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## **Evidence Marking in Research Articles: An Investigation of its Sources and Relative Reliability through Quality Markers**

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### **Abstract**

Evidence occupies a paramount position in any logical endeavor and research article is consensually considered a predominant site of such an endeavor. One interesting area of rhetoric which addresses the source and reliability of evidence is quality metadiscourse. In this qualitative study, *quality metadiscourse* strategies (i.e., evidentials, hedges, boosters and disclaimers) are examined to investigate their contribution to *evidentiality* in research articles. Through analyzing authentic examples taken from research articles, it is concluded that *evidentials* mark the source of evidence and the other strategies are employed to condition propositions proportionate to the strength of relevant evidence. In fact, this study helps to argue that reliability markers demonstrate the author-perceived distance of propositions from the impact range of evidence. Contrary to the broad definition of metadiscourse, the paper concludes that without appropriate types of markers, propositions could lose their *quality*, and as such, they are an indispensable part of the propositions they modify in the broader pragmatic context. Thus, in addition to a contribution to the definition of metadiscourse, this conceptualization is hoped to facilitate teaching and learning quality metadiscourse in that it defines a more plausible base to the appropriate employment of quality-related metadiscourse strategies.

**Keywords:** cooperative principle, quality metadiscourse, evidentiality, evidence, evidentials, hedges, boosters, disclaimers

## 1. Introduction

Evidence is a basic part of any academic exploration as it is often both the means and the purpose of most systematic scholarly studies. It is generally broadly defined and, therefore, presenting and evaluating it is a common practice among academia. However, there is no consensus on what qualifies as evidence and how strong a piece of evidence is, which fans the flames of hot debates among scholars in various disciplines. An interesting issue is the relationship between evidence and arguments, and one area of rhetoric related to marking the source and strength of evidence is metadiscourse. In this paper, assuming a broad definition for *evidence* (see below), an attempt is made to find out whether an evidence-based conceptualization and *quality*-triggered motivation is plausible in the use of the metadiscursive strategies of evidentials, hedges, boosters and disclaimers. This study draws on some theoretical frameworks a brief introduction of which is provided below.

### 1.1 Metadiscourse

Metadiscourse was originally defined by Williams (1981) as writing about writing and it was taken to refer to whatever other than the subject matter being addressed. He viewed metadiscourse as a stylistic device which is semantically external to the propositional content of the discourse and pragmatically an aid to the interpretation of discourse. It is also defined as discourse which goes beyond and above the actual content of the basic propositional information being presented, indicating to readers how they may “organize, classify, interpret, evaluate, and react to” (Vande Kopple, 1985: 83) information presented in the text. Crismore (1989) and Crismore, A., Mrkkanen, R., & Steffensen, M. (1993) also assume similar functions for metadiscourse. Moreover, Hyland (2005) maintains that being non-propositional is a basic criterion to qualify a form to be identified as metadiscourse. The above definitions reflect the standard view of metadiscourse, which considers it independent of main propositional content. One of the recent metadiscourse models built on non-propositional assumption that draws

on many previous ones was introduced by Hyland (2005) by dividing metadiscourse into two main categories of interactive and interactional with five strategies in each group.

However, Ädel (2006) excludes *intertextual* reference (following Mauranen, 1993) and *stance* from the framework of metadiscourse. She labels her perspective as '*narrow approach*' compared to the earlier approach which she terms as '*broad approach*'.

A more recent view inherently different from all previous metadiscourse conceptualizations was introduced by Abdi, R., Tavangar Rizi, M., & Tavakoli, M. (2010b). In addition to the mapping of metadiscourse on the Gricean CP model, they argued that while the non-propositional view proves tenable in most metadiscourse strategies, it runs into trouble in the case of *quality metadiscourse* (QM) markers. Note that the word 'quality' is taken from the Gricean CP model (for a comprehensive analysis, see Abdi, 2010a; Abdi, et al., 2010b). Table 1 below shows the new conceptualization of metadiscourse employment in research articles. Embarking on a closer investigation of quality metadiscourse strategies briefly introduced in Abdi, et al. (2010b), this paper is a more focused attempt to show that such markers are linguistic terminals marking the origin, and lexical tokens carrying the reliability of evidence. Such markers are valuable and indispensable sources to promote truth-value of propositions in that they deal with the source and quality of evidence. More specifically, this article aims to show that evidentials, hedges, boosters and disclaimers are *evidence management tools* in research articles, which help authors communicate more accurate and well-supported propositions.

