DISCOURSE FUNCTION OF GRAMMATICAL SUBJECT IN RESEARCH ARTICLE CONCLUSION

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Abstract:

This study intended to scrutinize the discourse function of the grammatical subjects used in the reserch article conclusion section. To this end, 15 research article conclusion sections written by different writers from the computer science discipline were randomly selected. The gathered data were analyzed for the discourse function of the applied grammatical subject based on Davies (1988) and Gosden (1993) categorization. The result illustrated that the real world and the discourse domains captured the discourse function of more than two thirds of the applied grammatical subjects.

Key words: *Resrach article conclusion, grammatical subject*

Introduction:

Grammatical Subject:

Grammatical subject has received a great attention from the researchers within the recent decades (Bazerman, 1988; Brown & Yule, 1983; Fries, 1983; Gosden, 1992,1993; Halliday, 1985; Lautamatti, 1978; MacDonald, 1992; Vande Kopple, 1986, 1994;Witte, 1983; Witte & Cherry, 1986). MacDonald (1992) showed that the grammatical subject slot is " the most important spot for determining what a writer is writing bout and how questions about epistemology, construction, or agency enter into writer's thinking" (p. 539). In addition, Vande Kopple (1986) declared that "what writers in English focus on and write about in grammatical subjects are often information that in context can be considered old or given information. That is, it is the information that writers have previously introduced into their texts, that writers have some reason to believe their readers can infer, or that writers know is common knowledge in the domain in which they and their readers work" (Vande Kopple, 1994, p. 535). Therefore, grammatical subject can inform us much about the writer's views of readers

and about the information that has been built up in a particular domain. In the same regards, Fires (1983) and Halliday (1985) believes that the grammatical subject signals the method of development of a text. Brown and Yule (1983) see the grammatical subject as the "strategy of text development". In addition, Witte and Cherry (1986) called it "framing strategy".

Research Article as a Genre:

Swales defines discourse community as a group of individuals with common goals and purposes and by using communication methods they work towards those common goals and purposes (Swales, 1990, p. 9). Swales (1990) proposed six criteria to define discourse communities:

- common public goals,

- Methods for communication,

- participatory mechanisms to provide members with feedback and information,

- discourse expectations reflected in genres,

- specialized terminology, and

- a critical mass of experts.

Each discourse community uses different methods of communication to help its members communicate with each other. These different methods of communication results in different genres. Some of these genres are newsletters, meetings, conferences, and research articles. In academic discourse community, research article is an important genre.

Research article received a great attention of many reserachers (Jalilifar, 2011; Ebrahimi & Khedri, 2011; Ghadessy, 1999; Gosden, 1992, 1993; Martinez, 2003; Whetaker, 1995). These researchers analyzed the research article as well as its rhetorical sections for the applied linguistic features. Ebrahimi and Khedri (2011) and Ghadessy (1999) scrutinized the research article abstract for its thematic structure. Jalilifar (2010) and Whittaker (1995) analyzed research articles from different disciplines for their theme types. Gosden (1992, 1993) studied research articles from three disciplines for the applied grammatical subject and the context frames. Taking the above mentioned points regarding the importance of grammatical subject and the research article genre, This study was put forward to find out the discourse functions of grammatical subjects used in the conclusion section of research article presented in an international computer enginerring conference.

Method and Procedure:

This study was run on a corpus of 15 research article conclusion sections. These resarch article were presented in an international computer science conference. This conference was organized by Missouri University of Science and Technology in 2012. Its title was "New Challenges in Systems Engineering and Architecting,

Conference on Systems Engineering Research (CSER)". The proceeding from which the conclusion sections were extracted is available at www.sciencedirect.com.

Method of Analysis:

The grammatical subject (GS) used in the conclusion sections were scrutinized for their discourse function based on Davies' (1988), and Gosden's (1993) models. They suggested four main domains of: a) the participant domain, b) the discourse Domain c) the hypothesized domain and d) the real world domain that could capture the functions of the grammatical subject. This study focused on only two domains of the discourse and the real world. The two domains as well their sub-domains are presented as follow:

A. Discourse Domain

1. *Discourse Event/Process*: references not to the investigative event and processes in research themselves as described in experimental section, but to the discourse acts and process of their discussion and reporting e.g. *the conclusion*

2. *Macro Discourse Entity*: integral units of discourse e.g. *the study, this article*

3. *Micro Discourse Entity*: part, discourse-internal entities e.g. *results, the method*

4. *Interactive Discourse Entity*: referenced units which refer to previous, community-validated, macro discourse entities e.g. *previous studies*

5. *Empty Discourse Theme*: in this and other domains, empty theme is showed by it/there choices and share any of the indicated domain criteria e.g. *it is concluded*

B. Real-world Domain

1. *Mental Process*: focuses on intellectual processes and entities which are part of the investigative real-world research domain; hypothesized and objectivized viewpoints are often based on the outcomes of these mental processes which are again realized through nominalized forms e.g. *deduction*

