Actor and *Goal* Representation in the Transitivity System of Undergraduate Theses and Journal Research Articles: *an SFL Perspective*

Marsandi Manar[1*], Siti Wachidah[2], Ratna Dewanti[3]

[1]English Literature Study Program, Faculty of Communication and Language,
Universitas Bina Sarana Informatika, Jakarta, Indonesia.
Jl. Kramat Raya No.98, Kwitang, Senen, Central Jakarta, 10450, Jakarta, Indonesia
[2,3]Master of English Education, Faculty of Languages and Arts, Universitas Negeri Jakarta, Indonesia
Jalan Rawamangun Muka, East Jakarta, Gedung O, 13220, DKI Jakarta, Indonesia

The current study scrutinizes the representation of *actors* and *goals* of transitivity system in the introduction sections of theses (ISoT) composed by undergraduate students in reference to that of the introduction sections of research articles (ISoRA) considered as the target writings in the academic discourse of knowledge building. 738 English ranking clauses from 10 English-field ISoT and 694 from 10 ISoRA of TESOL Quarterly were analysed for their material processes as well as their participants and circumstances. The analysis was executed with the tables of analysis adapted from Halliday's experiential meaning framework. The analysis reveals that in the material processes of ISoRA *previous studies* and *previous researchers* instead of *current studies* and *current researchers* are more frequently employed as *actors.* Contrary, in their ISoT counterpart, the latter outnumbers the former. The analysis also finds that *goals* in the material processes of ISoT in comparison with its ISoRA counterpart still lack *previous findings.* Overall, the representation of *actors* and *goals* in the material processes of ISoT still needs lexical resources that underpin the process of knowledge building. This has been confirmed by the tendency of *actors* and *goals* of ISoT to represent its study undertaken, compared with its ISoRA counterpart focusing more on previous related studies.

INTRODUCTION

To the present time, under the discourse of academia, research articles (RAs) have been the eminent medium for the production and dissemination of conceptual knowledge (Hyland, 2009; Swales, 1990) due to their reliability of fact creation and objectivity. As it has been underpinned, human knowledge is capable of being construed as a text and the knowledge itself is prototypically made of language (Halliday, 2004).

On account of English as the global medium of academic discourse especially in the process of knowledge production and dissemination, RAs in English are then inevitably expected to fit the standard of scientific English either in terms of rhetorical structure or inner linguistic features. This in another hand has emerged

as problems (Hyland, 2009) since different disciplines may share distinct ways of representing their works (Hyland, 2009; Schleppegrell, 2008) while studies have revealed that even different sections of RAs might frame distinctive linguistic features especially in terms of transitivity system or lexico-grammatical features (Martínez, 2001; Zheng et al., 2014).

Further, more problems occur especially when the composition of RAs is associated with the writings of students identified as developing writers. Theoretically and empirically, students' compositions especially RAs have been shown to reflect challenges in approaching the target writings expected by the academic community of discourse (Emilia, 2010; Hyland, 2009; Schleppegrell, 2008). This accordingly has stimulated the necessity to investigate students' writings under the genre of RAs in reference to its ideal counterpart such as RAs published by reputable journals. The notion behind this argument is not to ideally compare students' writings and the target writings, but to portray the insight into the former in approaching the latter.

Introduction Section of RAs

The section of introduction has been one of pivotal parts in RAs. This section portrays the basic stand of a particular research work by directing readers to the common knowledge, to the centrality of a study, as well as to the needs for further investigation. Under the perspective of Swales' CARS model, a RA introduction section is characterized by three main roles, that is, establishing a territory of a study, establishing a knowledge gap, and occupying the gap (Swales, 1990). It specifically pertains to the problems to be solved, the purpose of a study, the literature introduction, survey of pertinent findings, contribution of a study, as well as to the future implications (Wallwork, 2011).

The introduction section of RAs was found to be troublesome (Swales, 1990) and even for the native writers (Adnan, 2005). As the basic and problematic section in RAs, introduction sections consequently have become the topic of interest of genre-based linguistics studies in recent decades (Chahal, 2014; Farnia & Barati, 2017; Fitriati & Solihah, 2019; Lakic, 2010; Martínez, 2001; Mirahayuni, 2013; Nivales, 2011; Safnil, 2013; Samraj, 2002; Zheng et al., 2014). A comparative study conducted by Farnia & Barati (2017) on the RA introduction sections composed by native and non-native writers, to illustrate, has revealed that non-native writers in comparison with their native counterparts were still left behind in terms of Swales' move strategies except for move 1: step 2 and move 3: step 2.

Apart from Swales' CARS model, the introduction sections of RAs have also been investigated from the perspective of Hallidayan Systemic Functional Linguistics, especially focusing on the transitivity system (Huang, 2009; Martínez, 2001; Zheng et al., 2014). The system of transitivity in the introduction of RAs focuses directly on the substantial and inner strategies in the process of meaning-making through clauses. It facilitates how RA introduction sections obtain their communicative goals of knowledge building through the choices of certain types of processes, participants, and circumstances. As it has been maintained, the analysis of RA introduction section is necessary in favour of helping language practitioners understand its linguistics features and macro structure then helping them teach student or developing writers how to frame the introduction sections (Gupta, 1995, cited in Safnil, 2007).

Further, the scrutiny of students' lexico-grammatical features of RA introduction sections in reference to the target writings of discourse community can unravel the challenges students face.

89

Then it can reveal the gaps students need to fill to approach the target writings. In fact, under the genre of RA introduction section, there has been a lack of specific insight into the extent of students' transitivity system in approaching the ideal or target writings.