Table 1. A CP-based model of employing metadiscourse strategies in research articles (Abdi, et al., 2010b: 1677)

| Metadiscourse Strategy | Maxims  | Cooperation Category | Overall Orientation  |
|------------------------|---|----------------------|--|
| Endophoric markers     | <ol style="list-style-type: none"> <li>1. Make your contribution as informative as is required.</li> <li>2. Refer the audience to other parts of the text to avoid repetition.</li> <li>3. When repetition is inevitable, acknowledge to avoid inconvenience.</li> </ol>                | Quantity             | Avoid prolixity to make the text manageable and friendly   |
| Collapsers             | Avoid undue repetition by using proper referents.   |                      |  |
| Transitions            | <ol style="list-style-type: none"> <li>1. Properly signpost the move through arguments.</li> <li>2. Be perspicuous.</li> </ol>  |                      |  |
| Frame markers          | <ol style="list-style-type: none"> <li>1. Be orderly.</li> <li>2. State your act explicitly.</li> </ol>   | Manner               | Clarify steps and concepts to make the text comprehensible |
| Code glosses           | <ol style="list-style-type: none"> <li>1. Avoid ambiguity.</li> <li>2. Avoid obscurity of expression.</li> </ol>  |                      |  |
| Evidentials            | <ol style="list-style-type: none"> <li>1. Do not say that for which you lack adequate evidence.</li> <li>2. Cite other members of the community to qualify your propositions.</li> </ol>  |                      |  |
| Hedges                 | <ol style="list-style-type: none"> <li>1. Do not say what you believe to be false.</li> <li>2. Do not say that for which you lack adequate evidence.</li> <li>3. Mark if evidence is not enough.</li> <li>4. Do not use hedges in widely accepted or supported propositions.</li> </ol> | Quality              | Build on evidence to make the propositions tenable         |
| Boosters               | <ol style="list-style-type: none"> <li>1. Do not say what you believe to be false.</li> <li>2. Do not say that for which you</li> </ol>   |                      |  |

| Metadiscourse Strategy | Maxims  | Cooperation Category | Overall Orientation                                       |
|------------------------|---|----------------------|---|
|                        | lack adequate evidence.   |                      |   |
|                        | 3. Mark if evidence is notable.   |                      |   |
|                        | 4. Do not use emphatics if evidence is not enough.  |                      |   |
|                        | 1. Do not say that for which you lack adequate evidence.                                  |                      |   |
| Disclaimers            | 2. Outline the framework within which you would like your propositions to be interpreted. |                      |   |
|                        | 3. Explicitly distance yourself from untenable interpretations.                           |                      |   |
| Attitude markers       | 1. Express your feelings or avoid them according to the norms and conventions.            |                      |   |
| Self-mentions          | 2. Enter your text or sidewalk it according to the norms and conventions.                 |                      | Make participants and feelings visible to promote rapport |
| Engagement markers     | 1. Draw the audience in or ignore them according to the norms and conventions.            | Interaction          |   |
|                        | 2. Give directions to your readers to follow when appropriate.                            |                      |   |

When submitting research articles to be considered for publication, the writers follow gatekeepers' expectations in order to achieve publication and solicit acceptance for their claims (Koutsantoni, 2006). According to Silver (2003), the affirmations of writers in an article are not simply 'matters of fact', and knowledge claims come in the form of arguments, and arguments have to be convincing if they are to elicit attention and support. Hyland (1998), on the other hand, argues that metadiscourse is one indication of a writer's response to the potential negatability of his/her claims, an intervention to anticipate possible objections. It appears that *soliciting acceptance*, *eliciting attention and support* and *avoiding possible objections* can all be assumed secondary and, in fact,

consequences of the writers' attempt to follow *quality* through evidentiality and communicate rightly evidenced propositions. A taken for granted expectation of the disciplinary gatekeepers and the wary audience of the community is that propositions should be formulated accurately in the face of available evidence. Biber and Finegan (1988, as cited in Silver, 2003) maintain that there is an expectation of academics to present findings and conclusions that are *supported with sufficient evidence*. If violated, it may inadvertently raise suspicion about the inadequacy of the evidence provided in the text.

As a rule of thumb, experienced authors exercise caution to live up to the *accuracy* requirement largely achieved through evidentiality in research articles. Yet, due to the fact that evidence evaluation is subjective (see Bamford, 2005), we can find several examples of questioning the compatibility of claims with the strength of evidence presented or presumed (see 1-5, below as examples). A further reason for the differences in evidence evaluation among research article writers can be the fact that some writers have not yet accomplished the process of becoming an expert writer (Dressen-Hammouda, 2008). Basically, developing the knowledge and intuition required to evaluate the evidence as closely to the established scholars of the field as possible is an intricate challenge.

