

## Process Types of Transitivity System in Engineering Lecture Introduction: A Pedagogic Discourse

Heri Kuswoyo<sup>1)</sup>

hery@teknokrat.ac.id

Akhyar Rido<sup>2)</sup>

akhyar\_rido@teknokrat.ac.id

**Abstract:** This study is aimed at investigating the transitivity process types constructed in a pedagogical discourse of engineering lecture introduction in a university in the Netherlands, where English is used as the medium of instruction. The pedagogic discourse theory and transitivity analysis were employed to analyze the data. A qualitative approach was applied in this study while the data were collected from *Cosmolearning* Corpus's 7 engineering lectures. The findings showed that all transitivity processes appeared in engineering lecture introduction. Material process, relational process, mental process, verbal process, behavioral process, and existential process were identified. It was also revealed that the most dominant process used by the lecturers in engineering lecture was material process. This indicated that the engineering lecturers in lecture introduction have succeeded at reaching the level of material process. In other words, they were aware of realization aspect of the students' behavior because all of them directed toward the goals of the teaching-learning activity. To sum up, at the engineering lectures introduction, the regulative register which was related to the goals, purposes, and directions of the teaching-learning activity became very important.

**Keywords:** *process types of transitivity system, engineering lecture, pedagogic discourse, systemic functional linguistics*

**Abstrak:** Penelitian ini bertujuan untuk menyelidiki jenis proses transitivitas yang dibangun dalam wacana pedagogis perkuliahan pembuka kelas teknik di satu universitas di Belanda yang menggunakan bahasa Inggris sebagai bahasa pengantar. Teori wacana pedagogis dan analisis transitivitas digunakan untuk menganalisis data. Pendekatan kualitatif diterapkan pada penelitian ini sedangkan data diambil dari 7 sesi perkuliahan teknik di TU Delft, Belanda pada Korpus *Cosmolearning*. Temuan menunjukkan bahwa semua proses transitivitas muncul dalam perkuliahan pembuka kelas teknik. Proses material, proses relasional, proses mental, proses verbal, proses perilaku, dan proses eksistensial teridentifikasi. Temuan juga mengungkapkan bahwa proses yang paling dominan digunakan oleh dosen dalam perkuliahan pembuka kelas teknik adalah proses material. Ini menunjukkan bahwa perkuliahan pembuka kelas teknik telah berhasil mencapai tingkat proses material. Dengan kata lain, dosen menyadari aspek realisasi dari perilaku mahasiswa karena itu semuanya menunjukkan tujuan langsung dari kegiatan belajar-mengajar. Sebagai kesimpulan, dalam perkuliahan pembuka kelas teknik, *regulative register* yang berkaitan dengan target, tujuan dan arah dari kegiatan pengajaran-pembelajaran menjadi hal yang sangat penting.

**Kata- kata Kunci:** *jenis proses sistem transitivitas, perkuliahan teknik, wacana pedagogis, linguistik sistemik fungsional*

---

<sup>1)2)</sup> *Lecturers at Faculty of Arts & Education, Universitas Teknokrat Indonesia  
Bandarlampung, Lampung, Indonesia.*

In the past decades, the number of international mobile students, especially in European countries, has been increasing significantly. However, in the Indonesian context, Mukminin (2019) states that from the 2009–2010 to the 2016–2017 academic years, the number of Indonesian students studying in Europe, particularly in Dutch higher education institutions, decreased. Indonesia is no longer part of the top 10 sending countries (IIE, 2017). Foreign language mastery was claimed as one of the issues among Indonesian students. In her study, Ernofalina (2017) found that the most problematic aspect experienced by Indonesian students studying overseas was language. Indonesian students faced challenges in their listening, speaking, reading, and writing

Thompson (1994) in Shamsudin & Ebrahimi (2012) argued that non-native English speakers still have problems when listening to lecture monologues to take notes of the main points. These kinds of problems had prohibited them from getting the point throughout the lectures. Rido (2019) claimed that non-native speaker students struggle in coping with discourse structure of a lecture. It is the way in which a text is organized, including the words and grammatical elements that link portions of a text to each other. Thus, understanding lecturers' utterances become very important because they can support the understanding of the students toward the topics given in classes (Mulatsih et al., 2018). The widespread use of the academic lecture by university instructors has even made some scholars believe that for most university students, understanding pedagogic discourse, predominantly transitivity system, is critical to academic success (Olsen & Huckin, 1990) in Zare & Keivanloo-Shahrestanaki (2017).

Studies on pedagogic discourse and experiential realization in systemic functional linguistics (SFL) have been explored for decades (Christie, 1995; Castro, 2006; Ignatieva & Rodriguez-Vergara, 2015; Sinar, 2017; Munalim, 2017; Wegener, Schhuller & Cassens, 2017; Sunardi et al., 2017; Mulatsih et al., 2018). These studies highlighted that schematic structure of pedagogic discourse was generally carried out in three general stages; orientation, discussion, and closure stages. Each stage was operated through several potential pedagogic steps. Those studies also indicated that there were important variations among the verbal process frequencies and their projecting characteristics in different genres and areas under analysis.