To date, to the best of my knowledge, existing studies on the transitivity system in RAs especially introduction have limited their concerns on the distribution of process types while in most studies material clauses were found to be dominantly employed among other types of processes. The SFL studies of Emilia (2010) and Martínez (2001), to illustrate, have examined the process types in research papers and have not specifically examined the participants of material clauses. This study, accordingly, develops previous studies on the transitivity system by focusing on the direct or nuclear participants of material processes employed in the introduction section of undergraduate theses and RAs by asking the following questions: 1) How are *actors* in the transitivity system of ISoT and ISoRA represented? 2) How are *goals* in the transitivity system of ISoT and ISoRA represented?

Transitivity System

The system of transitivity is derived from Systemic Functional Linguistics (SFL) firstly introduced by Halliday in 1960s. It pays great attention to how ideational or experiential meaning framed in texts as social functions are represented through the choices of processes realized in the form of clauses. As its origin, "the system of transitivity construes the world of experience into a manageable set of process types" (Halliday & Matthiessen, 2004, p. 170). All types of processes are symbolized through clauses along with embedded participants (animate and inanimate) and optional circumstances attached to the process (Martin et al., 1997). In a simple way, the process

involves things which go on against background details of place, time, manner, etc. (Thomson, 2004). Martin et al. (1997, p. 157) portray the scheme of process with its elements in a diagram as follows.
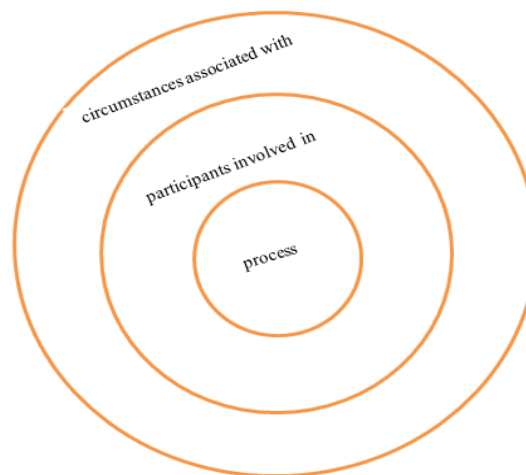

Figure 1. Transitivity Structure

Under the discourse of academia, where the conceptual knowledge is developed and disseminated in favour of knowledge acceptance (Hyland, 2009), the transitivity system serves to achieve this goal through the choices of types and roles of process, participants and circumstances. To illustrate, in the genre of science where impersonality and specificity are prioritized, the transitivity can cater for these principles by means of real actor concealment (Hyland, 2009; Martínez, 2001) for the establishment of objectivity (Fang et al., 2006; Martínez, 2001; Sayfouri, 2010; Schleppegrell, 2008).

Due to its social function in achieving a communicative goal, the transitivity system in English academic discourse especially the genre of RAs has been consequently much investigated for recent decades (Babaii & Ansary, 2005; Choura, 2013; Emilia, 2010; Huang, 2009; Ignatieva, 2008; Love, 1993; Martínez, 2001; Sari, 2013; Seah et al., 2011; Shahab & Asl, 2015; Xuan, 2018; Zheng et al., 2014). It has been studied from the elementary (Sari, 2013), secondary

(Schulze, 2011; Seah et al., 2011; Xuan, 2018), to the tertiary levels (Emilia, 2010; Ignatieva, 2008; Moore, 2007).

SFL studies have indicated that students from primary to tertiary levels were found to face challenges in employing the system of transitivity (Emilia, 2010; Ignatieva, 2008; Moore, 2007; Sari, 2013; Schulze, 2011; Seah et al., 2011; Xuan, 2018). In the secondary level, for instance, the material processes of transitivity system employed in students' writing tasks were found to be represented with less various and general predicators compared with the target writings (Xuan, 2018). In the tertiary level, students were found to lack verbal clauses in discussing their findings of theses and employed relational process to only describe the findings without enough explanation (Emilia, 2010). In another tertiary level, a comparative case study scrutinizing student introductions as response to *"Why Did Japan and Germany become allies in peace and war?"* in reference to the ideal introduction from the exemplar texts revealed that the former tended to only narrate the history without analytical thoughts (Moore, 2007).

A comparative study investigating students' most frequent words collocating with *study* in relation with the ones in the target discourse community revealed that compared with the diverse adoption of finding-like process in the data of the target writings, students' lexico-grammatical resources for employing this type of process were shown to be less various (Hancioglu et al., 2008). The study found that the most frequent finding-like processes in the target writings encompassed *analyse, assess, evaluate, compare* and *explore* while the ones in students' writings only consisted of *explore* and *investigate*.

In deciphering problems encountered by students, various SFL studies have used 'model' or 'ideal' texts as the parameter for evaluating the text

composed by student writers. By adopting the perspective of functional linguistics, comparative studies have indicated that students encounter problems in writing functionally towards the ideal or target writings.

Material Process, *Actor,* and *Goal*

One of six processes categorized in transitivity system refers to the material process. This type of process in a simple way can be defined as the process of happening and doing (Halliday & Matthiessen, 2004). More specific, it is pointed out that in a material clause an entity of change is revealed in the flow of events occurring through some input of energy (Halliday & Matthiessen, 2004). The plausibility behind the material process can be tested by asking *"what did x do? and what did x do to y?"* (Eggins, 2004, p. 216). In the scientific genre of RAs, the *x* might serve as the *doers* or *actors* producing the knowledge or as the knowledge itself while the *y* or *goals* might represent the knowledge being developed. More specific, the x can play a role either as a researcher, study, or object of study. The *x* serves as the knowledge being developed when the roles or functions brought by the knowledge are prioritized. Knowledge represented as the *doers* or *actors* occurs frequently especially when it is the result of nominalization (Martínez, 2001). Further, for the purpose of impersonality, the x or *actor* can be concealed with the *goals* or *y* as the point of departure.