QM is taken as an important rhetorical tool for evidence management. Evidence management here means marking the source and stating the strength and reliability of evidence in relation to propositions. The assumption in this study is that the choice of QM markers, in the first place, is the result of a judgment about the degree of conviction power and the strength of the presented evidence in relation to propositions. The *quality* supermaxim's requirement "Try to make your contribution one that is true" and the two relevant maxims' requirement "Do not say what you believe to be false" and "Do not say that for which you lack adequate evidence" (Grice, 1975) supports such concept.

Besides the basic discussion, it is hoped that this conceptualization will help teaching and learning this phenomenon in ESP in general and EAP

in particular in that it more plausibly explains the basis for the employment of such strategies. Furthermore, this view could bestow more plausibility to the narrow approach that discards propositionality as a relevant concept to metadiscourse (e.g., Ädel, 2006; Mao, 1993; Mauranen, 1993) and also can call nonpropositionality as the criterion to identify some metadiscourse forms (Hyland, 2005) into question.

## 1.2 Evidence

It should be noted that since the use of evidence is not confined to the propositions directly related to the systematic findings of the studies being reported in an article, this study adopts a broader definition for *evidence*, somehow in line with Willett (1988, as cited in Dendale and Tasmowski, 2001), to make it generalizable to all kinds of propositions throughout research articles. Cobuild dictionary (electronic version) describes 'evidence' as *anything that makes you believe that something is true or exists* and American Heritage dictionary (electronic version) defines it as *a thing or things helpful in forming a conclusion or judgment*. Accordingly, in this article it is used as a cover term that refers to whatever considered as a supporting base for propositions in research articles. Therefore, a plethora of resources including facts, observations, the findings of one's own and others' systematic research studies, shared beliefs, common sense, one's intuitive opinions, etc., might be resorted to as evidence depending on the nature of the propositions, the pragmatic context and, of course, the norms of genres and discourse communities. Different discourse communities and genres might favor certain kinds of evidence. As an example, in disciplines following the scientific method of positivism, the findings of systematic and rigorous research studies are better qualified as evidence (Guba and Lincoln, 1994). Moreover, the more frequent use of hedges by novice writers in contrast to expert writers (Dressen-Hammouda, 2008) could also be taken to support the idea that the novice writers have not yet established the authority and expertise required to use experientially developed intuitions and common sense reasoning as evidence like the competent writers.

Whether linguistically marked or not, we are aware of the sources of our evidence and we are able to reason about the sort of evidence that lead us to believe something (Papafragou, A., Li, P., Choi, Y., & Han, C. (2007). In academic setting, scholars mark the source of evidence and also make the result of their evaluation clear to the audience. However, since evaluation and judgment is to a large extent subjective in metadiscourse-containing propositions (Bamford, 2005), there are disagreements on what is qualified as evidence and the strength assigned to it. Examples 1-5 show reflections on and differences in evidence evaluation.

- [1] ... the present study included a one-shot design with no control group. Having a control group **may not be feasible** in studies of ... *Language Learning*
- [2] This view is **not plausible at all** and neither is this interpretation of the above passage. *European Journal of Philosophy*
- [3] Although studies with drop-out-prone secondary school students are numerous (e.g., Bates, 1968; Gilliland, 1968; McGowan, 1968), most have been either unsuccessful or **poorly designed** (Anderson, 1969). *Journal of Counseling Psychology*
- [4] They have **no reason to suppose** that its insights could transcend the context in which they were formed. *Journal of Religious Ethics*
- [5] The **flawed reasoning** and conclusions of the authors threaten to perpetuate bias against women with tick-borne diseases. *Women Health*

In fact, most critique of others' positions is based on suspecting the strength, validity and adequacy of evidence when matched with the strength of the relevant propositions. Such opposition is more prominent in 'conflict articles' (Hunston, 2005) where propositions are mostly based on subjective *evidence* such as common sense, etc.



### 1.3 Evidentiality

According to Dendale and Tasmowski, 2001, the term *evidentiality* was first introduced in a conference organized in Berkeley in 1981. The proceedings of the conference were published under the title *Evidentiality: The linguistic coding of epistemology* (Chafe & Nichols, 1986). With the appearance of this proceedings, the notion of *evidentiality* was established in linguistics.

