FUNCTIONAL TEXT ANALYSIS OF OATH FOR ENGINEERS: ITS METAFUNCTIONS AND LINGUISTIC CHARACTERISTICS

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Abstract

This study aims at investigating the language structure of the oath for engineers in the light of Systemic Functional Linguistics and examining how the oath is textualized to accomplish its roles and objectives as the guiding principle which sets the ideals and obligation of professional engineers. Hence, the main objective of this study is to identify the pattern of the text's structure by analyzing its meta-functions comprising the textual, interpersonal, and ideational functions. The main data used in this study is the text of oath for engineers as subscribed by the members of professional engineers in USA and Canada (Introduction to Engineering, 1989: 49-50). The result of data analysis shows that the text has special features characterizing the genre of oath and its purpose as indicated by 1) the predominance of declarative clauses, 2) the equal usage of marked and unmarked themes representing the setting and reaction phases in the text, 3) the typical form of zig-zag pattern of the thematic organization, and 4) the dominant use of material processes indicating that the text construes the world more in terms of action with engineers at its center, 5) the validity of proposition of the oath for the present time when the engineers subscribe to the oath and to the actual situation for the future time as indicated by the tense of the clauses in the text. Thus, unfolding the discourse of oath in English for engineering class is beneficial to increase learning interactions in which reading is treated as the focus of the teaching as well as enhancing students' individual development as a part of character education.
Keywords: *Systemic Functional Linguistic; Language Meta-functions; Oath for Engineers*

Abstrak

Penelitian ini bertujuan untuk menyelidiki struktur bahasa sumpah untuk Insinyur dalam *Sistemic Functional Linguistic* dan memeriksa bagaimana sumpah tersebut di tekstualisasikan untuk mencapai peran dan tujuannya sebagai prinsip panduan yang menetapkan cita-cita dan kewajiban seorang insinyur profesional. Oleh karena itu, tujuan utama dari penelitian ini adalah untuk mengidentifikasi pola struktur teks dengan menganalisis metafunctions yang terdiri dari fungsi tekstual, interpersonal, dan ideasional. Data utama yang digunakan dalam penelitian ini adalah teks sumpah untuk insinyur seperti yang dilanggan oleh anggota insinyur profesional di AS dan Kanada (Pengantar Teknik, 1989: 49-50). Hasil analisis data menunjukkan bahwa teks memiliki fitur khusus yang mencirikan genre sumpah dan tujuannya sebagaimana ditunjukkan oleh 1) dominasi klausa deklaratif, 2) penggunaan yang sama dari tema yang ditandai dan tidak ditandai yang mewakili fase pengaturan dan reaksi dalam teks. 3) bentuk khas pola zig-zag dari organisasi tematik, dan 4) penggunaan dominan dari proses material yang menunjukkan bahwa teks lebih banyak mengartikan dunia dalam hal tindakan dengan para insinyur di pusatnya, 5) validitas proposisi dari sumpah untuk saat ini ketika para insinyur berlangganan sumpah dan situasi aktual untuk waktu mendatang seperti yang ditunjukkan oleh tegang dari klausa dalam teks. Dengan demikian, mengungkap wacana sumpah dalam bahasa Inggris untuk kelas teknik bermanfaat untuk meningkatkan interaksi pembelajaran di mana membaca diperlakukan sebagai fokus pengajaran serta meningkatkan pengembangan individu siswa sebagai bagian dari pendidikan karakter.

Kata Kunci: Sistemik Fungsional Linguistik, Metafungsi Bahasa, Sumpah Insinyur

A. INTRODUCTION

Professional oath can be defined as a solemn sworn formally, publicly and submitted to the formulated guidelines for professional ethical conduct for moral community. The oath commonly comprises professional, societal, environmental responsibilities by holding firmly on honesty, integrity, and moral gravity. National Society of Professional Engineers published the oath for engineers in June 1954 to be formally sworn by the graduated engineers in America. The oath aims at upholding devotion to the standards and dignity of the engineering profession. The text of the oath can be categorized as a kind of literate text which is projected to be difficult to be understood by novice non-native English speaker as Indonesian students having basic proficiency in English. Using the text of the oath for engineers as reading text material of the teaching of English for engineering class by unfolding the discourse of oath in is beneficial to increase learning interactions in which reading is treated as the focus of the teaching as well as enhancing students' individual development as a part of character education.

Literate text is characterized by lexical density (the density of information resulted from the tightness of the content words in sentences) andbriefsyntactic structure and special expressions related to grammar for delivering the message of the text. In addition, nominalization as a the actualization of lexical density which is a grammatical process that enables the writer to compact a great deal of information into one noun phrase (Celce-Murcia,2000: 129) potentially causes reading difficulties. Texts in the oath for engineers might share some of these characteristics because they are actually written for the native engineers and are appropriate for the intermediate and advance foreign language learner so that the characteristics possessed by these texts potentially cause difficulties to novice learners. Thus, these texts can be categorized as Indonesian students. In fact, language patterns are rarely become the focus of attention of students and teachers since, commonly, their attention is on the content of the texts being read not on how language interprets and constructs that content (Schleppegrell, 2004: 2). In fact, rhetorical awareness of the texts and text purposes, as well as linguistic knowledge, provide readers with more 'cognitive control' in their comprehension process (Abdollahzadeh, 2009: 115).