Halliday & Matthiessen (2004, pp. 179-180) in general claim that the *actor* in material process is "the source of the energy bringing about the change" and consider the *goal* as the second participant that is directed at or extended to. Eggins (2004, p. 116) defines the *actor* of material process as "the constituent of the clause who does the deed or performs the action" and views the *goal* as "participant at whom the process is directed, to whom the action

is extended". In Martin et al. (1997, p. 103), the *actor* of material clauses is defined as "the one inherent participant or the one doing the material deed" while the *goal* is viewed as "a participant impacted by a doing (the one done/to with)". In addition, they add that "the goal is either actually brought into existence by the doing (*build a house, bake a cake, compose a song*), or exists prior to the doing, but is affected in some way". The participant roles of material process in Hallidayan transitivity system are reiterated as follows in table 1:

Table 1. Participant Roles in Material Clauses (Martin et al., 1997, p. 105)

type	actor	process	Goal	beneficiary	range
action	she	built	the house	(for the kids)	
	she	gave	the house	(to the kids)	
	she	moved	the chair		
event	the chair	moved			
	she	climbed			the mountain

Actors and *goals* are the major elements of participants in material clauses. Martin et al. (1997) identify *actor* and *goal* as the nuclear participants of material process while Eggins (2004, p. 216) addresses *actor* and *goal* as the direct participants of material processes, that is, "the two most frequent participants in material process clauses".

Material clauses in scientific genre including RAs so far have become the first or second dominant clauses in comparison with other five types of clauses (Choura, 2013; Huang, 2009; Kazemian et al., 2013; Martínez, 2001; Shahab & Asl, 2015; Sucipto, et al., 2014; Xuan, 2018; Zheng et al., 2014).

A study scrutinizing the transitivity system of 21 experimental RAs across three different fields of physical, biological, and social sciences for instance indicated that material clauses were found to be dominant in the introduction and methodology sections (Martínez, 2001).

Further, the scrutiny of transitivity system in 21 English-medium medical RAs also revealed that material clauses occurred most frequently in the method section (Zheng et al., 2014). Material processes were also found to be dominant in the introductions of RAs published by international journals (Huang, 2009).

Material clauses in the scientific genre of RAs can be employed to represent research activities as well as the role that knowledge plays. The dominant use of material clauses in RAs is in line with the notion that a material process represents the process of physical action such as *doing* and *happening*.

METHOD

Research Design

The research design adopted in the present study is content analysis investigating the representation of *actors* and *goals* of material processes in the transitivity system of ISoT or undergraduate theses composed by Indonesian English-major tertiary students in reference to its counterpart in the introduction sections of RAs (ISoRA) published by TESOL Quarterly. The content analysis in this study is associated with a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use (Krippendorff, 2004). It is claimed as the tool applicable for analysing the message of texts scientifically in all contexts and various social disciplines (Neuendorf, 2002).

The analysis of English texts or corpus written by students in reference to the ideal or target counterpart will shed light on the insight into the problems or challenges in the former (Milton & Tsang, 1991). In the current study, the corpus was studied with the bottom up approach (Charles, et al., 2011) where linguistic features from a large amounts of data were analysed by means of calculating and

interpreting the occurrences of linguistic phenomena. In the present SFL study, the *actors* and *goals* of material processes of transitivity system as the constituent of SFL are viewed as a communicative function in the context of knowledge building, as underpinned by Halliday (2004).

Procedures of Data Collection

The 20 data sources in the current study were initially selected by scrutinizing the generic structures between ISoT and ISoRA in favour of the establishment for data source parallelism. The Introduction sections with explicit research questions were selected as the data sources since it was assumed that they have similar social functions. Thus, both data sources were selected only until the research questions. Then the selected data sources were randomly collected through the Sattrek Application available on-line. 10 introduction sections from student undergraduate theses and 10 from TESOL quarterly were selected as the data sources.

Procedures of Data Analysis

The total 20 introduction sections used as the sources of data in the current study were firstly analysed by excluding 'direct quotes' since they were not composed by the writers. Besides, clauses with grammatical errors impacting the meaning were excluded from the analysis. Then ranking and embedded clauses were separated. A ranking clause refers to the clause that brings the main process while an embedded or rank-shifted clause is associated with the constituents of the main clause (Gerrot & Wignell, 1994) such as qualifiers. Each embedded clause was bracketed with […].

After all ranking and embedded clauses had been separated, 738 English ranking clauses from 10 English-field ISoT and 694 from 10 ISoRA were analysed into one of six types of processes (material, mental, verbal, relational, existential, and behavioural). Further, specific scrutiny of material processes were carried out for the classification of participant and circumstance types including *actors* and *goals*. Identified processes were codified with bold fonts while the first participants were made in underlined forms and the second participants were typed in italics. Then the circumstances were given single brackets.