In narrow sense, *evidentiality* refers to marking 'the sources of information' (Aikhenvald, 2004; Hardman, 1986). However, the term *evidentiality* is more often used in a broad sense to refer both to the source and reliability of the writer's knowledge (Dendale & Tasmowski, 2001; McCready & Ogata, 2007). It should be noted that there is not a consensus among scholars in considering epistemic modals (used as hedges in research articles) as markers of evidentiality. Aikhenvald (2004), among others, believe that the two notions must be kept distinct, yet McCready and Ogata (2007) show that this is not (completely) the case. The source and reliability of the knowledge in academic research articles are often marked by quality metadiscourse strategies.

In line with the broader sense of evidentiality, an attempt is made to show that marking the *quality* of propositions somehow is encoding both the source and the judgments of writers on how strongly evidence supports propositions. It should be noted that a piece of evidence could be clearly sourced and totally reliable in itself (*absolute reliability*), such as one's visual experience (Papafragou et al., 2007), but not dependable enough to support an inferential proposition. Therefore, it is the nature of the proposition (e.g., an argument) which determines our view of the power of specific evidence. I prefer to capture this fact by the term *relative reliability* of evidence, which shows the dynamic nature of evidentiality (McCready & Ogata, 2007). In other words, a piece of evidence could be more than enough for one proposition, while quite wanting for the other. Thus, in this study, I will try to show that from among the four metadiscourse strategies of *quality*, evidentials are providing a clue to the source of propositions, while hedges, emphatics

and disclaimers are the result of writers' judgments of the relative reliability of a piece of evidence (Abdi, et al., 2010b).

Academic writers generally do not *describe* evidence in research articles, rather they frequently build on evidence to infer, guess and predict. The further they move from the impact range of the evidence in their inferences, guesses, predictions, etc., the less strength they normally assign to their propositions by marking the *quality* metadiscursively.

In view of the above and based on the CP model introduced in Abdi, et al. (2010b), and also drawing on the view of evidentiality as outlined by Gerner, (2009) and McCready and Ogata (2007), this study was undertaken to probe into quality metadiscourse strategies in an attempt to introduce a clear and practical framework according to which the non-native writers could hopefully enrich the quality and genuineness of their papers. This study could also contribute to the view that integrates both the source and reliability of evidence in the new definitions of evidentiality (Gerner, 2009; McCready & Ogata, 2007).

#### 1.4 Empirical studies

Several studies have so far dealt with evidence and evidentiality concept. However, the theoretical foundation of the studies and the morphological and grammatical realizations of evidentiality have been different. For instance, Simon (2007) studied the semantically parenthetical use of verbs such as *see, hear, think, believe, discover* and *know*. Frequently, she argues, this function is evidential, with the parenthetical verb carrying information about the source and reliability of the embedded claim, or about the speaker's emotional orientation to it. She demonstrated that when so used, these verbs are in no way presuppositional. It is further demonstrated that "this loss of presuppositionality is not accompanied by a lack of commitment on the part of the speaker to the truth of the complement, as in the standard cases of nonpresuppositional uses of these predicates" (p. 1034).

Chung (2010), on the other hand, investigates Korean evidential sentences in relation to the assertive speech act. The author demonstrates

that a Korean direct evidential sentence expresses two seemingly unrelated meanings—a meaning that the speaker directly witnessed the event and a meaning regarding the speaker's attitude such as 'psychological distance', 'weakened reliability', and 'lack of responsibility'.

In another study, Whitt (2009) reminds that perception verbs are one of the most frequently used markers of evidentiality in English and German in that perception shapes most (if not all) of our epistemology. He examined the second most prominent sensory modality of hearing through English verbs of *hear* and *sound*, as well as German verbs of *ho`ren* (hear) and *klingen* (sound). As a result, he showed evidential uses of the verbs of auditory perception in some construction types.

## 2. Method

### 2.1 The corpus

For the purpose of this study, genre-specificity (i.e. research articles) was important *rather than* discipline-specificity somehow lifting the need for a strict sampling to build the corpus. Also, due to the qualitative nature of this study, and lack of interest in normal distribution of quality markers, it was thought that a strictly representative sample corpus was not necessary. However, 30 recently published research articles from a variety of social and natural sciences were chosen to have a feasible coverage. The corpus of the study on the whole included five articles from three disciplines in social sciences and another five articles from three disciplines from natural sciences, which made about 200,000 words on the whole. In the meantime, to provide a more authentic base for this study and to avoid any probable interference from non-English context and culture, only the articles written by native speakers (judged roughly by the name and affiliation) and published in *ScienceDirect* database were selected to ensure more dependable results.