To overcome problems that might be caused by the language structure of the text, seeking the most appropriate approach for analysing text is needed. The notional or functional approach at its best is a very fruitful method of bringing together lexical items that co-occur naturally in describing the notion of structure of language (Dudley-Evans, 2001:4). Thus, one of the tools which are appropriate to be used for analysing linguistic pattern and the structure of language and text aimed at seeking ways to help students in comprehending reading text is in the of light of functional model of grammar which is commonly known as systemic functional linguistics (henceforth SFL). Halliday (1993: 93) asserts that functional grammar facilitates us to analyse any passage and relate it to its context, and also to the general background of the text: who it is written for, what is its angle on the subject matter, and so on. Furthermore, he asserts, grammatical analysis is a fairly technical exercise, and not something that students can be expected to undertake for themselves unless they are specializing in language. In the perspective of SFL, the focus is on analysing the forms in which knowledge is construed through language. Therefore, functional text analysis can enlighten pedagogical practice and enable teachers to explicitly explore and explain the ways in which meanings are made.

Structurally, the text of the oath for engineers aims at presenting and describing the ideals and obligation which the engineers intend to subscribe and accomplish in their professional careers. The macro organization of this text is organized as a list of prescriptive behaviors of a professional engineer as formulated by the society of professional engineers. Thus, this text can be further classified into the genre of textbook and norm. In terms of the 'field', this text is categorized as a literate text which describes and discusses topic related to the field of engineering. The 'tenor' of this text shows the relationship between the addresser (the writer) and addressee (readers of this text – engineers subscribing to the oath). In addition, the 'mode' shows the contextual coherence of the text as it is a written text. Furthermore, it can be categorized as a kind of academic discourse since it is written by engineering specialistsaimed to introduce the characteristics and responsibilities of professional engineers to the novice engineering students.

If structural analysis of the organization of texts can provide a macro-perspective of the texts, lexico-grammatical analysis in the following sections provides a micro-

perspective of the texts to complete the analysis since the specific purpose of the oath characterizes the language of the oath and the usage of structural and lexico-grammatical resources in the oath text. Thus, this paper presents the analysis of discourse pattern comprising the experiential, interpersonal, and textual functions of the text and the logical dependency relation of clauses within the text.

It is believed that people produce text when they speak and write. To grammarian, text is rich and it can be used to reveal language system by relating itto the linguistic system as a whole; and equally, we cannot use it as a window onthe system unless we understand what it means and why (Halliday andMatthiessen, 2004: 3). Grammar can be defined as the principles organization oflanguage. However, along the history, the ideas of language have been differed.Some linguists, such as Chomsky and Bloomfield, have tried to explain andinterpret the formal aspects of grammar separated from meanings and context.Some other linguists who believe language as a social communicationsystem have extremely different methods and goals for analyzing language. Whorf argued that a society's perception of reality is determined by the languageof that society (Bloor and Bloor, 1995: 241). Furthermore, Prague School linguistsproposed the concepts of *Theme* and *Rheme* while Firth and Malinowski emphasize on the importance of context of situation and language as action. Thoseconcepts are used as a starting point for Halliday in developing theories ofFunctional Grammar which was originated by Simon Dik and concerned with integration of sociolinguistics factors in the grammar. The detailed concept offunctional grammar is presented in the following paragraphs.

The theory of functional grammar known as systemic functional linguistics(henceforth SFL and the "functional" is often omitted) approach emphasizes onthe application of contexts and explores how language is used. There are for maintheoretical claims about language in systemic approach namely that language isfunctional; that its function is to make meanings; that these meanings areinfluenced by the social and cultural context in which they are exchanged; andthat the process of using language is a *semiotic* process, a process of makingmeanings by choosing (Eggins, 1994:2). In short, it can be concluded thatlanguage use is functional, semantic, contextual, and semiotic so that systemicapproach is viewed as *functional-semantic* approach to language.This notion of language shows that a full understanding of text is

difficultto be obtained without any reference to the context in which it occurs. A text is "aharmonious collection of meaning appropriate to its context" (Butt, et al., 2000).There are two perspectives of context namely context of culture and context ofsituation. On the level of context of culture, the concern is on how people uselanguage to achieve culturally appropriate goals through the concept of genre(Eggins, 1994: 25). On the other hand, register functions on the level of context ofsituation. In this case, register means functional-grammatical varieties of text.The features of social context that grammarhelps to represent include what is talked about (*field*), the relationship between thespeaker/hearer/reader (*tenor*), and expectations for how particular text type should be organized (Halliday, 1994 in Schleppegrell, 2004: 18).

Grammar is the central processing unit of language, the powerhouse wheremeanings are created; it is natural that the systems of sound and of writingthrough which these meanings are expressed should reflect the structuralarrangement of the grammar (Halliday and Matthiessen, 2004:21).From this point of view, grammar becomes a study of how meanings are built upthrough the use of words and other linguistic forms and this may seem fairly tomost people since it accords with commonsense view of language, but not alllinguist have been concerned with meaning in such a direct way as Halliday(Bloor and Bloor, 1995:1-2). More specifically, SFL (Systemic FunctionalLinguistic) and/or functional grammar describe grammar as a resource of tools touse rather than a set of rules. It describes language structure as the outcomes ofchoices made by the language users, and it describes the relationship between textand their context of use. The concern is on the real language use, not languagewhich is made as examples of language that can be found in exercises, worksheetsor traditional grammar books.