The analysis of process types and participants of material clauses were conducted with the analysis table adapted from the experiential meaning framework of Halliday & Matthiessen (2004) as portrayed below:

Phase 1.
Table 2. The Classification of Process Types

Clause Identity	Clause	Process Type
ISoRA-1-11	They (students) **tend to utilize** *a range of teacher-made thematic or textbook units* (in order to boost students' acquisition of idioms, grammar, vocabulary, metaphor, and so forth, across a range of different communicative situations)	Material

Phase 2.
Table 3. The Analysis of Participants and Circumstances in Material Clauses

CI	Conj.	Init.	Actor	Process	Goal/ Range	Rec./Cli.	Res. Att.	Circumstance
IISoT-8-16	Therefore; if		teachers	use	formative assessment			(in the right way)

RESULT AND DISCUSSION
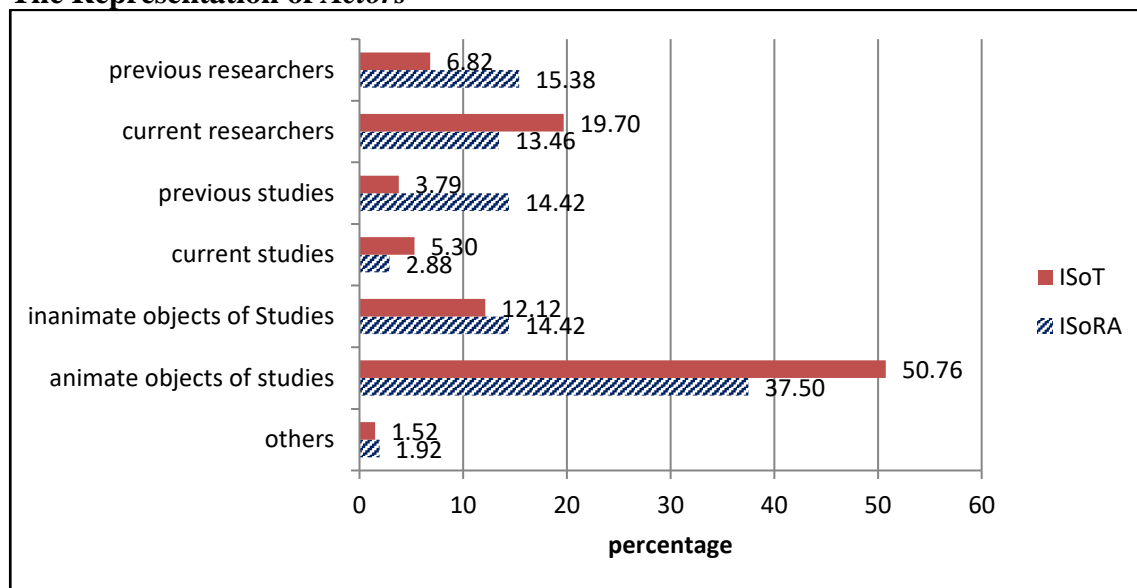
The Representation of *Actors*

Chart 1. The *Actors* of ISoT in relation to those of ISoRA

As stated earlier in the introduction section of this paper, the *actor* in material clauses is associated with "the source of the energy bringing about the change" (Halliday & Matthiessen, 2004, p. 179-180) while Eggins (2004, p. 116) defines it as "the constituent of the clause who does the deed or performs the action". Based on chart 1 above, the dominant explicit *actors* in the ISoT and ISoRA are *animate objects or participant of studies* In the following extracts, for example, *teachers* and *students* are positioned as the object or participant of studies, who simultaneously function as the *actor* or *doer* of material processes.

> Therefore if teachers **use** *formative assessment* (in the right way)*,* ISoT-8-16

> They (students) **tend to utilize** *a range of teacher-made thematic or textbook units* (in order to boost students' acquisition of idioms, grammar, vocabulary, metaphor, and so forth, across a range of different communicative situations). ISoRA-1-11

Other types of *actors* found in the material clauses of ISoT and ISoRA

as portrayed in the chart above are *previous researchers, current researchers, previous studies, current studies,* and *inanimate objects of studies.* For *inanimate objects of studies*, both data in this study share similarities in terms of frequency though their percentage does not absolutely match, that is, about 12.12% in the ISoT and 14.42% in the ISoRA. *Inanimate objects of studies* as *actors* in this study are employed to replace human agents. Two extracts of *inanimate objects of studies* as *actors* from both data sources are illustrated below.

> It (assessment) **aims to improve** *teaching and learning.* ISoT-8- 2

> EAP programs **aim to develop** *a "general academic English register",* ISoRA-1-18

The noticeable gap of *actor* representation between the two data sets of ISoT and ISoRA is addressed to *previous* vs. *current researchers* as the *actors* of material clauses. Compared with the data of ISoRA, the material clauses in the ISoT are inclined to incorporate *current researchers* as the explicit *actors* instead of *previous researchers*. This means that the material clauses in the ISoT tend to focus on *current researchers* as the basis of study instead of *previous researchers* that had generated the previous related knowledge. Some examples of these phenomena are shown below.

Current researcher as explicit *actor*:

> (In this study) the writer **intended to conduct** a research [regarding how General Secondary School EFL teachers in Bekasi practice formative assessment to improve their instruction and student learning]. ISoT-8-54

Previous researcher as explicit *actor*:

> Aida (1994) **USED** *data from 96 U.S. students [studying Japanese,]* ISoRA-9-36

Another apparently noticeable gap of *actor* representation in the material clauses of ISoT and ISoRA is the distribution of *previous* vs. *current studies*. *Previous studies* instead of *current studies* are frequently employed in the material clauses of the ISoRA, that is, 14.42 % for the former and 2.88% for the latter. In its ISoT counterpart, *previous studies* as *actors* are found only 3.79 % while *current studies* are calculated 5.30 %. Samples of *previous studies* and *current studies* as *actors* in the ISoT and ISoRA are given below.

