyday speech (Dutro & Moran, 2003). Texts can be analyzed in terms of different descriptive, lexical, and grammatical criteria to capture academic language features. The total number of words and average sentence length are both descriptive criteria. Lexical aspects encompass broad academic terminology that is used throughout school topics and disciplines (e.g., "report," "synthesize"), as well as specialized academic vocabulary that is associated with a specific field (e.g., "denominator," "multiplication"). These words are typically vague and semantically ambiguous (Townsend & Collins, 2009). Grammatical features arise more frequently in academic settings than in everyday English including verb forms in the passive voice, prepositional phrases, noun phrases, and participial modifiers (Dehn, 2011 as cited by Haag et al., 2013).

According to Ranney (2012), English learners encountered a challenge over 30 years ago, as they were recognized as having special needs since they were not mastering it in school. As a result, Jim Cummins (1979, 1981) investigated these concerns and developed the terms Basic Interpersonal Conversation Skills (BICS) and Cognitive Academic Language Proficiency (CALP). In 2003, Dutro and Moran expanded the CALP idea to include three factors: a) Functions (for example, explain, infer, and analyze), b) Forms (for example, text structure, grammar, and vocabulary), and c) Fluency (e.g. automaticity and appropriateness) (Ranney, 2012). Figure 1 illustrates the CALP concept.

C   A   L   P

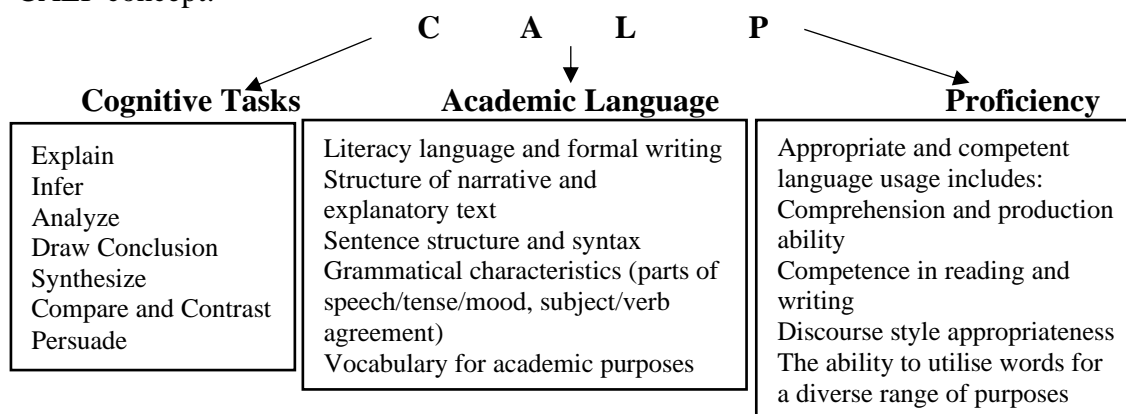| **Cognitive Tasks**	**Academic Language**	**Proficiency**
Explain Infer Analyze Draw Conclusion Synthesize Compare and Contrast Persuade	Literacy language and formal writing Structure of narrative and explanatory text Sentence structure and syntax Grammatical characteristics (parts of speech/tense/mood, subject/verb agreement) Vocabulary for academic purposes	Appropriate and competent language usage includes: Comprehension and production ability Competence in reading and writing Discourse style appropriateness The ability to utilise words for a diverse range of purposes

Figure 1- Conceptual of CALP

According to Halliday (1973), functions are tasks or purposes and uses of language (Dutro & Moran, 2003). Academic purposes or academic function include navigating written text, asking and answering informational questions, asking and answering clarifying questions, relating information, comparing, contrasting, explaining cause and effect, justifying, drawing conclusions, summarizing, evaluating, persuading, and conducting research (Dutro & Moran, 2003).

The second aspect is forms, or grammatical characteristics and word usage. These are instruments used for conversation, reading and writing, complicated language, and cognitive processes. Parts of speech, verb tenses, subject/verb agreement, usage of

pronouns, conjunctions, and sentence structure or syntax are all examples of forms (Dutro & Moran, 2003).

Fluency refers to the ease with which one can understand and produce speech and writing. It is the ease with which a speaker, reader, or writer use language. The precision and correctness with which students speak, write, and interpret written and oral language is referred to as accuracy (Dutro & Moran, 2003).