In Functional Grammar, clause is the central resource for makingmeanings and the logical functions enables us to produce more complexconfigurations in which two or more clauses are joined into a larger whole(Thomson, 2004: 195). Thus, analyzing clause structure is important since itprovides the 'frame of reference for interpreting our experiences of what goes on(Halliday, 1985: 101). In addition, it is concerned with resources for combiningclauses into clause complexes (sentences). The technical term of "clausecomplex" in functional grammar is identical with 'sentence' in the formalgrammar. In addition, functional grammar looks closely at the

differentcontributions made by clause, phrase and group and word structure to a text.In functional grammar, there are three aspects reflecting the three mainfunctions, namely *ideational*, *interpersonal* and *textual*. These three functionsalways exist in each sentence. *Ideational* function refers to the use of language torepresent experience and it is influenced by *field*. The sub functions of *ideational*function comprise the *experiential*, which is concerned with content and ideas,and the *logical*, which is concerned with the relationship between ideas. Next, the*interpersonal* function which refers the use of language to enact socialrelationships and it is influenced by *tenor*. The *textual* function, in addition,enables people to construct and organize text which is relevance to its context andit is influenced by *mode*.

Language reflects our view of the world consisting of going-on (verbs)involving thing (nouns) which may have attributes (adjectives) and which go onagainst background details of place, time, manner, etc. (adverbials) (Thompson,2004:86). Experiential function focuses on the content of discourse covering theactivities and the participants in the activities being described. The term used inhere is *transitivity*, a way to distinguish not only between verbs that have object ornot, but also it refers to a system for describing the whole clause. In FunctionalGrammar, the content of clauses that we have said is located in the *processes*which contain *participants* in certain *circumstances*.The analysis of clause structure involves identifying the representation of the three components of processes: 'the process itself; participants in the process; and circumstances associated with the process' (Halliday, 1985: 101). Briefly,participants identify the 'who or what of the process'. Processes identify 'what isgoing on', that is, the doing (action/material process), sensing (mental process),and being (relational process) (Halliday,1985: 102-130). Finally, circumstancesprovide information about where (place), when (time), how (manner), whyreason/cause), with whom (accompaniment) in relation to the process (Halliday,1985: 137).

Interpersonal function deals with communication and that language evolves to serve the functions that we need.Its concern is on the use of language to exchange meanings, thus some units of grammar of the clause are labelled based on their role toexchange meaning. Grammar provides us with the basic resource for expressingspeech functions, in the form of a highly generalized set of clause systemsreferred to as MOOD (Matthiessen and Halliday, 1997). In functional

grammar,the composition of clause consists of *Mood* and *Residue.* In detail, clause structure comprises the *subject*, *complement*, *finite*, *predicator*,and *adjunct*. However, in *Mood-Residue* analysis, each *Adjunct* is treateddifferently.

Textual function deals with the structure and organization of message inlanguage used by the speaker and how the thematic organization contributes to thecohesive development of text. In functional grammar, clause is a unit whichserves the structure of message in the text consisting of a *Theme* which is accompanied by a *Rheme*. These two terms are borrowed fromthe terminologyproposed by Prague School of Linguistics. *Theme* is the element functioning asthe point of departure for the message and it carries the previous information intext which gives the background knowledge of the text. The new informationabout the point of departure in which *Theme* is developed is called *Rheme*. It hasfunction to describe and explain the context or topic presented by *Theme*. *Theme*is located at the initial position in the clause while *Rheme* is at the position following the initial position. Analyzing *Theme* and *Rheme* provides the frame for analyzing the text structure as well as interpreting the rest of the message.

B. RESEARCH METHOD

To describe how the text is structured, the qualitative approach is used in this study rather than the quantitative approach. It is believed that the result of analysis using qualitative approach is more holistic since it is not isolated from context and this will give a comprehensive description of language as a means of communication covering its meaning, purpose, function in academic context and indicates varieties on how language items and structures relate to each other in creating the communicative value. This study requires the identificationof groups, phrases, and clauses, the special characteristics of which are describedthrough inferences. By employing content analysis, this study identified the pattern of text structure beginning from the smallest to largest part of the contentof text namely word rank, group rank, and clause rank.Thus, from this perspective, content analysis facilitates the analysis ofwords of the text and gives better understanding from the perspective of theproducer of the words. Content analysis will involve the specific and basic contentcharacteristics of texts of the oath for engineersand the application ofexplicit rules based on functional grammar for identifying and, next, recordingthese characteristics. In this content analysis, the researcher is the key

instrumentfor analyzing and collecting the data. The text of the oath for engineers was obtained from the oath published by the National Society of Professional Engineers published in 1954.

The data analysis process of the study was carried out by analysing the groups, phrases, and clauses complexes were analyzed in terms of their structures and functions covering the experiential function (the use of language to represent experiences), interpersonal functions (language used to enact social relationships), and textual functions (language used to construct logical and coherent texts).In analysing groups, phrases, and clause complexes, the first focus is on studying how groups, phrases, and clauses are structured and linked to one another. The next focus is on the various methods of combining clauses together, and how they are used to establish the relationship between ideas, issues, and event in a text.