Current studies as explicit *actors*:

> The analysis **applied** *Judith Butler's theory of gender performativity (into the subject of sexual ambiguity).* ISoT-10-81

Previous studies as explicit *actors*:

> Research into SLTC **has targeted** *teachers' cognitions in relation to teaching several skills areas, but especially grammar, reading and writing.* ISoRA-8-12

The dominant use of *current studies* instead of *previous studies* as *actors* in the material clauses of ISoT implies that students' writings of undergraduate theses in portraying introduction of RAs lay their emphasis on the study being conducted rather than on related studies produced by past researchers.

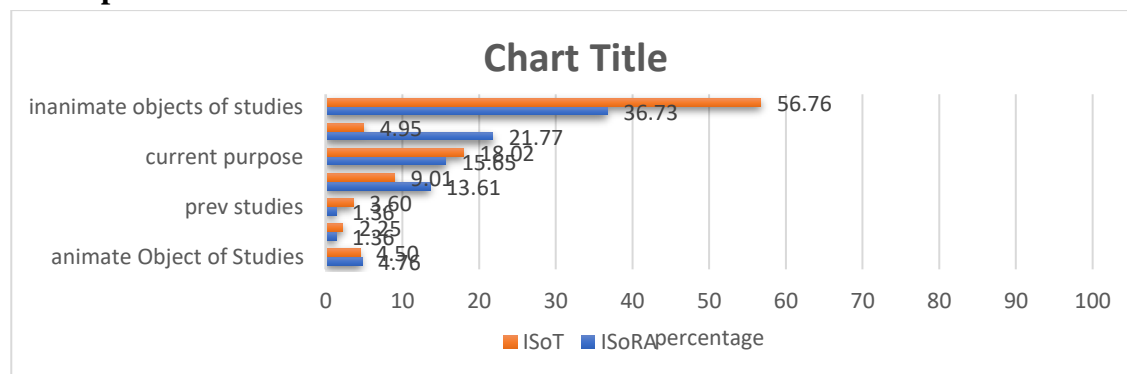**The representation of *Goals***

Chart 2. The *Goals* of ISoT in relation to those of ISoRA

As mentioned in the introduction of this article earlier, a *goal* can be seen as "a participant impacted by a doing (the one done/to with)" (Martin et al., 1997, p. 103). In chart 2 above, the most frequent *goals* in the material clauses of ISoT represent *inanimate objects of studies* or the knowledge being developed, that is, about 57 per cent. This phenomenon is underpinned by the most frequent *goals* of ISoRA set as the parameter in the current study. The adoption of *inanimate objects of studies* or the knowledge being developed as the *goals* is exemplified below.

if <u>teachers</u> **use** *formative assessment* (in the right way). ISoT-8- 16

when <u>peers</u> **carry out** *collaborative tasks* (in L2 classrooms). ISoRA-2-43

Other types of *goals* such as *the methodology, current studies, current study purposes, previous studies,* as well as *animate objects of studies* are also found in the material clauses of ISoT and ISoRA. However, the gap or differences of frequency between the two data sets are not significant and their occurrences are in limited numbers.

The noticeable gap between the two data sets as depicted on chart 2 above refers to *previous findings* as *goals* of material clauses. In reference to the ISoRA, the material processes in the ISoT still lack *previous findings* as the *goals*. About 22 % *previous findings* as *goals* are found in the material clauses of ISoRA while only about 5% is calculated in the ISoT counterpart. Some of these phenomena are illustrated in the following extracts.

Previous finding as the *goal*

For example, <u>Peng and Woodrow (2010)</u> **used** *structural equation modelling (in a quantitative investigation)*. ISoRA-3-25

While (in analyzing the teachers" and learners" utterances in the classroom), *IRF (Initation, Response, and Follow-Up) [that proposed by Sinclair and Coulthard (1975)]* **is used** (to analyze the teachers" turns and students" turns during the classroom activities). ISoT-4-12

As its origin, a material clause represents the process of physical activities or the process of happening and doing (Halliday & Matthiessen, 2004, p. 179) with its *actors* as the doer which in some extents can be termed subject from the perspective of traditional grammar. A material clause can involve two principal participants termed *actor* and *goal*. Martin et al. (1997, p. 103) define the *actor* of material clauses as "the one inherent participant or the one doing the material deed" while the *goal* is explained as "a participant impacted by a doing (the one done/to with)". On the display of knowledge, Schleppegrell (2008) claims that a material clause constructs events and happenings by explaining the process of knowledge building.

Based on the findings of *actor* representation in chart 1 earlier, the most frequent *actors* in both data sets of ISoT and ISoRA refer to *animate object of studies* including *teachers* and *students*. The frequent *participants of studies* as *actors* in the ISoT and ISoRA correlate with the dominant functions of material clauses in the introduction section of English-major RAs for reviewing what *animate objects of studies had physically experienced*. In other words, the frequent *animate object of studies* as *actors* referring to the participants of studies especially teachers and students are due to the discipline of English-field used as the context of the current study.