This study tried to investigate the process types constructed in the pedagogic discourse of engineering lecture introduction in a spoken academic corpus of Dutch engineering lectures using the SFL as the approach. Bligh (1998) proposes that the lecture introduction is of particular interest, as there is a common belief that when listening to a lecture students' attention span does not exceed the first twenty minutes of a lecture. In another view, lecture introduction can be viewed as especially important to be understood because they play a key role in telling the listeners what the lecture is going to be about (Yaakob, 2013).

In this study, the writers focus on two sets of language choices (regulative and instructional registers) as lecturers' utterances play in both registers, where subject positions are constructed in discourse and how students develop an understanding of common knowledge of a culture. The writers also assume that the variation of lecturers' linguistic choices is necessary and significant for the management of classroom situations and the building of an effective relationship with the students. Thus, the research questions are:

1. What are the transitivity processes types distributed in regulative registers and their associated participants and circumstances in instructional registers in engineering lecture introduction?
2. To what extent do the transitivity processes make meaning in regulative registers in engineering lecture introduction?
3. What is the most prominent transitivity process types found in engineering lecture introduction?

### **Pedagogic Discourse**

The term pedagogic discourse was first introduced by Bernstein (1990). Later, it was modified by Christie (1995, p. 224). She stated that pedagogic discourse is marked by the operation of two registers constituting two sets of linguistic choices: a regulative register and an instructional register. Christie (1995) further explained that she used the term 'register' rather than 'discourse' because of its significance in the systemic functional linguistic theory. In this study, the pedagogic discourse analysis shows how classroom text is constructed and captures all social practices involved in engineering lecture introduction. Rose (2014) & Christie (1995, p.224) propose pedagogic discourse for Bernstein included both the discourse of skills and knowledge that he called 'instruc-

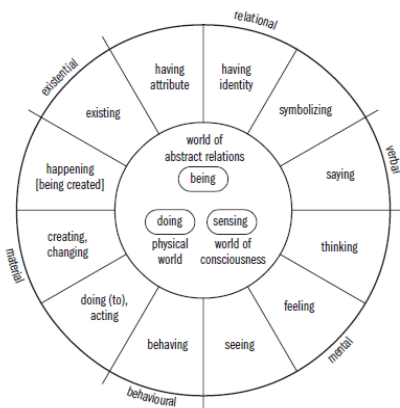
tional’ and the creation of social order, relations and identity that he termed ‘regulative’. A regulative discourse refers to the pedagogic goals and the organization of the classroom activities to accomplish the pedagogic goals, while an instructional discourse refers to the knowledge and skills taught and learned in the pedagogic activity.

**Transitivity System**

SFL views a language as a resource for making meaning (Halliday, 1994, Sujatna, 2013, Derewianka & Jones, 2016). In SFL account, according to Halliday and Matthiessen (2004), a language has three different metafunctions of meanings: textual meaning, interpersonal meaning, and ideational meaning. This study, however, focuses on the last one. The ideational (or experiential) meanings are realized through the transitivity system. Thompson (2014) & Lu (2008) state ‘from the experiential perspective, language comprises a set of resources for referring to entities in the world and how those entities act on or relate to each other’. Moreover, as stated by Halliday (1994) in Castro (2006), language is used to represent patterns of experience, that is, it enables human beings to build a mental picture of reality, to make sense of what goes on around them and inside them. Thompson, then, (2014) urges that transitivity realized ideational meaning which is represented on the processes, participants, and circumstances, as in:

She	kicked	the ball	in the park
<i>Partici-</i>	<i>Process</i>	<i>Partici-</i>	<i>Circum-</i>
<i>pant</i>		<i>pant</i>	<i>stance</i>

*Process Types and Participant Roles*



**Figure 1. The grammar of experience: types of process in English (Halliday, 2004)**

The process centers on part of the clause that is realized by the verbal group, but it can also be regarded as what ‘goings-on’ are represented in the whole clauses (Emilia, & Syifa, 2018 & Bloor & Bloor, 2004, p. 109). Halliday & Matthiessen (2014); Thompson (2014); Eggins (2004) added that the core or the nucleus of the clause as the representation of experience is the process. The process represents the happening or event. The clause is on about, whether it is a matter of a ‘happening’, ‘doing’, ‘thinking’, ‘saying’, ‘being’, ‘having’, etc. A diagrammatic summary is illustrated in figure 1.

Based on figure 1, there are six types of processes. They involve material, mental, verbal, relational, behavioral, and existential. First, the material process involves physical actions: running, cooking, sitting down, and so on. Besides, But et al (2003, p. 57) argue that material process construes doing, they answer ‘what did x do?’. The ‘doer’ of this type of action is called the ‘Actor’. Material processes can be divided into those that represent the action as involving only the Actor and those that also affect or are ‘being done to’ another participant. The second participant is called the ‘Goal’ (thing affected by the process) or ‘Range’ (thing unaffected by the process). Second is the mental process. Mental processes encode the inner world of cognition, perception, inclination or liking/disliking (known as affect), for example; know, believe, hope, feel, etc. Potential participant roles are senser (or doer of the process) which must be realized by a human or at least conscious participant; and aphenomenon, realized by a nominal group or embedded clause summing up what isthought, wanted, perceived or liked/disliked. The third, behavioral processes construe physiological or psychological behavior. The main participant, the behavior, is generally a conscious being and, if it is not, the clause is considered to be personification; e.g notice, observe, approve, support, etc. The next process is the verbal processes. They construe saying. Potential participant roles are: sayer (doer of the process), receiver (addressee of the speech), target (the participant which is the object of the talk), and verbiage (which corresponds to Phenomenon in a mental process and sums up what is said in one nominal group or embedded clause) e.g, ask, say, talk etc. The next is the existential process. Thompson (2014) proposes that this kind of process expresses the mere existence of an entity without predicating anything else of