Data analysis was started by reading the data and the relation between categoriesand checking research question and, next, followed by establishing criteria forselection in order to build explicit coding rules and marks for each category ofgroup, phrase, and clause. At this stage, the coding system is developed based onthe research questions of this study. Afterward, each group/phrase is labelledaccording to their each type of function at each rank. The data are sortedaccordingly to classify clauses into clause simplexes and clause complexes. Thetally sheets with the specific categories are listed at the top of each sheet, then theclauses are read and each time the clauses fit the criteria of clause simplexes andclause complexes, their location will be recorded. At the subsequent step, each structure of groups, phrases and clauses inclause simplexes, and clause complexes will be identified. Their each pattern ofstructure will be considered as minimum three occurrences of types of clausecomplexes. Next, the pattern of logical dependency used in clause complexeswill be identified. Each categorical pattern of group, phrases, and clausecomplexes will be explained and interpreted by consulting to the pattern offindings in light of functional grammar theories and previous studies. Finally,conclusion on the structure of text will be drawn by noting patterns and making comparison, contrast, and clustering.

C. FINDINGS AND DISCUSSIONS

Findings

This section aims at presenting the findings of the language structure of the oathfor engineers inscribed in Ideals and Obligation of Professional Engineers in the light of Systemic Functional Linguistics and examining how the oath is textualized to accomplish its roles and objectives as the guiding principle which sets the ideals and obligation of professional engineers. Hence, the main objective of this study is to identify the pattern of the text's structure by analyzing its meta-functions comprising the textual, interpersonal, and ideational functions.

Textual Function

Textual function of the text deals with the organization of messages in the clauses in order to form a coherence text as well as to develop the interpersonal and experiential functions. The message of this text is structured in such a way to fulfill its aim as it belongs to the genre of oath. The message organization of the text is developed through a series of phases representing the ideals and obligations of professional engineers. Phases in text illustrate the wave of information consisting of one or more messages and variable segments which afterward realize the generic stage of the text (Rose, 2006:2). The analysis of stages, phases, and themes of the text is presented in the following table. (Note: marked themes are in bold and textual themes are in italic).

Table 1. Phases and Themes in the Oath Text for Engineers

Clause	Stage/ Phase	Theme	Rheme
1.1	Orientation / setting	**As a professional Engineer**	I dedicate my professional knowledge and skill to the advancement and betterment of human welfare.
1.2	Orientation/ reaction	I	pledge: • To give the utmost of performance • To participate in none but honest enterprise • To live and work according to the laws of man and the highest standards of professional conduct. • To place service before profit, the honor and standing of the profession before personal advantage and the public welfare above all other considerations.
1.3	Orientation/	**In humility and with**	I make this pledge

	setting	**need for Divine Guidance**	
2.1.1	Orientation/ Event	I	AM AN ENGINEER.
2.1.2a	Orientation/ Setting	**In my profession**	I take deep pride, but without vainglory
2.1.2b	Orientation/ Setting	**to it**	I owe solemn obligations
2.1.2c	Orientation/ Reaction	*that*, I	am eager to fulfill.
2.2.1	Orientation/ Setting	**As an engineer**	I will participate in none but honest enterprise
2.2.2	Orientation/ Setting	**To him that has engaged my services**	, as employer or client, I will give the utmost of performance and fidelity.
2.3.1a	Orientation/ Setting	*When*, (it)	(is) needed
2.3.1b	Orientation/ Reaction	my skill and knowledge	shall be given without reservation for the public good
2.3.2a	Orientation/ Setting	**From special capacity**	springs the obligation to use it well in the service to humanity;
2.3.2b	Orientation/ Reaction	*and*, I	accept the challenge
2.3.2c	Orientation/ Reaction	*that*, this	implies.
2.4.1a	Orientation/ Reaction	Jealous of the high repute of my calling	I will strive to protect the interests and the good name of any engineer
2.4.1b	Orientation/ Reaction	*that*, I	know to be deserving
2.4.1c	Orientation Reaction /	*but,* I	will not shrink,
2.4.1d	Orientation/ Reaction	(what)	should duty dictatefrom disclosing the truth regarding anyone
2.4.1e	Orientation/ Reaction	*that*; *but* unscrupulous act	has shown himself unworthy of the profession.
2.5.1	Orientation/ Event	**Since the age of stone**	human progress has been conditioned by the genius of my professional forebears.
2.5.2	Orientation/	**By them**	have been rendered usable to mankind Nature's vast

	Event		resources of material and energy
2.5.3	Orientation/ Event	**By them**	have been vitalized and turned to practical account the principles of science and the revelations of technology.
2.5.4	Orientation/ Setting	**Except for this heritage of accumulated experience**	my effort would be feeble
2.5.5	Orientation/ Reaction	I	dedicate myself to the dissemination of engineering knowledge, and especially to the instruction of younger members of my profession in all its arts and traditions.
2.6.1a	Orientation/ Setting	**To my fellow**	I pledge, in the same full measure,
2.6.1b	Orientation/ Reaction	I	ask of them, integrity and fair dealing, tolerance and respect, and devotion to the standards and the dignity of our profession;
2.6.1c	Orientation/ Setting	**with the consciousness**	always, that our special expertness carries with it the obligation to serve humanity with complete sincerity.