Other *actors* found in the two data sets of material clauses of ISoT and ISoRA are represented by *inanimate objects of studies*. They are used to achieve impersonality by making the knowledge 'talk' by itself. The adoption of *inanimate objects of studies* as *actors* also results in efficacy in construing knowledge especially due to the absence of humans or researchers as *actors*. This phenomenon is in accordance with the findings of Martinez (2001) where one of techniques to promote impersonality in clauses is by omitting human actors and instead employing the *inanimate object of studies*. The *inanimate object of studies* found in this study in reality did not perform the actions or the processes framed in the material clauses. The actions were in reality carried out by human agents. However, the use of humans as *actors* in the material clauses might result in redundancy and in subjectivity.

The phenomenon of incorporating *inanimate object of studies* as the 'fake' *actor* was also found by Master (1991) where he named this 'a resource for energy concealment'. He argues that when an inanimate subject or *actor* replaces a human agent, the process is as if conducted by an inanimate thing although in fact it is carried out by a human agent. Martínez (2001) claims that the concealment or omission of explicit human *actors* reflects authors' manifestation in distancing themselves from their texts. The strategy of making the knowledge talk by itself by substituting the real human *actors* with objects of studies is underpinned by the principle of academic discourse where clauses bringing knowledge is expected to be compact and objective.

Another noticeable finding in the current study is the incorporation of *previous researchers* and *current researchers* as the *actors* of material clauses. In the ISoT, the latter outnumbers the former. Under the sub-genre of introduction as the basis of conceptual knowledge production and dissemination, *current researchers* compared with *previous researchers* as *actors* might less support the process of knowledge building. Rather, they more cater for move 3 in Swales' introduction functions (Swales, 1990), that is, occupying the gap of knowledge that still needs further development.

Different with *current researchers*, *previous researchers* as *actors* serve to support the basis of knowledge building, especially for revealing the state of existing study development in leading to the parts of knowledge that still needs further development. The frequent use of *other researchers* instead of *current researchers* as the first participants in the process of developing knowledge was also found by Martínez (2001) in her study of transitivity system in the English-medium medical, biological, and social science RA introductions.

The focus on *current researchers* implies that the material clauses in the ISoT prioritise the knowledge that will be produced by student writers rather than the knowledge that had been generated by previous researchers. The outnumbering *current researchers* as *actors* in the material clauses of ISoT indicate that student writers still lacked insight into the nature, functions and components of RA introduction. As pointed out by Swales (1990), an introduction of RA serves to establish a territory of a study, establish a knowledge gap, and occupy the gap. For establishing the knowledge gap, an introduction section of RAs needs material clauses involving previous researchers as the *actors* or doers of knowledge building. Schleppegrell (2008) argues that students were shown to have difficulties in choosing lexico-grammatical features for making meaning in exposition where they were expected to incorporate or acknowledge the writing of others before stating their judgements.

The outnumbering *current researchers* as *actors* in the material clauses of ISoT might also hint that in establishing the basis for knowledge development in the introduction, English-major students might still lack reading materials for strengthening their background of study. This lack of reading resources was anticipated by incorporating more *current researchers* (students as writers) rather than *previous researchers* as the *actors*.

The frequent use of *previous researchers* as *actors* in the introduction section of RAs is in line with the scientific principle in generating knowledge that is developed and disseminated continuously from past researchers to the following researchers. Under the discourse community of academia especially knowledge building, the basis of knowledge building in a RA is facilitated by the introduction section especially the background of study.

The last noticeable finding of *actor* representation in the current study is the incorporation of *previous studies* versus *current studies* as the *actors* of material clauses. In the ISoRA set as the parameter or target writings, *previous studies* as *actors* outnumber *current studies* while in the ISoT this occurs vice versa. *Previous studies* in the introduction of RA provide the state of current knowledge development based on what has been found by previous researchers. They finally hint the parts of knowledge gaps that still need further investigation or improvement in the process of knowledge building. This phenomenon is in accordance with the main function of RA introduction as the basis or background for developing current or future related studies. As it was pointed out earlier, an introduction of RA plays a role in establishing a territory of a study, establishing a knowledge gap, and occupying the gap (Swales, 1990). Unlike previous *studies* outnumbering *current*

studies in the material clauses of ISoRA, in its ISoT counterpart, the latter outnumbers the former.

The phenomenon of focusing more on *current studies* rather than *previous studies* as *actors* might reflect that for student writers knowledge building is rather a single process that is independent from other related studies. According to the community of academic discourse, knowledge building is a continuous process developed and disseminated from past to next studies.

The dominant *current studies* instead of *previous studies* as *actors* in the material clauses of ISoT might also reflect that in establishing the basis for knowledge development in the introduction, students still lacked related sources for strengthening their background of study. As reported in the phenomenon of *previous researchers* versus *current researchers*, the outnumbering *current studies* in students' writings might be the result of their lack of related literature for supporting their research basis. This lack of related literature was covered by frequently employing their studies as the focus or *actors* of material clauses rather than *previous related studies* that had produced related findings.

The second aspect of findings in the current study is the representation of *goals* as the second participants of material clauses. It is found that in both data sets of ISoT and ISoRA the most frequently *goals* are represented by *inanimate objects of studies*. The dominant *inanimate objects of studies* as *goals* confirm that both material clauses of students' and target writings give emphasis on the knowledge being developed. This fact is line with the function of RA as a medium of developing knowledge.

The noticeable gap of *goals* between students' writings and journal articles lies in *previous findings*. Compared with the material clauses of ISoRA, the data set of students are still left

far behind in terms of the usage of previous findings as the *goals.*

The lack of *previous findings* as *goals* in the material clauses of ISoT might indicate that the clauses have not ideally supported the role of RA introduction as the basis of knowledge building. Again, like in the discussion on the representation of *actor* earlier, the least occurrences of *previous findings* as *goals* in the material clauses of ISoT could be the result of student writers' lack of insight into the nature and function of RA introduction. In Swales' model of introduction functions, *previous findings* of studies serve to underpin the basis of knowledge building (Swales, 1990).