Academic Language Functions (ALFs)

ALFs are tasks that language users must be able to perform in various content areas (Mufidah et al., 2012), and they consist of eleven functions: a) Seek information, b) Inform, c) Compare, d) Order, e) Classify, f) Analyze, g) Infer, h) Justify and Persuade, i) Solve Problem, j) Synthesize, and k) Evaluate (Chamot & O'Malley, 1994). The majority of these functionalities are required for all content sections. To explain how to answer a word in Arabic syntax, for example, a student must organize the explanation so that it properly delivers the desired message. To justify a conclusion on the benefits of the Islamic banking system, a learner may need to study the key elements of the banking system and compare them to other types of conventional banking systems. Academic language is employed to describe the features of both systems in this case. In science, students may be required to justify an experiment's outcome, which requires them to evaluate and disprove alternative hypotheses (Chamot & O'Malley, 1994).

According to Kidd & Marquardson (1994), ALFs can be classified into two categories: microfunctions and macrofunctions. Microfunctions are on a tiny scale: they entail the execution of very particular language operations with fairly restricted aims (Kidd & Marquardson, 1996). Microfunctions, in other words, are brief lengths of language that typically follow the syntactic (grammar) domain. Furthermore, they are occasionally complemented by a signal phrase (Kidd & Marquardson, 1994).

Microfunctions are often performed by using short lengths of dialogue comprising one or two phrases at most. Additionally, they are often achieved through a restricted number of discrete phrase patterns that allow for readily detectable form-function pairings and are frequently signaled by various discourse markers. Consider the following instances of 'defining', a common microfunction: "Faults are fractures in the rocks of the earth's crust." The microfunctions are 'defining', 'hypothesising', 'contrasting', and 'stating cause and effect' (Kidd & Marquardson, 1994).

In contrast, macrofunctions are larger-scale applications or more generic language activities with broader applications. They are often performed across extended periods of speech and are not always related to specific phrase patterns or discourse signals (Kidd & Marquardson, 1994). They can be identified by 'explaining,' 'describing', 'reporting,' summarizing' (Kidd & Marquardson, 1994), 'narrating', and 'instructing' (Lechner, 2016).

Chamot and O'Malley (1994) proposed using ALFs to explain the use of every function and example, which comprises 11 functions. In 2003, Dutro and Moran expanded the idea with some modifications. As a result, the authors of the current research determined to integrate the ideas and made it 12 after the modifications. Table 1 demonstrates the twelve types of ALFs, how to apply them, and some examples.

Table 1 Types Of Alfs

No	Academic Language Function (ALFs)	Purpose of the Use of Language	Examples
1	Inform	To identify, report, or characterize data	Retell a tale or personal experience; recount ideas given by the teacher or literature.
2	Cause and Effect	To give a reason for an action or condition	Justify and impact of the action.
3	Compare	To describe the similarities and contrasts between two or more items or ideas.	Create/explain a visual organizer to demonstrate similarities and differences.
4	Order	To organize things, thoughts, or events in chronological order.	Create a timeline, a continuum, a cycle, or a narrative process.
5	Classify	To sort things or thoughts into groups based on their attributes.	Explain the organizing principle(s) and why A is an instance whereas B is not.
6	Analyze	To break the entire discourse into fragments and look for linkages and connections.	Explain parts, characteristics, or the primary concept of information delivered by the instructor or text.
7	Infer	To make conclusions, foresee consequences, and form hypotheses.	Describe the thinking process (inductive or deductive) or develop a hypothesis to identify possible causes or results.
8	Justify and Persuade	To justify an action, judgement, or point of view; persuade others.	Explain why A is significant and provide evidence to support a stance.
9	Solve Problem	To determine a solution after defining and representing an issue.	Describe problem-solving processes and apply them to real-world challenges.
10	Synthesize	To combine and integrate ideas to produce a new whole.	Integrate new material into old knowledge by summarizing it cohesively.
11	Evaluate	To determine the worth of a thing, concept, or conclusion.	Identify criteria, clarify priorities, explain the reasoning, and validate the truth.
12	Summarize	To make a summary of the ideas.	Summarize important ideas and information.