From the result of analysis in the above table, the theme choices of the text shows the equal usage of topical and both marked and unmarked themes by employing the circumstantial element and the participant serving as the subject of the clause as the themes. The themes organization in the text is in the form of zig-zag pattern which is indicated by the changing topics from the marked themes presenting contextual framework of the clauses to the unmarked themes pointing out the engineer as the center of message departure. The marked themes in the text realize the circumstances or settings which will be encountered by the engineers in their future career and they are followed by the reaction to the setting in the subsequent clauses. The themes develop the organization of the text which is divided into some stages − predictable segments in genre − and phases – variable segments within each stage − representing hierarchy of periodicity of message in the text (Rose, 2006:2). Analyzing stages and phases enable the unfolding of ideation of clauses − the interpretation of sequences activity in text. The orientation stage in this text develops the organization of message in the whole text by involving the setting and reaction phases as the pattern which is expected to be repeated at the all level of orientation stages. The boundary of stages in this oath text is indicated by the placement of clauses into one paragraph and sub-paragraph.

The marked themes functioning for specifying the contextual framework for the interpretation of the clauses in the text indicate the setting phases which present the contexts comprising identities, purposes and activities. The unmarked themes, on the other hand, carry out the behavioral/attitudinal outcome as reaction which will be done in accordance to the specific setting presented by the previous clauses. According to Rose, 2006:2, on the scale of phases, the first and final sentences in a paragraph/ phase of written text may function as its hyperTheme and hyperNew, that predict and distil the field of the paragraph whereas, on the scale of the genre, the first and last paragraphs of a written text may function as its macroTheme and macroNew, predicting and distilling the field of the text.

The first paragraph of the oath text serves as the macro Theme since it contains the main content of the oath for engineers and shows the purpose of making this pledge. On the other hand, the second paragraph has a role to present the macro New describing further detail information related to the macro Theme – the special qualities owned by the professional engineer. The first clause – *as a professional Engineer*, *I dedicate my professional knowledge and skill to the advancement and betterment of human welfare* – functions as the Hyper Theme which signifies the main field of the paragraph emphasizing on the actions which have to be done by the engineer in the framework of being a professional engineer. On the other hand, the final clause − *in humility and with need for Divine Guidance, I make this pledge* − serves as the Hyper New carrying new information related to the Hyper theme. In addition, this clause presents the circumstance of making this engineering pledge comprising the information that the engineer declares and commits to this pledge with the absence of any feelings of being better than others and the essential necessity for godly direction in bringing the messages included in this pledge into reality.

In terms of stage, the orientation stage in the first paragraph begins with a setting phase pointing out the identities of the engineer as a professional engineer. This setting, as shown in clause 1.2, is followed by the expected range of activities and behavioral attitude of the engineer covering the pledge to give the highest and greatest degree of performance, the commitment to take part merely in honest enterprise, the commitment to obey the laws of man and the highest standards of professional conduct in living and working, and the pledge for setting the priority and placing the highest concern for

public benefit. The next setting in the first paragraph gives certain emphasize on the circumstance of the subscription of this oath in addition to the first setting as has been mentioned in the previous paragraph.

In addition, the second paragraph specifies the further detail description of actions to be completed by the engineers. In this paragraph, the Hyper Theme of the statement subscribed by the engineers – I AM AN ENGINEER – gives an emphasis on the identity of the oath subscribers as an engineer while the Hyper New in clause 2.6.1 provides the description of the engineer's attitude toward his fellow concerning with the appraisal of integrity, fair dealing, tolerance and respect, and devotion. Furthermore, event in clause 2.1.1 at the beginning of the second paragraph presents the transition between the first and the second orientation since it provides information that the following orientation stages describe the faith of the engineering as the detail continuation of the main oath presented in the previous paragraph and gives emphasize on the succeeding events pointing out the subscriber's identity as being an engineer.

This event is followed by two settings which extend the reaction for the following phase as shown in clause 2.1.2 which consists of three sub-clause complexes. The first two sub-clause complexes pointing out the settings by marking the themes "*in my profession*" and "*to it*" and the usage of "*that*" as conjunction which represents sequences of phases within one clause complexes and indicate the changing phases from setting to reaction. This clause complex provides new information that in the engineers are really proud with the engineering profession but without arrogance, self admiration and egotism as shown in clause 2.1.2a and they have moral obligation to be fulfilled in their profession. The next sub-paragraph of the second paragraph is intended to give emphasize on the settings which are continued in the next orientation indicated by the conjunction of "when" followed by the reaction in the subsequent clause.

Next, the clause complex 2.3.2 carries setting and reactions phases in one clause complexes by employing the marked themes in setting phase and conjunction and unmarked theme in reaction phases. However, clauses 2.2.1 to 2.3.2 primarily provide further new information describing the main oath in paragraph one by providing more detail engineer's action and attitude and reason for obeying the obligation in setting and reaction phrases. This fact indicates the importance of clause 1.2 and the emphasizing on it for presenting the main essential action and behavior of professional engineer.