The limited occurrences of *previous findings* as *goals* in the material clauses of ISoT might also indicate that in establishing the basis for knowledge development students still lacked related literature to refer to. This lack of previous reading resources was perhaps covered by frequently employing their *objects of studies* as *goals* rather than by incorporating *previous findings* that had been produced and disseminated by previous researchers or studies.

In general, the limited occurrences of *previous studies* or *researchers* as *actors* and limited numbers of *previous findings* as *goals* in the material processes of ISoT in comparison with their ISoRA counterparts reiterate that student writers still lacked the insight into the nature of knowledge building genre. It has been argued that in exposing arguments students have to portray the point of view of other authors before formulating their own summary of evaluation or judgement (Schleppegrell, 2008).

The phenomenon of limited occurrences of *previous studies* or *researchers* as *actors* and limited numbers of *previous findings* as *goals* in the material processes of ISoT might also correlate with the study conducted by Farnia & Barati (2017) on the RA

introduction sections composed by native and non-native writers. Their study found that non-native writers in comparison with their native counterparts were still left behind in terms of Swales' move strategies except for move 1: step 2 (*making generalizations of increasing specificity*) and move 3: step 2 (*presenting research question/hypothesis*).

The more frequent occurrences of move 1: step 2 (*making generalizations of increasing specificity*) and move 3: step 2 (*presenting research question/hypothesis*) in the non-native writings hint that non-native writers put their priority on their current studies being developed instead of *previous related studies*. Although the writers (students & researchers) in the present study are different with the ones (native and non-native) in the study of Farnia & Barati (2017), to some extent, both study findings share some similar patterns of phenomena especially related with the priority on *previous* vs. *current study/researchers* as the basis of knowledge production.

Overall, the representation of *actors* and *goals* of material processes in students' introduction sections of theses still needs lexical resources that underpin the process of knowledge building. This has been confirmed by the tendency of *actors* and *goals* of ISoT to frequently represent its study undertaken compared with its ISoRA counterpart that dominantly employed more other related studies.

CONCLUSION

The scrutiny of the representation of *actors* and *goals* in the transitivity system of ISoT in reference to that of ISoRA has revealed that the material clauses in the introduction section of students' undergraduate theses still lack *previous researchers* and *previous studies* as the first participants or *actors*. Besides, there has been a lack of *previous findings* as the second participants or *goals*

compared with the data set of ISoRA. In general, the nuclear participants of material processes of transitivity system in the ISoT still lack lexical resources for underpinning the process of knowledge building. This could be the result of students' lack of knowledge about the nature and function of RA introduction as the basis of knowledge building. This might be also caused by student writers' lack of relevant literature for establishing a basis for their undergraduate thesis introduction.

Based on the current study, the insight into students' challenges in employing lexico-grammatical features in the process of knowledge building can be used as one of inputs in assisting students how to write the introduction section of RA towards the target writings with functional strategies. It is also expected that the findings of this SFL study can contribute to the theories, design, and practice of academic writing in higher education.

Nevertheless, apart from its findings, this current study limits its focus on the representation of *actors* and *goals* in the material clauses of students' undergraduate thesis introduction sections in relation to that of journal RAs. Further studies still need the insight into the representation of participants of other processes apart from material clauses. Subsequent studies can also lay their focus on understanding other sections of theses and journal research articles.

REFERENCES

Adnan, Z. (2005). *Merebut hati audiens internasional: Strategi jitu meraih publikasi di jurnal ilmiah*. Jakarta: Masyarakat Linguistik Indonesia.

Babaii, E., & Ansary, H. (2005). On the effect of disciplinary variation on transitivity: The case of academic book reviews. *Asian EFL Journal*, *7*.

Chahal, D. (2014). Resarch article introductions in cultural studies: A genre analysis exploration of rhetorical structure. *The Journal of Teaching English for Specific and Academic Purposes*, *2*(1), 1–20.

Charles, M., Pecorari, D., & Hunston, S. (2011). *Academic writing at the interface of corpus and discourse*. New York: Continuum.

Choura, S. (2013). Ditransitive complementation in medical research articles. *JéTou*, *1*(1), 53–58.

Eggins, S. (2004). *An introduction to systemic functional linguistics 2nd Edition* (2nd ed.). New York: Continuum International Publishing Group.

Emilia, E. (2010). Students' critical thinking in writing a thesis using the transitivity system. *Jurnal Ilmu Pendidikan*, *17*(2), 101–111. http://journal.um.ac.id/index.php/jip/article/view/2628

Fang, Z., Schleppegrell, M. J., & Cox, B. E. (2006). Understanding the language demands of schooling: Nouns in academic registers. *Journal of Literacy Research*, *38*(3), 247–273. https://doi.org/10.1207/s15548430jlr3803_1

Farnia, M., & Barati, S. (2017). Writing introduction sections of research articles in applied linguistics: Cross-linguistic study of native and non-native writers. *Indonesian Journal of Applied Linguistics*, *7*(2), 486–494. https://doi.org/10.17509/ijal.v7i2.8357

Fitriati, S. W., & Solihah, Y. A. (2019). Non-native writers and the use of appraisal resources in research article introductions. *Indonesian Journal of Applied Linguistics*, *8*(3), 638–645. https://doi.org/10.17509/ijal.v8i3.15265

Gerrot, L., & Wignell, P. (1994). *Making sense of functional grammar*. New South Wales: Gerd Stabler.