2. *Real-World Entity*: typically material entities and objects concerned with the physical world e.g. *study participants*

3. *Real-World Event/ Process*: actions and procedures executed in or resulting from scientific research activities e.g. *conceptualizing WTC as a dynamic system*

4. *Empty Real-World Theme*: postponed real world entities, research event/ processes and reference to mental process e.g. *it was found*

Unit of Analysis:

This study adopted t-unit as the basic unit of analysis. T-unit is defined by Fries (1994) as a clause complex which contains one main independent clause together with all the hypotactic clauses which are dependent on it (p.318). The rationale behind this selection was that:

> Analyzing theme at the level of t-unit rather than the individual clause makes it easier to focus on patterns of thematic development in large amounts of text, and can also be justified on the grounds that the thematic structure of a dependent clause is often constrained by the independent clause. (Fries & Francis, 1992 as cited in North, 2005, p.6).

Procedure:

This study went through following stages:

1. The conclusion sections were extracted from the resarch articles.

2. The data were analyzed based on Davies (1988) and Gosden (1993) catagorization of grammatical subject discourse function.

3. The frequency and percentage of different discourse functions were calculated.

One problem with textual analysis is that there is always the danger of making mistakes in interpretation. To increase the reliability in the analysis, three conclusion sections from the corpus were also analyzed by an experienced researcher in Applied Linguistics and agreement was made on the method of analysis.

Result and Discussion:

The grammatical subjects were analyzed for their discourse functions in regards to the discourse and the real world domains and the result indicated that these two domains captured the discourse function of 64% of the grammatical subjects. Within these two domains, while the real world domain captured 51%, the discourse domains captured 13% of the total discourse functions of the grammatical subjects. The result is displayed in table 1.

Table 1. Frequency and Percentage of *Discourse and Real world Domain* and its categories

	Frequency	Percentage
Discourse Domain	16	13
The Real World Domain	61	51

The Discourse Domain:

Data analysis concerning the sub domains of the discourse domain revealed that writers in the computer science showed marked tendency toward macro and micro discourse entity. They preferred to refer to the macro and micro structures of their research article to validate and conclude their research article. They mostly used these two discourse functions to somehow summarize their study by presenting the topic of the research and then the findings (Example 1 & 2).

1. *This paper* discusses findings from research related to the educational use of simulators in software engineering.

2. *Important findings* indicate that students can effectively learn important concepts using a simulator, can enjoy using such a method to learn, and that game related features have a

positive learning effect.

While interactive discourse entity and discourse event were totally neglected, computer science writers showed little attention to empty discourse theme by presenting it in 3 grammatical subjects. This manifestation, even a little, could suggest a possible manner of introducing evaluative comment which results in interactional thematization (example 3) (Gosden, 1993). The rsult concerning discourse domain and its sub domains are presented in Table 2.

3. ___It___ is presumed that the field of research surrounding knowledge management and expert systems would be well served to expand and include this trend.

Table 2. Frequency and Percentage of *Discourse Domain* and Its subdomains

	Frequency	Percentage
Macro Discourse Entity	7	6
Micro Discourse Entity	6	5
Empty Discourse Theme	3	2
Interactive Discourse Entity	-	-
Discourse Event/Process	-	-

The Real World Domain:

The result concerning the sub domain of real world entity reported the predominance of the two sub domains of real world entity and real world event. While the empty real-world theme and mental process were totally neglected by the computer science writers, real world entity (example 4) and real world event (Example 5) were presented in 33% and 19% of the total grammatical subject respectively. This might suggest the necessity of having a more explanation and more validation of the processes applied in the study, that simultaneously; make a relationship between the present study and those conducted earlier in the discourse community. The result of data analysis in terms of real world domain and its sub domains are shown in Table 3.

4. ___Stakeholders___ may benefit from a method to properly communicate ility preferences to designers.

5. ___Classifying change mechanisms___, alone, has demonstrated the importance of having such a structured means of evaluation for decision makers.

Table 3. Frequency and Percentage of *Real-World Domain* and Its subdomains

	Frequency	Percentage
Real World Entity	39	33
Real World Events	21	19
Empty Real World Theme	-	-

Mental Process	-	-

Conclusion and Implication:

This study intended to scrutinize the discourse functions of the grammatical subjects used by computer science writers while writing up the conclusion of their research articles. This study only focused on two of the four suggested discourse function domains by Davies (1988) and Gosden (1993). The result showed these two discourse function domains captured about two thirds of the grammatical subjects applied in the analyzed conclusions.

This study has implication for writers in research article writing. Analysing the reserch article as well as its sections could provide writers in general and non-native writers in oarticluar with the knowedge of how linguistic features, grammatical subject in this study, manifested in the different sections of research article, in this study conclusion section. This knowledge could incearse the writers awareness regarding to linguistic features while writing up their research article which result in creating more cohesive and coherent research article.

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