Clause 2.4.illustrates another pattern of themes characterizing phases. This clause complex consists of five clauses marked with conjunction at the beginning of each clause which indicates the sequences of reaction phases. Having the clause *jealous of the high repute of my calling* as the marked theme, this clause presents the actions to be done by the engineers in that particular context and circumstance by giving additive addition realized by conjunction that and adversative addition in clause complex 2.4.1.

Furthermore, the combination of event, setting, and reaction phases is presented in the fifth sub-paragraph of the second paragraph. The clause 2.5.1, 2.5.2, and 2.5.3 provide truthful information or events addressing the fact concerning with the role of professional engineers since the age of stone. These clauses are followed by setting and reaction phases dealing with the action that the engineer should accomplish in accordance to the setting. The clause complex in the last sub-paragraph employs marked themes to signify the setting or framework for interpreting the following clause containing unmarked theme which indicate the reaction phase. However, clause 2.5.4 serves as the main point this sub-paragraph since it gives a mark that event in clause 2.5.1, 2.5.2, and 2.5. They present new information that the engineer's effort would be weak and deficient without any inherited experience acquired from the predecessor heritage of accumulated experience. Thus, it can be concluded that the patterns of themes and phases discussed in this section show the characteristic of organization of clause as message within a text in the genre of oath.

Interpersonal Function

In this section, the profound discussion dealing with the functional text analysis of the interpersonal meaning is presented. The focus of interpersonal meaning is on language as a way of acting and how the writers interact with readers through the construction of Mood and Residue comprising Subject, Finite, Predicator, Complement and Adjunct. In terms of Mood, all the clauses in this text are construed in positive polarity of declarative Mood which has a speech role as statements declared by the engineers and concerning with the ideals and obligations of professional engineers. Based on the analysis of Mood in the text, the Subjects of the clauses are dominantly in the form of NG*s* (nominal groups) which employ only the Thing element referring to *I* or the engineer who present him/herself in the oath. Some of the subjects in the clauses

are in the form of pronoun and empty noun, but these subjects still refer to the proceeding NG*s*. This fact shows that although the Finite and Residue have moved on to some new proposition and new claims, the Subject remains the same since I (the engineer) is the central subject who is subscribing to the oath and will take the action based on the new proposition and claims stated in the oath. By employing declarative clause, the clause in the oath introduces an entity (Subject), shows certain claim about the entity and indicates the degree of validity of claim and proposition through the Finite of the clause (Thompson, 2004: 53). From this perspective, it can be concluded that the oath text is making claim about the dominance Subject − 'I' referring to the engineer. In addition, when subscribing to the pledge, the readers (the engineers) are expected to give agreement, acceptance, commitment, and undertaking to realize the content of the oathso that the statements in the oath can be categorized as claims although it may seem unusual to categorize statement as claim.

In terms of Finite, the clauses in the text are dominantly in present tense indicating that the propositions in the text are valid for the present time and actual situation in the present and the future as shown by the usage of will in some clauses. The Mood analysis of this text reveals the equal usage of explicit Finite by employing auxiliary *am*, *has* and *have been* and implicit Finite which is embedded in lexical verb. It is assumed that the underlying reason for the usage of explicit Finite is based on the necessity to explicitly show the negotiation which is done by the Subject and Finite in the Mood element in building, developing and presenting the proposition in clause. Implicit Finite, on the other hand, shows that the Finite is being attached in the lexical item in Residue and it indicates that the writer makes the validity claims implicit as in all clauses of the first paragraph and clauses 2.1.2, 2.3.2, 2.5.5, and 2.6.1. In addition, all clauses in the oath text have positive polarity which indicates that the structure of finite has a role to prove the positive validity of propositions and claims existed in the text as well as to show positive attitude of writer and the intended reader toward the existing propositions and claims.

Table 2. Mood Choices in the text of Oath for Engineers

Clause	Mood	Speech role	Subject	Finite
1.1	DEC	statement	I (*Pronoun*)	present (dedicate)

1.2	DEC	statement	I (*Pronoun*)	present (pledge)
1.3	DEC	statement	I (*Pronoun*)	present (make)
2.1.1	DEC	statement	*I (Pronoun)*	*present*: AM
2.1.2a	DEC	statement	*I (Pronoun)*	*present*: (owe)
2.1.2b	DEC	statement	*I (Pronoun)*	*present (take)*
2.1.2c	DEC	statement	*I (Pronoun)*	*present: am*
2.2.1	DEC	statement	*I (Pronoun)*	*present: will*
2.2.2	DEC	statement	*I (Pronoun)*	*present: will*
2.3.1a	DEC	statement	*It (Pronoun)*	*present: is*
2.3.2a	DEC	statement	-	*present (springs)*
2.3.2b	DEC	statement	*I (Pronoun)*	*present (accept)*
2.3.2b	DEC	statement	*this (Pronoun)*	*present (implies)*
2.4.1a	DEC	statement	*I (Pronoun)*	*present: will*
2.4.1b	DEC	statement	*I (Pronoun)*	*present (know)*
2.4.1c	DEC	statement	*I (Pronoun)*	*present: will*
2.4.1d	DEC	statement	*(what) (Pronoun)*	*present:should*
2.4.1e	DEC	statement	*Unscrupulous act (NG)*	*present: has*
2.5.1	DEC	statement	*Human progress (NG)*	*present: has been*
2.5.2	DEC	statement	*them (Pronoun)*	*present: have been*
2.5.3	DEC	statement	*them (Pronoun)*	*present: have been*
2.5.4	DEC	statement	*My effort (NG)*	*present: would be*
2.5.5	DEC	statement	*I (Pronoun)*	*present (dedicate)*
2.6.1a	DEC	statement	*I (Pronoun)*	*present (pledge)*
2.6.1b	DEC	statement	*I (Pronoun)*	*present (ask)*
2.6.1c	DEC	statement	*Our special expertness (NG)*	*present (carries)*