Significance Of ALFs

Dutro and Moran (2003) argue that academic language can accelerate acquisition. The ALFs are used in the teaching and learning process, particularly in the delivery of content and specialized activities (Hengki et al., 2017). It assists students in carrying out activities, assignments, reports, and projects for them to comprehend, compare, and contrast the information and, finally, utilize numerous functions in their work. ALF assists instructors with lesson planning, strategy development, and the creation of question and sentence frameworks. It also functions as a learning tool for pupils, allowing them to recognize what they have learnt at the end of the class. Students, for example, can learn Arabic language vocabulary by categorizing nouns, verbs, and particles. They can categorize the words using a tree diagram (Mrnotarides, 2015).

Meanwhile, using the ALFs helps students grasp what task to do and what skills they have (Mrnotarides, 2015). ALF aids learners in sharing knowledge and utilizing

their varied strengths to enhance their learning process, develop their foreign language speaking skills, and boost their social skills (Hengki et al., 2017). To summarize, ALFs help students improve their studies since learners find new knowledge via the use of data collection, measurement, classification, organization, prediction, and problem-solving (Mufidah et al., 2012).

There are several studies related to the ALFs. From the previous studies, it was found that the research focused on a) the use of ALFs in the classroom and the problems of their use in the process of teaching content subjects, b) the use of ALFs in teaching oral skills, c) using ALFs in the cooperative learning strategy through the communicative setting, and d) applying ALFs in reading skills.

Dewi et al. (2022) studied language functions that were used orally in the classroom language by EFL teachers in SMP Negeri 2 Gianyar. The research aimed to analyze language function and choice of classroom language used by the EFL teacher in SMP Negeri 2 Gianyar. The sample of this study is an EFL teacher in SMP Negeri 2 Gianyar during distance learning. This study utilized one instrument with a checklist table implementing Chamot and O'Malley's theory of academic language function. The conclusion of the study is used as a guidance for the prospective teachers and EFL teachers to improve in using many kinds of language functions during the learning process. The results found that the EFL teacher in SMP Negeri 2 Gianyar frequently used five language functions: seeking information, explaining or informing, persuading, solving a problem, and greeting.

Moreover, Mufidah et al. (2012) investigated the use of ALFs in content teaching. This study concentrated on the use of ALFs and the issues associated with their usage in the process of teaching topics or subjects using English as the medium of instruction. The data was gathered by direct observation and recording. Based on the entire analysis and interpretation of data, the educators employed ALFs in English in the teaching methods, however, not all educators used full English. They used ALFs to gain skills and knowledge. Additionally, several teachers lacked appropriate English proficiency since they simply attended a brief English course. As a result, most educators struggled with the use of lexicon, syntax, pronunciation, and intonation, and they frequently switched codes from English to Indonesian and conversely. They struggled to express the information in English because due to the lack of vocabulary and pronunciation. As a result, it is recommended for content educators to increase their competency, particularly in classroom interactions using English. Thus, the study primarily focused on the use of ALFs and the issues associated with their usage in the process of teaching topic subjects using English as a medium of communication, whereas the current study focuses on the use of ALFs in journal articles.

Hengki (2021) investigated the ALF-based English camp approach for teaching oral skills, in which the camp approach was considered as the main instrument of the research. The study's objectives were a) to determine whether learners taught with the cooperative learning (CL) strategy through an English camp had greater achievement in English communicative language function on the post-test than on the pre-test; b) to discover whether students taught with communicative language teaching (CLT) strategies through an English camp strategy had greater performance in English ALF on the post-test than on the pre-test, c) to determine whether learners taught with an English camp strategy had higher self-interest in speaking English on the post-test than on the

pretest; d) to determine whether students taught with an English camp strategy had higher self-confidence in speaking English on the post-test than on the pretest, and e) to determine whether students taught with an English camp strategy had better self-regulation in speaking English on the post-test than on the pretest. It is found that the research highlighted the use of ALF in teaching conversational skills, not written skills.

Previously, Hengki et al. (2017) investigated the efficacy of an English Village cooperative learning technique for teaching speaking skills. The study aimed to a) investigate the efficiencies of the CL strategy used by English Village to teach speaking in communicative language function; b) investigate the efficacy of teaching speaking in transactional language function; c) identify the substantial change in self-confidence after being taught using the CL strategy through English Village; d) identify the significant change in self-interest, and e) identify the significant change in self-regulation. The experimental design was used in this research using a one-group pre-test and post-test design. The study's target population was all students in the English education department of Indonesian private institutions or colleges. The dependent t-test result revealed that the CL technique implemented through the English Village was effective in teaching speaking skills for both communicative functions and ALFs. As a result, the study concentrated on employing CL methods in a communicative situation. However, the ALF was not sufficiently emphasized, and the functions were not defined clearly.