it; e.g there is/was something. And the last process is the relational process. It relates a participant to its identity or description; e.g to be is/are, means, refer to, stands for, etc. Alternatively, it could be a ‘possessive – have’ relation clause. Thus, within relational processes there are two main types: relational attributive, which relates a participant to its general characteristics or description; and relational identifying, which relate a participant to its identity, role or meaning. In relational attributive clauses, the participant carrying the characteristics or attributes is known as the carrier and the characteristic is known as Attribute.

*Circumstances*

Circumstances are realized by circumstantial adjuncts, essentially encode the background against which the process takes place (Thompson, 2014, p.114). There are a few well-established categories of circumstance such as time, place, manner. But et al (2003) added that they are the inner orbit of participant roles that answer the questions Who? Which? What? To whom? For whom? about the process. Besides, they give the audience sufficient information for some speakers or writers’ purposes, but others may want to fill in more details by telling the audience where, or when or how or why or with whom or as

what the process occurred.

**METHOD**

This study employed a descriptive qualitative approach. Stake (2010) urges that this kind of approach expects to devote much interpretation to the context and situation, which is intended to investigate the process types distributed in regulative registers, the participants and circumstances types constructed in instructional registers in engineering lectures in the Netherlands.

**Corpus and Data Collection**

In this present study, the writers utilized a corpus of *Cosmolearning* is a collection of the top educational videos on the web, generously offered by hundreds of universities, educators, and professionals. The corpus is available online (<https://cosmolearning.org>).

The initial corpus of engineering lectures with 87,311-word tokens was used. Transcripts of the seven aerospace engineering lectures formed the main resource for this study. It was the lecturers where English was used as the medium of learning for subjects other than English as a foreign language. These lectures were presented by non-native lecturers of aerospace engineering. Table 1 shows a full description of the lecture transcripts and profiles of lecturers in this study.

**Table 1. Profiles of the lectures**

Transcripts Number (label)	Topic/title	Duration	Word Tokens
L1_AeEn	Ballooning	1:26:13	13,373
L2_AeEn	How aircraft fly	1:34:59	12,634
L3_AeEn	Aerodynamic 1: fundamentals	1:26:09	11,237
L4_AeEn	Flight Mechanics	1:28:19	11,765
L5_AeEn	Flight and Orbital Mechanics	1: 31: 16	13,531
L6_AeEn	Structural Elements	1:22:56	10,651
L7_AeEn	Entering Space	1:27:55	14,120

Guided by Creswell’s theory, the lecture transcripts were purposively selected under the lead subject, topic and contributor category. Descriptive qualitative research should purposefully participants or sites both document and visual material that will best help understand the problem and research questions (Creswell, 2009). Meanwhile, the classroom setting chosen for this study was based on the criteria such as the participants’ roles in the class, duration or length of lectures,

styles of teaching, nationality (non-native speaker of English). Regarding these criteria for corpus selection, the video recording lectures in that corpus were collected from <https://cosmolearning.org/aerospace-engineering/courses?contributor=537> and subsequently transcribed into text format and carefully checked.

**Data Analysis**

Krippendorff’s (2004) content analysis



theory was used to analyze the data. This data analysis involved four stages: the first is the decontextualization. It followed four steps (1) downloading a video recording of engineering lectures from Cosmolearning web. (2) Transcribing the data into written text to obtain the sense of the whole, (3) identifying meaning units, As suggested by (Christie, 1995), it is necessary to study quite long sustained sequences of lesson, in order to demonstrate how a pedagogic discourse works (4) coding the data by numbering the sets of sequences of clauses that appeared in the data, for example; Mat04/I.

**Table 2. Coding used in documenting the examples**

Mat04/I	Material Process	We set up a completely new curriculum
---------	------------------	---------------------------------------

Mat = stands for material  
 04 =data 4  
 I =material symbol

4	We	set up	com-pletely	a new curriculum
	Actor	Process: material	Circum-stance	Goal

The second stage was a process of distancing; the third stage was the categorization process. And the last was presenting the findings.

**FINDINGS AND DISCUSSION**

This study was aimed at investigating the process types involving participants in certain circumstances constructed in the pedagogic discourse of engineering lecture introduction. Further, this study looked at the propositional ‘content’ of clauses that are expressed in language: all the doing, sensing, being by the lecturers. These propositional ‘content’ of clauses were analyzed using qualitative content analysis to identify the processes types and the most prominent process types distributed in regulative registers and their associated participants and circumstances in instructional registers in engineering lecture introduction. This section presents the findings and discussion based upon three specific research questions outlined in this paper.