## 2.2 Procedures

After building the corpus of the study, the propositions containing the quality metadiscourse strategies (as appears in Table 1, above) were identified manually considering their functional roles. A list of linguistic tokens for quality metadiscourse is available in the appendix of Hyland (2005). The linguistic tokens were recognized according to the list provided by Hyland (2005) in the appendix of his book, and also Abdi (2010) for the case of disclaimers. In doing so, the selected corpus was carefully read and the model sentences containing related tokens were gathered for further analysis. At the end, a group of 36 representative samples were selected from among hundreds of sentences to discuss the contribution of QM to the *accuracy* of the propositions. The data analysis procedure of the finally selected sentences appears below.

## 3. Results and Discussion

As noted above, evidentials are argued to embody recognition of sources of evidence (Swales, 1986), while hedges, boosters and disclaimers represent the relative reliability of evidence in relation to propositions (Abdi, et al., 2010b). Therefore, they will be discussed separately in the following lines and their contribution to the concept of *evidentiality* will be explored.

### 3.1 Marking the source of evidence: Evidentials

[6] The term “wrong-way-round” ionization refers to the formation of positive ions ([M+H]<sup>+</sup>) under basic pH mobile phase conditions and formation of negative ions ([M-H]<sup>-</sup>) under acidic pH mobile phase conditions [10,11]. *Journal of Chromatography B*

[7] ... the SAPSA included the woman’s social history, and the completion of the Edinburgh Depression Scale,<sup>19</sup> Domestic Violence and a Childhood Trauma Tool,<sup>20</sup> Substance Use Assessment Form,<sup>21</sup> and questions relating to stressors or stressful life events.<sup>4</sup> *Women and Birth*

- [8] Studies have shown that comprehension both for L1 and L2 users improves as rates slow (**Anderson-Hsieh & Koehler, 1989; Conrad, 1989; Jones, Berry, & Stevens, 2007; Zhao, 1997**). *English for Specific Purposes*
- [9] **Macedo and Silva (2005)** found that a relatively high percentage of accidents occurred on Mondays and Saturdays, and during the afternoon hours of 12:00–16:00 h, which might have been related to fatigue or overtime work. *Safety Science*
- [10] It is **generally believed that** any chemical linking reaction would be most favorable at the open ends of each tube, where phenolic and carboxylic acids can be readily derivatized. *Applied Physics*

From a formal perspective, evidentials can be integral (9) to the ongoing text or non-integral (6-8) to the syntactic structure, as categorized by Swales (1986). Also they can be explicitly noted (6-9) in cases of copyright materials, or implicitly sourced as in the case of taken for granted and/or widely shared ideas (10). They also appear in a variety of format like numerals as seen in [6], superscript numbers as in [7], and APA style as in [8] and [9]. A wide variety of conventions can be seen in the employment of evidentials. For one thing, the long list of options in computer applications such as *Endnote* could bear testimony to the extent of such choices.

The source of evidence introduced in one's own study is generally acknowledged by using phrases like 'our findings', 'the findings of this study', 'the evidence we found', 'the results of the present study' etc. Several other types of sources are marked in one way or another (e.g. *their findings, I believe, to my knowledge, normally*, etc.) However, focused on metadiscourse strategies, I only discuss quality metadiscourse evidentials here as a means of marking sources and reliability of information.

Whatever format followed, evidentials are primarily used in an attempt to build premises on and promote the persuasive power. Equally importantly, from ethical point of view, they are means of recognizing

others' works. They are also an indispensable part of an academic piece in that they show that the writer is keeping abreast of the relevant exploration frontier, which would otherwise be impossible.

The propositions would not appeal to the disciplinary gatekeepers and the expert audience if citations were removed. So, it can be claimed that, beside several other complementary functions, evidentials are essentially contributing to the accuracy of the propositions on the grounds that they would otherwise seem unsupported propositions.

### 3.2 Marking the relative reliability of evidence: Hedges

[11] As Watanabe (2001) concluded, the use of bottom-up strategies by lower scoring writers **may be related to** lower language proficiency. *Journal of English for Academic Purposes*

[12] **These results suggest that** a process model of motivation will be a useful research framework for uncovering various motivational processes of L2 learners. *System*

[13] ... its effect on mortality and the number of healthy days is statistically insignificant, **possibly** due to the long-term nature of the consequences of smoking. *Health Policy*

[14] It **seems likely that** at this temperature a complicated process involving both melting and vaporization occurs.