Furthermore, the dominant usage of active clauses in almost all clauses shows that the oath text gives a high degree of emphasize on the engineer as the subject of the clause who does the action. On the other hand, passive clauses as in clause 2.3.1 and 2.5.3 indicate that the clauses give emphasize on the action which is done by the Subject. It should be noted that there is one clause, clause2.3.2a, *From special capacity***springs** *the obligation*, having no subjects but the circumstantial adjuncts, realized in the form of prepositional phrase, and it is placed at the subject position of the clause. In this case, it assumed that the speaker is making a claim about the obligation which is valid for the present time and actual situation if it is examined from the special capacity owned by the engineers. The passive clauses 2.5.2 and 2.5.3, repeat the same

"*them*" twice to give an emphasizing on the role of engineers in utilizing natural resources and developing technology since the age of stone. In the Residue, clause predicators which express the action, happening etc in this text has function to specify the active and passive voice of the clause and half of them serve as secondary tense since the element of finite are attached in the predicators. In addition, frequent usage of circumstantial Adjunct explains the circumstance of propositions and claims made in the Mood.

In terms of appraisal, many clauses in the text show Affect focusing on the emotive feeling of the appraiser as in *eager to fulfill* and *my effort would be feeble* and Appreciation aimed to demonstrate the qualities owned by the appraised thing, action and event as shown by *deep pride, solemn obligations, the utmost of performance, from special capacities, unscrupulous act, the genius of my professional forebears* and *special expertness*. From the dominance appraisal in the text, the writer shows his/her thinking and attitude towards the appraised thing, action, and event which is appraised for having good values and qualities. Finally, the discussion of interpersonal analysis of the oath text in this section comes into conclusion that the oath is primary functioned for guaranteeing the truth and efficacy of language. The oath, then, seems to be a linguistic act intended to confirm a meaningful proposition (a *dictum),* whose truth or effectiveness it guarantees, and whose correctness and implications we must verify (Agamben, 2011: 15).

Experiential Function

Language reflects our view of the world consisting of going-on (verbs) involving thing (nouns) which may have attributes (adjectives) and which go on against background details of place, time, manner, etc. (adverbials) (Thompson, 2004:86). Experiential function focuses on the content of discourse covering the activities and the participants in the activities being described through the structure of transitivity −processes, participants, and circumstances. The transitivity structure of clause express representational meaning: what the clause is about, which is typically some processes, with associated participants and circumstances (Halliday and Matthiessen, 2004: 309). Here is the extract of text oath taken from Introduction

to Engineering book. (Note: Participants underlined; Processes in bold; Circumstantial in italics; clauses are numbered for later reference).

(1.1)*As a professional Engineer*, I**dedicate**my professional knowledge and skill*to the advancement and betterment of human welfare*.

(1.2) I**pledge**:

To give the utmost of performance

To participate in none but honest enterprise

To live and work according to the laws of man and the highest standards
of professional conduct

To place service before profit, the honor and standing of the profession
before personal advantage and the public welfare above all other
considerations.

(1.3)*In humility and with need for Divine Guidance*, I**make** this pledge.

(2.1.1) I*AMAN ENGINEER*. (2.1.2a)*In my profession*, I**take**deep pride, but *without vainglory;* (2.1.2b) to it I**owe**solemn obligations (2.1.2c) that Iam eager to fulfill.

(2.2.1)*As an engineer*, I**will participate** in none but honest enterprise. (2.2.2)*To him that* **has engaged**my services, *as employer or client*, I**will give**the utmost of performance and fidelity.

(2.3.1a)*When needed*, (2.3.1b)my skill and knowledge**shall be given** *without reservation for the public good.* (2.3.2a)*From special capacity* **springs** the obligation *to use it well in the service to humanity;* (2.3.2b) *and* I**accept**the challenge(2.3.2c) *that* this**implies.**

 (2.4.1a) *Jealous of the high repute of my calling*, I**will strive** *to protect the interests and the good name of any engineer (*2.4.1b*) that* I**know** *to be deserving; (*2.4.1c*) but* I**will not shrink**, (2.4.1d) **should duty dictate**, *from disclosing the truth regarding anyone* (2.4.1e) *that, but* unscrupulous act,**has shown** *himself unworthy of the profession.*