**Process Types Distributed in Regulative Registers in Engineering Lecture Introduction**

The results of this study show that all

processes appeared in engineering lecture introduction. Material process, relational process, mental process, verbal process, behavioral process, and existential process are elaborated. The data reveal that the most dominant process used by the lecturers in engineering lecture introduction is material processes. These hits amount to 32,36%. On the other hand, in the second rank, the number of relational processes is 21 constituting 15,33 % of the total. The mental process lagged behind the relational processes. These hits amount to 10,22%. The process then is subsequently followed by the verbal processes related to saying. These hits amount to 5,9 %, then, the behavioral processes hit amount to 2,92%, occurred as same as existential processes. Table 3 presents the detail descriptions of the transitivity process types in the clauses of engineering lecture introduction to reveal the experiential meanings.

**Table 3. Process types distributed in regulative registers in Engineering Lecture Introduction**

No	Transitivity Processes	∑	Percentage
1	Material	32	23,36%
2	Relational	21	15,33%
3	Mental	14	10,22%
4	Verbal	4	5,9%
5	Behavioral	1	2,92%
6	Existential	1	2,92%
	Total	73	100%

Table 3 confirms that engineering lecturers in lecture introduction have succeeded to reach the level of material processes. Thus the results demonstrate that the lecturers are aware of realization aspect of the student’s behaviors because all of them direct toward the goals of the teaching-learning activity. High occurrences of material processes in the introduction lecture may be considered as the pivotal activities, telling the key role to the listeners what the lecture is going to be about. It is also because of the series of activities that students would be doing in the lesson. In line with Christie’s (1995) findings, the curriculum initiation or introduction involves the opening step in which broad pedagogic goals are established concerning a particular instructional field. This finding may be similar to Sunardi’s (2017) study, where the orientation stage is more frequently used. The

findings further show that the use of material clauses is centrally focused on lecturer's and student's actions concerning the topics of the lecture.

*Material Process*

Material process implies doing something. It expresses the notion that some entity physically does something - which may be done to some other entity, thus involving two participants: the 'Actor' and the 'Goal', as well as another optional constituent called the 'Circumstantial'. They answer the question 'what did X do?' or 'What happened? Potential roles are Actor (or doer of the process), a Goal (or thing affected by the process), a Range (or thing unaffected by the process), a Beneficiary of the process.

From Table 3, it can also be seen that the material processes represent the most prominent transitivity process type in engineering lecture introduction. They particularly reflect the opening phase which covers sub-phases: getting started, warming up and setting up lesson agenda. In getting started, the engineering lecturers not only greet students but also signal the beginning of the lecture. It further signals that the lectures need more attention from students so the lesson could begin. In Data (1), the material process start was used to signal it.

- (1) Mat05/I  
*And before I start my lecture*

and	before	I	start	my lecture.
	Circumstance: temporal	Actor	Process: material	Goal

The data (1) shows that the element initiates a material process start as a process of doing, realizing the lecturer starts his lecture. It further signals a lesson's official start and orients students to the day's lesson. As far as the participants are concerned, the first participant role, as mentioned above, is that of Actor assigned to I (lecturer). Another Participant role is Goal my lecture. Further, a circumstance before provides further experiential information about when the class is started. The material process in this context is used to build aspects of the field since it occupies the highest number among other transitivity processes. Since most of the processes are material, which is 'the type close to action' (Hasan, 1985) in Emilia (2014, p. 178), this part of the text construct a picture of a world, describing what happened, which, to some extent, is in line with the function

of the element-to introduce and to build information on the issue.

*Relational Process*

The relational process involves states of being (including having). It often appears in clauses whereby a thing is being identified or its attributes are being described. The relational process involves two sub-types: 1) attributive and 2) identifying. Attributive relates a participant to its general characteristics or description and or it assigns a quality of something. Meanwhile, identifying relates a participant to its identity, role or meaning.

As the data show, the relational processes represent the second prominent transitivity process type in engineering lecture introduction. They also particularly reflect the opening phase which covers sub-phases: getting started, warming up and setting up lesson agenda. The data (2) below in transitivity terms exemplifies the occurrence of a relational process in which the process be (is) is employed. In the given lecture context, this transitivity process realizes warming up as the part opening phase. In warming up, the engineering lecturers attend to a host of issues ranging from collecting or returning homework or exams to reminding students of assignments to announcing events that learners might find useful. In this phase, the lecturers also outline the purpose or aims of the lecture. In data (2), the relational process be verb such as is was used the lecturers to identify something. That is to state the lecture objectives or goals. This is illustrated in the following data.

- (2) Rel017/II  
*But main goal is to give you the basic knowledge of the principle of aerospace*

But	main goal	Is	to give you the basic knowledge of the principle of aerospace
	Token	Process: relational identifying	Value

The data (2) above shows that the relational identifying process type is elaborated. In terms of participant function, main goal is an identified and to give you you the basic knowledge of the principle of aerospace function as an identifier. As mention previously, the verb be (is) is employed by the lecturers in transitivity term to express

warming up sub-phase that aims at stating the lecture’s goals or objectives. On the other hand, the relational attributive process is also found. In the relational attribute process, a relationship is established between two terms using either the process ‘be’ or one of its synonyms. Data (3) clarifies how relational attributive process ‘were’ was used.