Lucero (2012) examined the requirements and potential of a first-grade dual-language program concerning the use of language functions by teachers in educational settings. Three categories of language functions that were covered by the curriculum over the full academic year and in all subject areas were identified. They are a) defining and describing, contrasting and comparing, and c) predicting and hypothesizing. According to the findings, the Hurley Heights School's teachers agreed on the need for teaching academic language and had some comprehension of its structural elements. However, despite this, they could not fully comprehend the tasks that learners had to do. Only three of the ALF categories utilized by educators were emphasized in the study to interact with their students in class, not in written articles.

Young (2017) investigated the application of a functional language method to improve guided reading for English language learners in terms of academic language function in reading. In addition to making certain improvements to incorporate the teaching of ALFs with guided reading instruction, the study's objectives include modifying the traditional ways of teaching guided reading to fit the linguistic requirements of non-native speakers. The results showed that guided reading levels were accelerated for students who were taught reading lessons using the guided reading modifications suggested by Avalos et al. (2007) and the functional language method for teaching language suggested by Derewianka (1990). The study concentrated on using ALFs only to improve reading abilities.

Mohamad et al. (2022) studied the use of academic language functions in the Arabic articles of the Al-Majallah Al-Urduniyyah Fi Al-Ulum Al-Tarbawiyyah Journal by adopting register analysis. This research aims to analyze the language register used by researchers in presenting the function of academic language in Arabic language research articles. The researchers selected six articles associated with the Arabic language that was published in the journal of Al Majallah Al-Urduniyyah Fi Al-Ulum

Al-Tarbawiyyah, Jordan, and analyzed its language registers which contained ALFs. The academic language register was analyzed by utilizing Ure and Ellis's (1977) theory, while the ALF was adapted from the ALF proposed by Chamot and O 'Malley (1994).

According to the study, several functions were used, such as informing, categorizing, comparing, and synthesizing. They are displayed in different methods of using phrases and vocabulary. The writers varied the language register that had been presented using verbal and nominal phrases. Additionally, the writers were able to select the right word for the specific context of the academic function.

In essence, previous research indicated that oral (communicative) and reading abilities were highlighted. Meanwhile, the current study focused on ALFs found in papers published in Arabic journals that were related to the academic register and may be identified by distinct words and functions.

This study analyses the use of 12 academic language functions by article writers in the field of Arabic. Below are the 12 academic language functions used in this study along with example sentences used:

Table 2: Examples of the use of academic language function for informing

1 ذكر بلوم كلكا وهاوس وكاسبر أن أداء المتعلمين أصحاب المستوى اللغوي المتقدم يحتوي على أخطاء تداولية أو قصور تداولي	Bloom, Kalka, House, and Casper stated that the performance of learners with advanced language level contains pragmatic errors or pragmatic shortcomings.
To explain the informing function in this sentence, the writer used the word ذكر in the past tense form which means "to state". It is followed by the informer's name and followed by the message to be conveyed.	
2 عرفه الشرمان (٢٠١٥) بأنه التعلم الذي يجمع بين أفضل ما في التعلم الصفي المباشر والتعلم من خلال الإنترنت.	Elsharman (2015) defined it as learning that combines the best of face-to-face and online learning.
To explain the function of informing in this sentence, the writer used the word عرفه in the form of past tense followed by the informer's name. The author used a specific verb "define" to explain the informing function of the definition. It was then followed with a definition given by the informer. The reinforcing word أن was used to show that the information conveyed was correct, accurate and without doubt. The barrel that was used indirectly brings the informing function that convinces the reader.	