[15] The difference **can be attributed** to the frequent short pause—as evidenced by the shorter run lengths—that are necessary for the speakers to find the formulations they need in L2. *English for Specific Purposes*

[16] **It appears that** the dense maltose shell of G4 and G5 not only yields higher reduction power than the neat PPI dendrimers, but also ... *Colloids and Surfaces A: Physicochemical and Engineering Aspects*

As an extensively employed strategy, hedges are widely recognized linguistic forms to show a low relative reliability of evidence in relation to the developing proposition. That is, evidence is not enough or is vague to support an otherwise hedgeless proposition (11-16). Therefore,

hedging, I think, is being accurate more than being polite though the two concepts are very close. Note that although the source of evidence may or may not be explicitly marked, the use of hedges signifies that the evidence is not strong enough in the first place.

A quite notable point about hedges is that if evidence is enough, using hedges will be quite inappropriate, much like saying “I *think* sun rises in the east”. Some scholars maintain that hedges are used to let a room for the audience to evaluate for themselves (Crismore, 1989; Crismore et al., 1993), but I think if it was the main motif, they could have been welcomed in propositions with various supporting grounds (varying amount of evidence). Conversely, writing hedgeless propositions where evidence is not enough could damage the accuracy of arguments and face of the authors. As an example, if the following sentences [17-23] are rewritten by replacing boosters with hedges (with a hope of letting room for the readers!), the accuracy of the propositions will be lost.

### 3.3 Markers of reliability of evidence: Boosters

- [17] Again, a comparison across learners is informing. Looking at the dyads which have carried out two or three different tasks **clearly shows** that if one learner verbally dominates his partner, this learner dominates not only in one, but in all tasks. *Language Teaching*
- [18] However, we **believe** that such mechanisms will be rooted in the molecular and cellular processes underlying cartilage formation where similar behaviors exist. *SAS journal*
- [19] Other reports **illustrate** that there is no consensus about the effect of allograft nephrectomy on retransplant survival [8,21–23]. *Duquesnoy /Transplant Immunology*
- [20] **Undoubtedly** there are a large number of women who avoid going clothes shopping and only enter dress shops rarely. *Body Image*
- [21] Studies that consider lexical growth in L2 learners are important because lexical growth **strongly** correlates with

academic achievement (Daller, van Hout, & Treffers-Daller, 2003). *Language Learning*

[22] **Obviously**, the LOD values decreased as the measuring fixed time increased. *Arabian Journal of Chemistry*

[23] It is **well known** that AA coexists with DA and UA in our body fluids and further its concentration is always much higher (10–4 mol L<sup>-1</sup>) than that of DA and UA [28]. *Bioelectrochemistry*

As can be seen in the examples above, boosters are used as resources, suggesting that the writer feels somehow confident to the truth of the propositions in view of the amount and strength of the available evidence (20-27). If boosters are replaced with hedges, the propositions would be less dependable, while enough evidence suggests that they are more dependable. Thus, boosting, too, is being accurate more than being arrogant if it is supported by enough evidence. It is not depriving the readers from a room and thinking, rather it is realization of a strong feeling that evidence is notable.

### 3.4 Markers of reliability of evidence: Disclaimers

[24] Unfortunately, none of the subjects of this study were selected according to baseline oxidative stress status, and thus, **definitive conclusions with regard to this factor cannot be drawn**. *Nutrition Research*

[25] **The limited nature of the output** on the basis of which individualized tests are designed **does not allow the researcher to determine reliably the nature of** the error and the extent to which the learner has control over the form. *Language Learning*

[26] The propofol-induced reduction in recurrent intracranial clot volume and improvements in clinical outcomes **could not be attributed to** the changes in hemodynamics, principally blood pressure or ICP, since they did not significantly differ between propofol-sedated and non-sedated patients. *Acta Anaesthesiol Taiwan*



- [27] ... Although EI scores did not evolve during this three-week protracted withdrawal and detoxification program, **this does not mean that** EI scores cannot change during or after withdrawal. *Personality and Individual Differences*
- [28] Only when participants were asked to give a more detailed explanation of the processes that guided them to perform the task did results show reactivity. Reactivity and Task Characteristics
- [29] Clearly, **a single text may not be representative** of the students' writing ability. *Journal of English for Academic Purposes*
- [30] First, **the sample size was small**. Second, **there was no separate control group**. Finally, **the total exposure time provided by the instruction was relatively limited**. *Language Teaching Research*

As part of a larger attempt to promote quality, disclaimers are utterances in a variety of linguistic forms employed (retroactively or proactively) to disavow unintended interpretation, generalization, implication and/or application of the ideas, which, as perceived by the writers, could occur as a result of self and others' less than ideal linguistic and methodological choices (Abdi, 2010). Many important features are built into the above definition, which in one way or another help the writers and audience purify the propositions from unsupported claims. Actually, it is the function to help accurate interpretation of other propositions that plausibly added disclaimers to the category of metadiscourse. Thus, in this sense, it is feasible to think of disclaiming as a strategy that contributes to the accuracy and quality of propositions. In other words, they are used to help handle evidence plausibly.