(3) Rel011/II  
*And we were quite some questions about assignments 3.8 and 3.11*

and	we	were	quite some questions about assignments 3.8 and 3.11.
	Carrier	Process: relational attribute	Attribute

In the data (3) presented in advance, the lecturer used *to be* ‘were’ and this is considered as relational attribute process. The participant ‘we’, then, carries the characteristics or attribute of quite some questions about assignments 3.8 and 3.11. This transitivity process is used particularly to realize housekeeping that state making announcement, collect or return homework, and offer reminders. It is in line with Lee’s (2011) findings, This step permits experienced teachers to attend to a host of issues ranging from collecting or returning homework or exams to reminding students of assignments to announcing events that learners might find useful.

*Mental Process*

Mental processes (sensing verb) encode meanings of thinking or feeling. Mental processes are used in clauses of lecture introduction to express realizations of thinking, feelings, and perceiving. Thus, these mental processes are classified into three subcategories: 1) cognition 2) affection, and 3) perception. Mental processes form a viable semantic category. The subject in mental process is the one who experiences the process, so the participant is labeled experience or sensor. That which is experienced is given the label phenomenon. Let us consider the following data (4).

(4) Men069/III  
 For today, I want you to be able to give a definition of airframe.

For today	I	want	you	to be able to give a definition of airframe.
Circ: temporal	Sens-er	Process: mental: cognition	phenome-non	Process: Mental: cognition

In data (4) above, the mental processes ‘want’ and ‘be able to give a definition’ were used, respectively. These mental processes were used in the third rank after the relational process in engineering lecture introduction. These mental processes are classified into cognition. The use of mental processes in lecture introduction reflect the sub-phase setting up lesson agenda. These were a series of activities that students would be doing in the lesson. In term of transitivity interpretation, the participant I functions as Sensor. Meanwhile, the participant You functions as Phenomenon and besides for today functions as a Circumstance of temporal location.

*Verbal Process*

Verbal process is a process of saying, as ‘what did you say?’. In other words, the verbal process implies saying and arguing which occupied the fourth rank in terms of frequencies. The Potential participant roles are Sayer (doer of the process), Receiver (addressee of the speech), Target (the participant which is the object of the talk), and Verbiage (which corresponds to Phenomenon in a mental process and sumps up what is said in one nominal group or embedded clause). In one way the verbal process is intermediate between mental and material process: saying something is a physical action that reflects mental operations. Example (5) demonstrates using the verb ‘spoke’, and ‘talk’.

(5) Verb08/IV  
 Last Tuesday we spoke about certain [[that the space environment can have on your mission]]

Last Tuesday	we	spoke	about certain [[that the space environment can have on your mission]].
Circ: temporal	Sayer	Process: verbal	Verbiage

(6) Verb058/IV

So in the fourth lecture, I'm going to talk again about horizontal fly performs

So	in the fourth lecture	I	'm going to talk	again	about horizontal fly performs
Circ:	manner	Sens-er	Pro-cess:ver-bal	Circ:	Ver-biage

Based on Data (5) and (6), from the transitivity point of view, the verbs spoke and talk express verbal processes. As regards participant functions and types, in the instance We and I function as Sayers, whereas about certain [that the space environment can have on your mission]] and about horizontal fly performs function as Verbiages. This transitivity process is used particularly to review the previous lecture and to set lecture agenda. It is in line with Rido's (2010) findings, in the opening, the lecturers review the previous lecture by highlighting key concepts, explanations, exemplifications, relations of knowledge or topics or sub-topics. Based on the context of data, the lecturer aimed at evoking the certain, the concepts that they have learned from the previous lecture. This finding is also similar to Domizio (2008). He agreed that in the introduction of a lecture there must be a review of the previous lecture.

*Behavioral Process*

Behavioral process is the process of psychological or psychological behavior. This group of the process is intermediate between mental and material process and typically they have only one participant. The main participant, the Behaver, is generally a conscious being. Sometimes there is a Range like a Participant known as Behaviour, which extends the process. The example can be seen in data (7).

(7) Beh056/VI

After that I'm going to look at horizontal flight performance

After that	I	'm going to look at	Horizontal flight performance
Circ:	Behav-er	Process: behavioral	Behavior

Table 4 shows the use of behavioral processes, including number and percentage in engineering lecture introduction. It shows

that behavioral process shared as same as existential process. Only 2,29% both behavioral processes and existential processes were used in engineering lecture introduction.

The verb look at in data (7) represents a behavioral process. This transitivity process realise setting up lesson agenda in the given lecture context. This sub-phase expresses a series of activities that students would be doing in the lesson. In term of participant functions and types, the participant I functions as a Behaver, whereas horizontal flight performance functions as Behaviour. Meanwhile, the After functions as a Circumstance of temporal location.

*Existential Process*

Existential processes construe being as simple existence, there is only one participant known as the Extent. In other words, existential processes express the mere existence of an entity without predicting anything else of it. They are normally recognizable because the subject is 'there'. Examples of existential processes are 'be', as in data (8)

(8) Ex064/V

There's also another book you could buy.