Halliday, M. A. K. (2004). *The language of science*. London: Continuum.

Halliday, M. A. K., & Matthiessen, C. M. I. M. (2004). *An introduction to functional grammar* (3rd ed.). London: Hodder Headline Group.

Hancioglu, N., Neufeld, S., & Eldridge, J. (2008). Through the looking glass and into the land of lexico-grammar. *English for Specific Purposes*, *27*, 459–479. https://doi.org/10.1016/j.esp.2008.08.001

Huang, P. (2009). *A comparison of international and Chinese journal article abstracts from move structure to transitivity analysis*. *4*(1), 23–45.

Hyland, K. (2009). *Academic discourse: English in a global context*. London: Continuum.

Ignatieva, N. (2008). A systemic functional analysis of college students ' literature essays in Spanish. *Systemic Functional Linguistics in Use. Odense Working Papers in Language and Communication*, *29*, 420–433.

Kazemian, B., Behnam, B., & Ghafoori, N. (2013). Ideational grammatical metaphor in scientific texts: A Hallidayan perspective. *International Journal of Linguistics*, *5*(4), 146–168. https://doi.org/10.5296/ijl.v5i4.4192

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology* (2nd ed.). California: Sage Publications, Inc.

Lakic, I. (2010). Analysing genre: Research article introductions in economics. *The Journal of Linguistic and Intercultural Education*, *3*, 83–100. https://doi.org/10.29302/jolie.2010.3.5

Love, A. (1993). Lexico-grammatical features of geology textbooks: Process and product revisited. *English for Specific Purposes*, *12*(3), 197–218. https://doi.org/10.1016/0889-4906(93)90002-6

Martin, J. R., Matthiessen, C. M. I. M., & Painter, C. (1997). *Working with functional grammar*. London: Arnold.

Martínez, I. A. (2001). Impersonality in the research article as revealed by analysis of the transitivity structure. *English for Specific Purposes*, *20*(3), 227–247. https://doi.org/10.1016/S0889-4906(00)00013-2

Master, P. (1991). Active verbs with inanimate subjects in scientific prose. *ESP Journal*, *10*(1), 15–33.

Milton, J., & Tsang, E. S. (1991). A corpus-based study of logical connectors in EFL students' writing: Directions for future research. In *Studies in Lexis* (pp. 215–246). The Hong Kong University of Science and Technology. http://hdl.handle.net/1783.1/1083

Mirahayuni, N. K. (2013). Strategi penulisan artikel dalam bahasa Inggris: Ciri-ciri struktural dan leksikal dalam bagian pendahuluan. *Parafrase*, *13*(02), 1–11.

Moore, T. (2007). The "process" of learning : On the use of Halliday's transitivity in academic skills advising. *Arts and Humanities in Higher Education*, *6*, 50–73.

Neuendorf, K. A. (2002). *The content analysis guide book*. London: Sage Publication.

Nivales, M. L. M. (2011). Hedging in College Research Papers: Implications for Language Instruction. *Asian EFL Journal*, *52*(May), 35–46.

Safnil. (2007). The dialogue technique of teaching writing research article introductions (RAI) in English. *Forum Pendidikan*, *26*, 210–220.

Safnil. (2013). A genre-based analysis on the introductions of research articles written by Indonesian academics. *TEFLIN Journal*, *24*(2), 180–200. https://doi.org/10.15639/teflinjournal

.v24i2/180-200

Samraj, B. (2002). Introductions in research articles: Variations across disciplines. *English for Specific Purposes*, *21*(1), 1–17. https://doi.org/10.1016/S0889-4906(00)00023-5

Sari, D. P. (2013). Exposition and recount texts analysis: Schematic structures and linguistics features. *Jurnal Ilmiah Esai*, *7*(3).

Sayfouri, N. (2010). *SFL and ESP genre analysis of English research articles in Iranian and English-American medical journals: A Contrastive study*. September.

Schleppegrell, M. J. (2008). *The Language of schooling*. New Jersey: Mahwah.

Schulze, J. (2011). Writing to persuade: A systemic functional view. *Gist Education and Learning Research Journal*, *5*, 127–157.

Seah, L. H., Clarke, D. J., & Hart, C. E. (2011). Understanding students ' language use about expansion through analyzing their lexicogrammatical resources. *Science Education*, *95*, 852–878. https://doi.org/10.1002/sce.20448

Shahab, S., & Asl, H. D. (2015). *Ideational grammatical metaphor in pharmaceutical research articles*. *3*(4), 111–116.

Sucipto, A., Mahdi, A., & Sujatna, E. T. . (2014). *Process types in scienic English clauses : A systemic functional linguistics analysis*. *6*(4), 389–395.

Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge: Cambridge University Press.

Thomson, G. (2004). *Introducing functional grammar*. New York: Oxford University Press.

Wallwork, A. (2011). *English for writing research paper*. New York: Springer.

Xuan, W. . (2018). Understanding experiential meaning-making in Chinese adolescent L2 writing: a systemic functional perspective. *Asian-Pacific Journal of Second and Foreign Language Education*, *3*(5), 1–16. https://doi.org/10.1186/s40862-018-0046-2

Zheng, S., Yang, A., & Ge, G. (2014). Functional stylistic analysis: Transitivity in English-medium medical research articles. *International Journal of English Linguistics*, *4*(2), 12–25. https://doi.org/10.5539/ijel.v4n2p12