In the examples above (24-30), a variety of disclaimer types are used to help purge inadmissible edges of propositions and, as such, made the propositions more accurate considering the nature of evidence. To further support such a claim, it is better to visualize the related research articles without the above disclaimers. It is highly probable that the propositions

within the related research articles will be misinterpreted, overgeneralized or misunderstood.

### 3.5 An overall discussion

Considering the examples and discussions above, it could be plausibly concluded that the strategies of evidentials, hedges, boosters and disclaimers are similar in an essential way. Essentially, all of them are dealing with evidentiality. That is, they all help us provide a clue to the source of information and/or build our judgment as to the reliability of propositions into our claims.

More specifically, it could be argued that evidentials are used to mark the source of evidence which guarantees the reliability of propositions at the same time. Hedges, booster and disclaimers are rhetorical tools to address the reliability and strength of evidence. Hedges are employed to make clear that evidence available to the author is not satisfying and strong enough while boosters mark that the author feels some confidence due to relatively sufficient evidence. Disclaimers, on the other hand, mark absence and/or limitations of evidence and are intended to cut untenable edges. Therefore, it can be plausibly concluded that all strategies are devices to promote the *quality* category of CP, building on evidence.

To provide a clearer image of what is discussed, a more elaborate version of Givón's (1982) three degrees of propositions can be visualized as an evidence-based continuum in which in the one end there is no evidence, leading to disclaim, and, in the other, a plethora of indisputable evidence is available, which supports naked propositions. What falls in between is finding little evidence, leading to use hedges, and then notable evidence, leading to use boosters. Such a continuum accounts for the use of weaker (e.g. might suggest) and stronger (e.g. clearly suggests) hedges and weaker (e.g. appears clear) and stronger (e.g. most clearly illustrates) boosters. To put more accurately, the continuum can also be seen as starting from no or least connection between the propositions and the evidence in the one end and the highest or indisputable connection

between them in the other. Consider such a continuum and the relevant examples:

Disclaimers (31) > Strong hedges (32) > Hedges > Weak hedges (33) > Weak boosters (34) > Boosters > Strong boosters (35) > Naked propositions (36)

[31] ... **our results cannot be attributed** to a particular baseline or the absence of a warning stimulus. *Biological Psychology*

[32] This result **might suggest** that G3 and G4, showing a very similar absorption behaviour, are not ideal stabilizing agents for the Au-nanoparticles. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*

[33] This **strongly suggests** that the current work about alcohol-dependent inpatients investigates negative-affect craving (Baker et al., 1987). *Personality and Individual Differences*

[34] It **appears clear** that which demographic scenario is actualized may have quite substantial implications for energy consumption. *Social Science Research*

[35] This result **clearly shows** that auxiliary ligands as well as bridging ligands, also play an important role in regulating the structures of synthesized compounds [56,57]. *Inorganica Chimica Acta*

[36] There is **clear evidence** that the use of antimicrobial agents in animals and humans **leads to** the selection of resistant organisms (Barton, 1998; Chauvin et al., 2005; Lammerding, 1998). *Acta Tropica*

According to the above discussions, and in line with Ifantidou (2005) and Ädel (2005), it can be concluded that QM markers are primarily reflecting the referential function of Jacobson (1995) in that they are acknowledging the source, adequacy and feasibility of a real-world entity, i. e., (direct or indirect) evidence. In this sense, QM markers are 'indexical' (Aijmer, 2005) forms. As noted earlier, the support for this conceptualization is that without these markers the propositions could

lose their truth-value in that they might no longer be compatible with the amount and strength of evidence. In other words, propositions need to be evidentially justified.

This perspective looks more promising compared to the alternative accounts, such as withholding or undergoing commitment. The alternative accounts appear secondary to evidence-evaluation conceptualization. However, the withholding or undergoing commitment account can be used in two ways (of course, after taking into account the initial evidence-based view). Firstly, they can be feasible justifications in cases where the evidence is probably vague and hence difficult to clearly evaluate and match to a proposition. Secondly, they can be the case when the writer(s) understands the nature of the evidence, yet s/he deliberately underestimates it, to provide a room for the reader, probably. As an example, the review genre employs metadiscourse more frequently in this sense in an attempt to soften the potential tension (Römer, 2005). Note that such underestimation (or overestimation) would normally relegate (or promote) a proposition only a few levels in the above continuum. Thus, relegating a potential naked proposition (with a plethora of evidence) to a weak hedge would not be feasible and would present a weak face of the writer(s) (Payne, 1975). In other words, relegating a proposition one level can imply tension-resolving and politeness gesture while more than one level could suggest lack of self-confidence and a weak face.