(2.5.1)*Since the age of stone*, human progress**has been conditioned** *by* the genius of my professional forebears. (2.5.2)*By*them**have been rendered** *usable to mankind Nature's vast resources of material and energy.* (2.5.3)*By*them**have been vitalized** *and* **turned** *to practical account the*

principles of science and the revelations of technology. (2.5.4) *Except for this heritage of accumulated experience, <u>my effort</u>would be feeble.*

(2.5.5)*<u>I</u>dedicate<u>myself</u> to the dissemination of engineering knowledge, and especially to the instruction of younger members of my profession in all its arts and traditions.*

(2.6.1a) *To my fellow <u>I</u>pledge, in the same full measure,* (2.6.2b)*<u>I</u>ask of <u>them</u>, integrity and fair dealing, tolerance and respect, and devotion to the standards and the dignity of our profession;* (2.6.1c) *with the consciousness, always, that <u>our special expertness</u>carries with it the obligation to serve humanity with complete sincerity.*

From the analysis above, the most frequent process type is material process apart from the two relational clauses and two mental clauses. The material processes in the text are realized by such processes namely *dedicate*, *pledge*, *make*, *take, owe, will participate, give, shall be given, accept, implies, will strive, will not shrink,* and *should duty dictate*. In addition, the material processes in the text are dominantly employed by Actor and Goal as the participants of each clause. However, some materials processes, namely *give*, *shall be given*, and *accept* indicates the employment of Agent and Recipient as the participants. The most frequent participant of the text is *I* which refers to the engineer who subscribes to the oath. Since material process involving physical action, the dominant usage of material process indicates that the text construes the world more in terms of action or action oriented with engineers as its central Actor by depicting engineer as someone who fulfill and bring the action into the reality.

In addition, there are two attributive relational and identifying relational processes. The attributive relational process represents the attributive relation between the Carrier and Attribute as the participants while identifying relational process showing the identification of the both participants which carry Token and Value as the participants. The attributive relational process in clause 2.3.2a employs Attribute (*obligation*) as participant with the absence of Carrier which is left unidentified. However, the clause indicates that there is a relationship between the Attribute (*the obligation*) and Circumstance (*from special capacities*) by employing *springs* as a process which signifies the causal relation between Circumstance and Attribute. The relational process (*springs*) characterizes the aspect that the obligation is as the outcome

of the special capacity owned by the engineer. Thus, "*spring*" has a role to make a distinctive contribution of the identification of the both participants – token and value. By means of attributive processes, in this clause, the writer provides the information related to the specific attributes and the characteristics of the absence Carriers. Thus, it can be concluded that the function of attributive relational clause is mainly for describing condition. Furthermore, the identifying relational process employs Token and Value as in clause 2.1.1. Clause 2.1.1, *I AM AN ENGINEER*, identifies that the most frequent participant, *I*, is an engineer objectively and identifiable by not attaching subjective attribute to the Carrier (*I*). In short, identifying relational in this particular clause has a role to sum up the known condition or value depicted in the text to identify the participant serving as the Token. Furthermore, the mental clauses encode the meaning of thinking and feeling and employ Senser and Phenomenon as the participants. There are two types of mental clauses existed in the oath text, cognitive and perceptive. According to Halliday and Matthiessen (2004: 210), cognitive is realized through verb representing thinking, knowing, and understanding, for example in clause 2.4.1b while perceptive is realized through verbs of seeing and hearing, for example in clause 2.4.1e. In terms of Circumstances, the text employs circumstantial elements to enhance and extend the clause by providing additional information related to the process and participant and employing the circumstance of time place, quality, condition, comitative and guise as listed in the following table.

Table 3. Types of Circumstances in the Text of Oath for Engineers

(Adopted from Halliday and Matthiessen, 2004: 262)

		Types		wh-item	Examples of Realization
enhancing	1	Location	place	where? [there, here]	in the service of profession
			time	when? [then, now]	when it is needed
	2	Manner	quality	how? [thus]	in humility, according to the laws of man, without vainglory, in none but honest enterprise,
extending	3	Accompaniment	condition	why?	jealous of high repute of my calling
			comitative	who/what with?	with need for devine guidance, without reservation
			guise	what as?	as an engineer

D. CONCLUSIONS

From the discussion presented in this paper, it is clear that the oath text for engineers utilize various language resources to achieve its objectives. Textually, the zig-zag pattern of themes organization indicates the changing topics from the marked themes presenting contextual framework of the clauses to the unmarked themes pointing out the engineer as the center of message departure which later represent the movement of stages and phases in the text. Interpersonally, the oath has a primary role for guaranteeing the truth and efficacy of language. Experientially, the dominant usage of material process indicates that the text construes the world more in terms of action or action oriented with engineers at its center.

The results of functional text analysis which unfolds the structure of the oath for engineers and reveals the pattern of the text is essential to be utilized as one important consideration in designing and developing English course syllabus and teaching material for the teaching of English in engineering class. This is based on the idea that teaching reading requires a focus on intermediate patterns of discourse between stages and clause grammar, since learners cannot comprehend a text as a string of clauses, any more than we understand a clause as a string of words, or a word as string of letters (Rose, 2006:2). This oath text has a good quality and potential to be used as one of the teaching material of English in Engineering class in which reading is treated as the main focus of the teaching since this text can promote character education by providing detail description on the ideals, obligations and special qualities which have to be possessed by professional engineers.

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