There 's	also another book you could buy.
Process: existential	Existent

Data (8) above shows that the existential process 'be' verb is was used. This process was used in the last rank for the occurrence in engineering lecture introduction. The use of the existential process in the lecture introduction reflects the sub- phase looking ahead of the lecture. It discusses upcoming lessons to inform students of what to expect in the future. In term of transitivity interpretation, also another book you could buy functions as Existent.

**Participants' Types Constructed in Instructional Registers in Engineering Lecture Introduction**

In describing the ideational function of engineering lecture introduction, the present writers have broken down three functional constituents. They are Participant, process, and Circumstance. To review, the participants constituent describes various participant roles such as Actor, Agent, Goal, Carrier, and Sayer. Then, Process divides into three basic process types: material, relation-



al, and projecting. And circumstance shows the finer functional distinction. Based on the data findings, the participants used in the explanation of the processes can be categorized into three main types of elements: human participants, non-human participant, and abstract participant. Those participants realize various functions based on the context of the data. Table 4 illustrates in details.

**Table 4. Participants in Engineering Lecture Introduction**

No	Participant Types	Σ	Percentage
1	Actor –goal	32	23,36%
2	Carrier-attribute	21	15,33%
3	Sayer-verbiage	14	10,22%
4	Sense-phenomenon	4	5,9%
5	Behaver-behavior	1	2,92%
6	Existential-existent	1	2,92%
	Total	73	100%

Table 4 shows that in line with the process used, the most dominant participant found in engineering class is Actor - Goal. The domination of the participant Actor-Goal in engineering lecture introduction indicates that the pedagogic activities are centrally focused on lecturer’s and students’ actions concerning the goal of teaching and learning activities. It is also related to the sequence of activities that should students do in the upcoming lesson. Some participants used in the engineering lecture introduction include I, We, and You. However, the pronoun We was mostly used. In line with Christie’s (1995) findings, it indicates that the lecturer normally uses the pronoun We in Participant role in association with each. It further revealed that the lecturer tried to build solidarity with the students in establishing a common commitment to reach the goal of the lesson at hand.

(9) Mat019/I

We’re going to focus on something else that can happen to your satellites

We	're going to focus on	something else [[that can happen to your satellites]]
Actor	Process: material	Goal

Data (9) confirms that from the transitivity point of view, the verb focus on expresses material processes. It is used for stating the aims and objectives of the lecture. As regards participant functions and types, the participant We functions as Actor which occurs more frequently than participant I and You. Meanwhile, something else [[that can happen to your satellites]] function as Goal.

**Circumstance Types Constructed in Instructional Registers in Engineering Lecture Introduction**

The third component of the clause as a representation that will be elaborated in this section is a circumstance. It is the name given in the context to those elements which carry a semantic load but are neither process nor participant. Circumstance typically conflates with adjunct and the grammatical realization such as adverb or prepositional phrase. In addition, the circumstance usually answers the question such as ‘where’, ‘why’, ‘how’, ‘how many’ etc. Table 5 demonstrates the circumstance used by lecturers in engineering lecture introduction. The details can be seen as follow.

**Table 5. Circumstances in Engineering Lecture Introduction**

No	Circumstance Types	Σ	Percentage
1	Manner	22	44,89%
2	Time (temporal)	21	42,85%
3	Cause	2	4,08%
4	Extent	2	4,08%
5	Place (spatial)	2	4,08%
	Total	49	100%

Table 5 shows that the circumstance of manners is the most dominant used in engineering lectures introduction. However, as Eggins (2004) says ‘the commonest type is manner circumstantial’. In this data contexts, the lecturers used it because lecturers explain how they will reach the learning’s goal and a sequence of activities that should be done during the lectures. Besides, by using some circumstances of the manner it can make the explanation or instruction clearer. It can be illustrated in the following data.

(10) Men029/III

But Em more importantly also note that in the second week

But	more importantly also	Note	that in the second week there are extra hours
	Circumstance: manner	Process:- mental: perception	Phenomenon

The data (10) shows that the element initiates a mental process note as a process of sensing, realizing the lecturer looked ahead of the lecture. It signals the students to pay more attention to something important. In this context, students should note that there are extra hours in their second week. This mental process is classified into perception. The use of mental processes in lecture introduction reflect the sub- phase of looking ahead of the lecture. This was a series of upcoming lesson that should be done by students. In term of transitivity interpretation, the participant You (students) functions as Senser. Meanwhile, the participant that in the second week there are extra hours functions as Phenomenon and besides more importantly also functions as a Circumstance of manner.

**CONCLUSION**

The present study has particularly been focussed on the pedagogic discourse of engineering lecture introduction applying transitivity system. At the transitivity level of analysis, the analysis has been focused on the identification and description of the occurrences of the dominant transitivity process types, participant functions, and types and circumstantial types in particular. Based on the findings, the results show that all process types were identified. These involved material process, relational process, mental process, verbal process, behavioral process, and existential process. The material process was the most dominant transitivity process type in engineering lecture introduction. It indicates that the pedagogic discourse of engineering lecturers in lecture introduction have succeeded to reach the level of material processes. In other words, the lecturers are aware of realization aspect of the student’s behaviors because all of them direct toward the goals of the teaching-learning activity. High occurrences of material processes in the introduction lecture may be considered as the pivotal activities, telling the key role to the listeners what the lecture is going to be about.