Since the combination of metadiscourse and CP was originally motivated for a pedagogical contribution, we should also note here that developing an intuition reasonably close and acceptable to the pioneers of a discourse community seems to be a challenge to the *quality* category of cooperation in the use of metadiscourse and is normally achieved after reading, writing and reviewing for a long time. The process of enculturation into the discourse community would teach new members important concepts like “What are and are not sources of evidence?”, “What sources of evidence are more reliable?”, “How much evidence is required to support certain propositions?” and more importantly “What

linguistic options are available to mark the amount and strength of evidence?”. Therefore, the findings of this study could imply that an attempt should be made to raise consciousness toward this process with a particular emphasis on encouraging language learners to find plausible answers to the above questions.

#### 4. Conclusion

This study investigated the nature of a group of metadiscourse strategies called *quality metadiscourse markers* which included *evidentials*, *hedges*, *boosters* and *disclaimers*.

The qualitative analysis of a group of selected items carrying QM markers supported some interesting conclusions. First and foremost, QM marking is a way of matching propositions with the contextual and evidential observations through assumingly shared competence<sup>1</sup> of evidence evaluation. That is, QM marking is an indispensable part of the accuracy of the propositions without which their truth-quality will be questioned (Gerner, 2009). Therefore, QM marking is primarily an attempt to be accurate and/or ‘sincere’ (Guinda, 2003) in the face of available evidence (Fintel & Gillies, 2010). Then, the non-propositional criterion of Hyland (2005) is disqualified, *or* the alternative Jacobsonian model is supported (Ädel, 2006), at least as far as the debate on propositionality is concerned.

Second, being polite or arrogant, providing a room for the audience or depriving them thereof, understatement or overstatement, etc. take a secondary position compared to the predominant concern and obligation of writer(s) to communicate more accurate propositions (Salager-Meyer, 1994) through a rigorous evidence evaluation procedure as required by *implicit communicative contract* (Givón, 1982) and/or cooperation (Grice, 1975).

Finally and more importantly, notwithstanding a considerable focus on writing in ESP and EAP syllabi, a desirable outcome is still wanted (Allami & Salmani-Nodoushan, 2007). Specifically, despite the tendency towards genre-based teaching in ESP (Hyland, 2007), there are still

untouched, hidden or not-clearly-defined features in research articles, a thorough treatment of which can facilitate the process of teaching and learning in EFL situations. In fact, in order to prepare students of ESP classes to write research articles, which is a requirement for many scholars in developing countries (Wan Cho, 2009), there is a 'need to master more than a knowledge of generic artefacts or text structures' (Morton, 2009, p. 218). The newcomers are required to develop a detailed knowledge and appreciation of the trends in their relevant community (Bizzell, 1992) if they are to be socialized into disciplinary discourse. As such, exploring dealing with evidence in research articles, which can be assumed as a potentially problematic area, could be a contribution to ESP in that most arguments depend on the way writers see evidence and the significance they attach to it.

Therefore, as a pedagogical implication, it can be said that the difference among people and cultures (Dahl, 2004) in the use of QM marking is primarily a matter of difference in *evaluation* of evidence, that is, to make a decision on the compatibility of evidence and propositions. There is an academic and generic finesse in evidence evaluation exercised and held by disciplinary gatekeepers and the pioneers of any field, and members of the discourse communities do their best to approach their account of evidence evaluation to the widely accepted one. For the purpose of teaching writing research articles, cautiously formulated cooperative maxims (Abdi, et al., 2010b) could prove useful in orienting novice writers. Of course, extensive reading with a focus on this feature would help to hone the skill.

It is hoped that an awareness of quality metadiscourse marking strategies as rhetorical evidentiality tools widely employed by the competent authors in writing research articles could contribute to the quality of EAP writing classes. The findings of this study highlight such metadiscursive strategies and evidentiality tools which play a significant role in ensuring quality and accuracy of academic writing.

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**Note:**

<sup>1</sup> Shared competence is achieved as a newcomer masters the basic requirements and passes threshold level introduced in Swales' definition of discourse community.