Table 3: Examples of the use of academic language function for summarizing

1 وكي تتضح المقاربات التداولية من أسلوب التوكيد في خطب عبد الملك بن مروان ووصاياه ننسج الجدول الآتي:	In order to clarify the deliberative approaches from the emphasizing method in the speeches and commandments of Abd al-Malik bin Marwan, we weave the following table:
To explain the summary function in this sentence, the writer started with the conjunction word ى followed by the verb تتضح. The function of summarizing can be seen from the table built by the writer in the verse ننسج الجدول الآتي	

2	وهنا يستخلص الباحث من التعريفات السابقة أن التعلم المدمج هو نموذج تعليم يمزج بين كل من التعليم الصفي التقليدي وجها لوجه، والتعلم الإلكتروني	Here, the researcher concludes from the previous definitions that blended learning is an education model that blends both traditional face-to-face classroom instruction and e-learning.
	To explain the function of the summary in this sentence, the writer began the sentence directly with the phrase يستخلص الباحث meaning "researcher summarizes". It is followed by a summary message that has been summarized by the author	

Table 4: Examples of the use of academic language function for comparing & contrasting

1	ففي العربية نقول عمن أدركه الموت: رحل عنا، واستوفى أجله، واستأثر الله به، وذهب إلى جوار ربه... إلخ. وفي الإنجليزية يقال عنه.	In Arabic, we talk about the one who is overtaken by death: he left us, fulfilled his term, God took possession of him, and he went to the side of his Lord...etc. In English it is said as past away, go west.
	To explain the function of comparison in this sentence, the writer used two different sentences that came consecutively. Each part that is compared came with an example.	
2	وتختلف هذه النتيجة مع دراسة كل من شاربليز وآخرون وماكنالي وآخرون (Sharples et al.,2017؛ McNally et al., 2016) التي أشارت إلى أن الأدلة على فاعلية الفصول المقلوبة في تحسين نتائج الطلاب ما زالت محدودة.	This result differs with the study of Sharples et al. (2017); McNally et al. (2016) which indicated that the evidence for the effectiveness of flipped classrooms in improving student outcomes is still limited.
	To explain the function of comparison in this sentence, the writer directly mentioned the existence of differences. The writer began the sentence by using the word وتختلف (different) and was followed by the comparison he wanted to make. It was then followed by an explanation of the aspects compared.	

Table 5: Examples of the use of academic language function for sequencing

1	يتم وصفها وصفا دقيقا (عبيدات وآخرون، 197:1996) من خلال جمع المعلومات، للتعرف على الأسباب ثم تحليل البيانات للوصول إلى النتائج وتفسيرها ثم اقتراح الحلول المناسبة لها.	They are described accurately (Obeidat and others, 197:1996) through collecting information, to identify the causes, then analyzing the data to reach and interpret the results, and then suggest appropriate solutions for them.
	The use of the sequence function in this sentence can be seen through the use of punctuation marks which are commas and the double use of the word ثم (then)	
2	وقد صمم هذا البرنامج التدريسي وفقا للخطوات التالية: تحديد المادة العلمية المستهدفة، يليها تحليل عناصر محتوى المادة العلمية إلى مفاهيم ومهارات، ثم تصميم وإنتاج المقاطع الإلكترونية التعليمية المختصرة للمادة العلمية المستهدفة، ثم نشر هذه المقاطع التعليمية بواسطة الوسائط الإلكترونية المتاحة، وتوجيه الطلاب	This teaching program was designed according to the following steps: defining the target academic material, followed by analyzing the elements of the content of the academic material into concepts and skills, then designing and producing short educational electronic clips for the target academic material, then publishing these educational clips by available electronic media, and directing students to

	للاطلاع عليها خارج قاعة الدرس، وأخيرا تتم عملية تناول المادة العلمية داخل قاعة الدرس من خلال الأنشطة والتدريبات والشرح والتوضيح وتقديم التغذية الراجعة.	view them outside the classroom, and finally, the process of dealing with the academic material takes place in the classroom through activities, exercises, explanation, clarification and providing feedback.
2	The sequence function in this sentence was clearly shown. The author clearly stated that the sequence was made through the use of steps. The word that shows the sequence function in this sentence can be seen through three words namely يليها and ثم and عليها and وأخيرا		

Table 6: Examples of the use of academic language function for classifying

1	ومن ثم قسم توماس الكفاية التداولية إلى قسمين أساسيين، هما: اللغوية التداولية (Pragmalinguistics)، والتداولية الاجتماعية ((Sociopragmatics	Then Thomas divided pragmatic competence into two main parts: pragmalinguistics and social pragmatics.
	The author used classification functions with clear sentences. The verb قسم divide was used to show the division made by the scholar on the issues discussed in the related studies. The division was also clearly constructed by using sentences and conjunctions و		
2	تم الاعتماد على المنهج الاحصائي الوصفي التحليلي لإجراء هذه الدراسة، والذي يعتمد على مصدرين للمعلومات: مصادر ثانوية, مصادر أولية	The analytical descriptive statistical method was relied upon to conduct this study, which relies on two sources of information: secondary sources, primary sources
	In this example, the writer did not state the division function directly such as the word "divide", categorize and so on. The researcher used the word تم الاعتماد علىwhich means "depends on". The choice of words was adapted to the context of the sentence to be delivered. The author also used the number (1,2) clearly in showing the classification function		