All transitivity processes identified in this

study particularly reflect the engineering lecture introduction which covers sub-phases. These involve getting started, warming up and setting up lesson agenda. The findings showed that the material processes were used to build aspect of the field, for example, getting started. In this phase, the material processes were used not only to greet the students but also to signal the beginning of the lecture. Relational processes, on the other hand, express warming up sub-phases. It reflected the goal or objective of the lectures. These processes were also used particularly to realize housekeeping. It was used to make an announcement, collect or return homework, and offer reminders. Besides, the mental processes were used to reflect the sub-phase setting up lesson agenda. These were a series of activities that students would be doing in the lesson. In terms of verbal processes, they were used particularly to review the previous lecture by highlighting key concepts, explanations, exemplifications, relations of knowledge or topic or sub-topics. As same as the verbal process, the behavioral processes were used to realize setting up lesson agenda. The last process used in engineering lecture introduction was the existential process. This process was used in the last rank for the occurrence in engineering lecture introduction. It reflected the sub-phase looking ahead of the lecture. It discussed upcoming lessons to inform students of what to expect in the future.

The findings also identified that the participant Actor-Goal was the most dominant occurred in engineering lecture introduction. It indicated that the pedagogic activities were centrally focused on lecturer’s and student’s actions concerning the goal of teaching and learning activities. The unique findings showed that the participant We were mostly used by lecturers that I and You. It reported that the lecturer tried to build solidarity with the students in establishing a common commitment to reach the goal of the lesson at hand. In terms of the circumstances, the findings revealed that the circumstance of manner was the most dominant used in engineering lectures introduction. It indicated that the lecturers explained how they will reach the learning’s goal and a sequence of activities that should be done during the lectures. To conclude, at the engineering lectures introduction, the regulative register (relate to the goals, purposes, and directions of the teaching-learning activity) is foregrounded.

## ACKNOWLEDGMENTS

This research was partially supported by the Centre for Research and Community Services Universitas Teknokrat Indonesia, Bandar-lampung.

## REFERENCES

- Bernstein, B. (1990). *The structuring of pedagogic discourse: Gloss codes and control* (Vol. IV). London, UK: Routledge & Kegan Paul.
- Bligh, D. (1998). *What's the use of lectures?* Exeter, UK: Intellect Ltd.
- Bloor, T., & Bloor, M. (2004). *The functional analysis of English* (2nd ed.). New York, NY: Arnold.
- Butt, D., Fahey, R., Feez, S., Spinks, S., & Yallop, C. (2000). *Using functional grammar: An explorer's guide* (2nd ed.). Sydney, NSW: NCELTR, Macquarie University.
- Castro, S. T. R. (2006). Understanding representations of English as a foreign language teachers' and students' roles in different contexts in the light of transitivity analysis. *Proceedings of 33rd International Systemic Functional Congress*. São Paulo, Brazil: Catholic University of São Paulo.
- Christie, F. (1990). First and second-order registers in education. In E. Ventola (Ed.), *Functional and systemic linguistics: Approaches and uses* (pp. 235-258). Berlin: de Gruyter.
- Christie, F. (1995). Pedagogic discourse in the primary school. *Linguistics and Education*, 7, 221-242. Retrieved from [https://doi.org/10.1016/0898-5898\(95\)90024-1](https://doi.org/10.1016/0898-5898(95)90024-1)
- Christie, F. (2001). Pedagogic discourse in the post-compulsory years: pedagogic subject positioning. *Linguistics and Education*, 11(4), 313-331. Retrieved from [https://doi.org/10.1016/S0898-5898\(00\)00031-0](https://doi.org/10.1016/S0898-5898(00)00031-0)
- Cresswell, J. W. (2009). *Research design: Qualitative, quantitative, mixed-methods approach*. Thousand Oaks, CA: SAGE Publication, Inc.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approach* (2nd ed.). Thousand Oaks, CA: Sage Publication, Inc.
- Derewianka, B., & Jones, P. (2016). *Teaching Language in Context* (2ed.). Melbourne, SA: Oxford University Press.
- Deroey, K.L.B., & Taverniers, M. (2012). Just remember this: Lexicogrammatical relevance markers in lectures. *Journal of English for Specific Purposes*, 31(4), 221-233. Retrieved from <https://doi.org/10.1016/j.esp.2012.05.001>
- Domizio, P. (2008). Giving a good lecture. (Online). (<http://www.irabpath.org/234.pdf>).
- Eggins, S. (2004). *An introduction to systemic functional linguistics* (2nd ed.). New York, NY: Continuum.
- Emilia, E. (2014). *Introducing functional grammar*. Bandung: Pustaka Jaya.
- Emilia, E., & Syifa, I. L. (2018). Gender in EFL classroom: transitivity analysis in English textbook for Indonesian students. *Indonesian Journal of Applied Linguistics*. 7(1), 206-214. doi: [dx.doi.org/10.17509/ijal.v7i1.6877](https://doi.org/10.17509/ijal.v7i1.6877).
- Ernofalina. (2017). Culture shocks experienced by Indonesian students studying overseas. *International Journal of Educational Best Practices (IJEBCP)*, 1(2), 87-105. Retrieved from <http://dx.doi.org/10.31258/ijeep.v1n2.p87-105>
- Halliday, M. A. K. (1994). *An introduction to functional grammar* (2nd ed.). London: Edward Arnold.
- Halliday, M. A. K. (1985). *An introduction to functional grammar*. London: Edward Arnold.
- Halliday, M. A. K., & Matthiessen, C. M. I. M. (2014). *Halliday's introduction to functional grammar* (4th ed.). London: Routledge.
- Halliday, M. A. K., & Matthiessen, C. M. I. M. (2004). *An introduction to functional grammar* (3rd ed.). London: Hodder Arnold.
- Hasan, R. (1985). *Part B. language, context, and text: Aspects of language in a socialsemiotic perspective*. Oxford, UK: OUP.
- Ignatieva., & Rodriguez-Vergara (2015). Verbal processes in an academic language in Spanish: exploring discourse genres within the systemic functional framework. *Functional Linguistics*. 2(2), 1-14. doi [10.1186/s40554-015-0014-9](https://doi.org/10.1186/s40554-015-0014-9).
- Institute of International Education. (2017). *Open doors 2017 report: Information and data tables*. Retrieved from <http://www.iie.org>.
- Krippendorff, K. (2004). *Content analysis: An introduction to its methodology* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Lee, J. J. (2011). A genre analysis of second language classroom discourse: Exploring the rhetorical, linguistic, and contextual dimensions of language lessons. (Unpub-