Table 7: Examples of the use of academic language function for analyzing

1	رصِدت الباحثة الاخطاء التي وقع فيها الطلبة، وصِنفتها كالآتي: أولا: تعريف المضاف ذهبت إلى المدينة جرش موضِع الخطأ: المدينة تصنيف الخطأ: خطأ نحوي يتعلق بإدخال (ال) التعريف على المضاف إضافة معنوية. توصيف الخطأ: خرق لقاعدة المضاف إضافة معنوية بإدخاله أل التعريف عليها الضواب: ذهبت إلى مركز اللغات.	The researcher observed the mistakes made by the students, and classified them as follows: First: the definition of the additive -I went to Jerash city Error position: city Classification of error: a grammatical error related to the introduction of (the) definition to the additive. Description of the error: a violation of the rule of the added moral addition by entering the definition on it Correction: I went to the language center.
	To explain the function of analysis in this sentence, the writer used the vocabulary رصدت first and then categorizes the type of language mistakes made. The author analyzed language errors, makes categories, and describes the form of errors		

2	أجاب موافق بشدة ٤٨,٥٪ وأجاب موافق ٢٠٪ وأجاب إلى حد ٢٠,٥٪ ما وأجاب غير موافق ٤,٥٪ وأجاب غير موافق بشدة ٦,٥٪ بما يظهر بوضوح أن نسبة كبيرة يرون أن مهارات المقرر وأهدافه العلمية يمكن أن تتحقق عن طريق التدريس عن بعد.	48.5% strongly agree, 20% agree, 20.5% answered, 4.5% disagree, 6.5% strongly disagree, which clearly shows that a large percentage believe that the course skills and academic objectives can be achieved through distance teaching.
	The function of analysis in this sentence can be seen through an analysis in the form of percentage fractions that use numbers. The author presented a percentage analysis through the sentence directly and then followed with a summary.	

Table 8: Examples of the use of academic language function for inferring/predicting and hypothesizing

1	ولتحقيق هدف البحث وضع الباحث الفرضيتين الصفريتين الآتيتين: لا يوجد فروق ذات دلالة احصائية بين متوسطي درجات طلبة المجموعة التجريبية الذين تعلموا باستراتيجية أساليب التفكير وطلبة المجموعة الضابطة الذين تعلموا المادة نفسها بالطريقة التقليدية في الاختبار البعديّ لمهارات تدريس الصف الإلكتروني.	To achieve the goal of the research, the researcher put the following two null hypotheses: There are no statistically significant differences between the mean scores of the students of the experimental group who learned by the method of thinking strategy and the students of the control group who learned the same material in the traditional way in the post test of the skills of teaching the electronic class.
	The function of prediction in this sentence is clearly stated with the research language register such "there is no significant لا يوجد فروق ذات دلالة احصائية as the phrase الفرضيتين الصفريتين (null hypothesis) and difference between...".	
2	وهذا استعمال الثعالبي. فهنا يلاحظ أن الثعالبي استعمل ثلاثة مصطلحات تدل على هذه الظاهرة، ولذلك يمكن عده من أوائل من أسهب في شرح المحظور اللغوي.	This is the use of Altha'alabi. Here it is noted that Altha'alabi used three terms indicating this phenomenon, and therefore he can be considered as one of the first to elaborate on the linguistic taboo.
	The function of prediction in this verse can be seen through the phrase يمكن عده (can be considered). Before making predictions, the writer first observed the matter discussed	

Table 9: Examples of the use of academic language function for justifying and persuading

1	حرص الباحث على ضبط عدد من المتغيرات؛ لضمان سير التجربة وسلامتها، ودقة نتائجها، وتمثل ذلك في الآتي (مدة التجربة، والوسائل التعليمية، المدرس، توزيع الحصص).	The researcher was keen to control a number of variables; to ensure the conduct of the experiment, its safety, and the accuracy of its results, as represented in the following (the duration of the experiment, the teaching aids, the teacher, the distribution of classes).
	The author showed the use of the function of justification in the middle of the sentence through a conjunction followed by an infinitive word in the word لضمان (to ensure), followed by a sentence of justification. The researcher also strengthened the justification by giving some examples.	