- lished Dissertation). Georgia State University.
- Lu, Angelia (2008). Ideational Perspectives on Feedback in Academic Writing. *Proceedings of ISFC 35: Voice around the world*. Sydney: Macquarie University.
- Mukminin, A. (2019). Acculturative experiences among Indonesian graduate students in Dutch higher education. *Journal of International Students*, 9(2), 488-510. doi: 10.32674/jis.v0i0.265.
- Mulatsih, S., Saleh, M., Warsono, & Yuliasri, I (2018). Ideational meanings of teachers' utterances in reading and writing classes. *International Journal of Language Teaching and Education*. 2(3), 275-285. Retrieved from <https://doi.org/10.22437/ijolte.v2i3.5689>
- Olsen, L. A., & Huckin, T. H. (1990). Point-driven understanding in engineering lecture comprehension. *Journal of English for Specific Purposes*, 9(1), 33-47. Retrieved from [https://doi.org/10.1016/0889-4906\(90\)90027-A](https://doi.org/10.1016/0889-4906(90)90027-A)
- Rido, A. (2010). The use of discourse markers as an interactive feature in science lecture discourse in L2 setting. *TEFLIN Journal*, 21(1), 90-106.
- Rido, A. (2019). What is Newton's law of inertia?: The use of questions in science lectures. *Litera: Jurnal Penelitian Bahasa, Sastra dan Pengajarannya*, 18(2), 312-325.
- Rose, D. (2014). Analyzing pedagogic discourse: An approach from genre and register. *Functional Linguistics*. 1(11), 1-32. Retrieved from <http://www.functional-linguistics.com/content/1/1/11>.
- Shamsudin, & Ebrahimi (2012). Analysis of the moves of engineering lecture introductions. *Procedia: Social and behavioral sciences*, 70, 1303-1311.
- Stake, R. E. (2010). *Qualitative research: Studying how things work*. New York, NY: Guilford Press.
- Sinar, T.S. (2017). A study of experiential meaning of Malaysian lecture discourse. *Journal of Modern Languages*, 15(1), 191-215. <https://jml.um.edu.my/article/view/3791>
- Sujatna, E.T.S (2009). Material process in the English clause: Functional grammar approach. *Sociohumaniora*, 11(3), 65-73.
- Sunardi, Tarjana, Poedjosoedarmo, & Santosa. (2017). Experiential realizations of pedagogic discourse in an Indonesian EFL classroom. *Advances in Social Science, Education and Humanities Research*, 115, 239-245.
- Thompson, G. (2014). *Introducing functional grammar* (3<sup>rd</sup> ed.). New York, NY: Routledge.
- Thompson, S. (1994). Frameworks and contexts: A genre-based approach to analyzing lecture introductions. *Journal of English for Specific Purposes*, 13(2), 171-186. [https://doi.org/10.1016/0889-4906\(94\)90014-0](https://doi.org/10.1016/0889-4906(94)90014-0)
- Wegener, R., Schuller, B., & Cassens, J. (2017). Needing and wanting in academic lectures: Profiling the academic lecture across contexts. *Proceedings of 44<sup>th</sup> International Systemic Functional Congress* (pp. 82-88). Wollongong, Australia: Wollongong University.
- Yaakob, S. (2013). A genre analysis and corpus-based study of university lecture introductions. (Unpublished Dissertation), The University of Birmingham.
- Zare, Z., & Keivanloo-Shahrestanaki, Z. (2017). The Language of English academic lectures: The case of the field of study in highlighting importance. *Lingua*. Retrieved from <http://dx.doi.org/10.1016/j.lingua.2017.04.005>