2	وللتحقق من صدق المحتوى للمقياس تم عرضه على سبعة محكمين من أعضاء الهيئة التدريسية المتخصصين في علم النفس التربوي والقياس والتقويم في الجامعات الأردنية.	In order to verify the validity of the content of the scale, it was presented to seven arbitrators of faculty members who specialized in educational psychology, measurement and evaluation in Jordanian universities.
	In this sentence, the author put the function of justification at the beginning of the sentence by using the conjunction ل first. It is then followed by a body sentence that leads to the justification.	

Table 10: Examples of the use of academic language function for solving problems

1	في ضوء النتائج التي توصل إليها الباحثون من خلال هذه الدراسة، يوصي الباحثون بما يلي: زيادة الاهتمام بتطبيق إستراتيجية التعليم المقلوب كواحدة من أشكال تكنولوجيا التعليم الهادفة إلى مواكبة متطلبات عصر التطور التكنولوجي والثورة المعرفية في التعليم الجامعي لما لها من أثر إيجابي في تنمية الفاعلية الذاتية للتعلم لدى طلبة الجامعة.	In light of the findings of the researchers through this study, the researchers recommend the following: • Increased interest in applying the inverted education strategy as one of the forms of educational technology aimed at keeping pace with the requirements of the era of technological development and the knowledge revolution in university education because of its positive impact on the development of self-efficacy for learning among university students.
	The problem-solving function in this sentence was used in the writer's suggestion at the end of the article. The researcher came up with a recommendation by using a phrase يوصي الباحثون (the researchers recommend). The writer then strengthened the explanation of the recommendation and its effectiveness in solving the research problem.	
2	بناء على نتائج الدراسة الحالية، وانطلاقا من خبرة وتجربة الباحثة في ...، وملاحظتها لمظاهر ...، قامت بوضع تصور مقترح لتجاوز العوامل والعقبات ... وفق ما يلي: ١- إعادة نظر المعنيين والقائمين على وضع المحتوى اللغوي في المناهج المقررة في معاهد تعليم اللغة العربية للطريقة التي يتم فيها عرض وتقديم المعلومة اللغوية، وذلك من خلال التركيز على عرض أمثلة تطبيقية كافية لكل مفهوم لغوي، وربط هذا المفهوم بالواقع، وعدم الاكتفاء بعرض المفهوم بشكل مجرد والمطالبة بحفظه دون تطبيق.	Based on the results of the current study, and based on the researcher's experience and expertise in ..., and her observation of the manifestations of ..., she developed a proposed vision to overcome the factors and obstacles ... according to the following:
	The academic function of problem solving in this sentence is shown by the writer through his suggestions based on research data and observations as well as his experience. The proposed sentence was written directly with the phrase قامت بوضع تصور مقترح (developed a proposed vision to overcome…). The author not only gave suggestions but also explained how the suggestions can be implemented.	

Table 11: Examples of the use of academic language function for synthesizing

1	مما سبق ذكره نتواصل إلى أن العرب القدامى قد استعملوا بعض المصطلحات التي دلت على المحظور اللغوي.	From the foregoing, we continue to the fact that the ancient Arabs used some terms that indicated the linguistic taboo.
	In this sentence the writer made a synthesis by using a conclusion. The word نتوصل shows the writer making a conclusion about the issue being studied based on the opinions of previous researchers	
2	من التعريفات السابقة، يلاحظ أن جميعها اتفقت على مبدأ لاستراتيجية الصف في تقسيمها إلى جزأين.	From the previous definitions, it is noted that all of them agreed on the principle of class strategy in dividing it into two parts.
	The function of synthesis in this sentence is shown by the writer indirectly, based on the observation of previous researchers' opinions. The phrase يلاحظ أن جميعها اتفقت (it is noted that all of them agreed) shows the writer making an observation and then expressing his conclusion	

Table 12: Examples of the use of academic language function for evaluation

1	وقد أتفق الباحث مع مجموعة من الدراسات والبحوث التي أشارت إلى وجود قصور واضح في برامج إعداد المدرسين فيما يتعلق بالجانب المهني والبرامج العملية وهذا ينعكس على مستوى الأداء عند خريجها في المستقبل.	The researcher agreed with a number of studies and research which indicated that there are clear shortcomings in teacher preparation programs with regard to the professional aspect and practical programs, and this is reflected in the performance level of its graduates in the future.
	The writer used the evaluation function in making an evaluation to see the weaknesses of the research issue. The author also expressed his agreement with the opinions of other researchers in evaluating the issue. The writer began the sentence with the use of an affirmative word and was followed by a past tense and followed by his assessment of the weakness in the issue being studied.	
2	ويمكن تفسير هذه النتيجة بأن طبيعة المحتوى اللغوي المعروض يعاني من وجود خلل وعيوب وتم وضعه بطريقة لا تراعي احتياجات واهتمامات الطالبات وما تقضية متطلبات العصر الحديثة في تعليم اللغات الخية.	This result can be explained by the fact that the nature of the presented linguistic content suffers from defects and was developed in a way that does not take into account the needs and interests of female students and what the requirements of the modern era require in teaching other languages.
	The evaluation function in this sentence was produced based on the author's interpretation and can be interpreted in relation to the study data. This can be seen in the phrase ويمكن تفسير هذه النتيجة The writer also used reinforcing words to strengthen the evaluation function in the sentence	

Table 13: Examples of the use of academic language for cause-and-effect function

1	وأدى التطور السريع للمعرفة إلى ظهور النظريات والاستراتيجيات التدريسية الجديدة	The rapid development of knowledge led to the emergence of new teaching theories and strategies.
	In this sentence, the author clearly uses the cause-effect function. The writer shows the emphasis on the cause-effect function in this sentence and puts the word أدى إلى (leads to) in the front by using a verbal sentence.	

	قد أظهرت الدراسات التي أجربت على التداولية في لغات وثقافات مختلفة، أن استخدام أفعال الكلام يختلف من لغة أو ثقافة إلى أخرى. وهذا الاختلاف قد يؤدي في بعض الأحيان إلى حدوث سوء فهم أو إلى ما أسماه توماس (١٩٨٣) بالفشل التداولي	Studies of pragmatics in different languages and cultures have shown that the use of speech acts varies from one language or culture to another. This difference can sometimes lead to misunderstanding or what Thomas (1983) called a pragmatic failure
2	In order to express the function of cause and effect in this sentence, the writer first showed the issue that is a clue to the cause. The researcher used the word يؤدي (lead) in the present tense form to show the effect or consequence of the stated reason	

CONCLUSION

It can be concluded through the study that all 12 functions of academic language suggested by O'Malley and Chamot (1994) and Dutro and Moran (2003) were used by the writers in their articles. The writers used various academic functions in their writing to achieve the purpose of the desired function and to produce a solid research article. The uses of academic language functions were shown by the writers in a variety of language settings through the use of sentences and vocabulary. It can be observed that there is a specific language register for each function, and it is used by almost all writers for that specific function.

The academic functions used in the articles are clearly written. For example, language that shows a certain function is written at the beginning of the sentence with clear words. However, there were also academic language function registers written in the middle or end of the sentence. This requires the researcher to be more careful in identifying the function used. This study also found that the use of academic language functions is influenced by each component found in research articles, for instance, in the introduction and literature review, there were many informational functions while in the data analysis section, many analytical functions were used. Similarly, factors of different types of studies (qualitative and quantitative) also affected the use of language functions and the language used. For example, in quantitative studies, hypothesizing language functions were used more, while in qualitative studies, other functions were more dominant such as synthesis functions, informing function and so on. It can be seen in this study that the authors used different language settings for each function. There is diversity in the selection of words, language style, and types of sentences used to show the same function. In addition to that, the researcher also found that in some situations, one sentence has two different academic functions.

Overall, the results of this study show that all writers had successfully adjusted the use of vocabulary in sentences according to the function they wanted to convey. This makes written research articles easy to understand, attract students to read, and provide clear information. Studies of academic language functions such as this study need to be explored more widely in various academic discourses. Future researchers can explore the use of academic functions in different fields such as science, language, technology, and so on. Similarly, exploration can be made on the diversity of the language register used, the type and frequency of functions used in a discourse, the difference in the use of academic language functions according to different study methods, and so on. Research findings related to the function of academic language are expected to

contribute to help researchers, especially students, in producing better quality academic writing.

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