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The Use of the Effective Vocabulary, Grammar and Function of English by the Biology Teachers

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Abstract

This research investigated vocabulary, grammar and function of English which could work well as a means of conducting: 1) the application of instruction (students' physical behaviors, giving orders or tasks), 2) the science instruction (imparting theories, the concepts, facts and information) and 3) vocabulary instruction (helping the students understand vocabulary). The research found three kinds of word used by the teachers namely: 1) High Frequency General Words, 2) Non Specialized Academic Words and 3) the Specialized Content Area Words. The category 1) were used for social function to build interpersonal communications, direct the students' physical behaviors and give the orders or the tasks. The category (2) and (3) were used in the area of academic function specifically to conduct the science instruction (explanations, descriptions, comparisons, assessments, clarifications, paraphrasing, directing instructions, and behaviors). Four sentence patterns (declarative, interrogative, imperative and exclamatory) were used for the application of instruction such as greetings, leave-takings, appreciating the students' works, directing the students' behaviors and the students to do the tasks. In the context of science instruction, the declaratives were used for explanations, descriptions, comparisons, clarifications and paraphrasing. Assessing the students' knowledge and doing the clarifications used interrogative sentences. The imperative sentences were used for directing the instructions and the students' behaviors. The exclamatory sentences were used to express the teachers' excitements, admirations or angers. The Noun-Phrase patterns with past-tense and non-past tense and its transformational forms were employed.

Keywords: effective, vocabulary, grammar, function, English

1. Introduction

Using English as instructional language for Mathematics and Science was applied by a Junior High School labeled as a bilingual school in Indonesia in 2010. Linguistically, the use of English in the teaching and learning context such as the teacher talks, learning material was believed to be an English language modality to enrich the students' knowledge of grammar, vocabulary and language functions. Besides, classroom activities like a peer feedback, group discussion, questioning, answering, arguing, describing things, writing laboratory reports function as a language exposure as well a a medium to use English in real context. In this view, the teachers are strongly obliged to be competent in using an effective instructional to avoid sacrificing the students'understanding of content. The teachers' English competence could be measured by their possession of vocabulary, grammar and ability to use these two anguage components appropriately to its functions for the teaching instructional proposes.

2. Objectives of the Research

The study was intended to explain the linguistic aspecst of English covering:

a. The English Vocabularies which were used effectively by the Biology teachers to achieve the instructional purposes s in certain contexts of instruction.

b. The English sentence patterns which were used effectively by the Biology teachers to achieve the instructional purposes in certain contexts of instruction.

c. The language function of English which was used effectively by the Biology teachers in certain application of instruction.

d. The language function of English which was used effectively by the Biology teachers in science instruction.

e. The language function of English which was used effectively by the Biology teachers in vocabulary instruction.

3. Review of Related Literature

3.1 Communicative Competence

Communicative competence is explained in different ways by experts. Hymes (1972) wrote communicative competence as an implicit and explicit knowledge of the rules of grammar and contextual or sociolinguistic knowledge of rules of language in context. He mentioned four aspects of communicative competence: what is formally possible, what is feasible, what is the social meaning or value of a given utterance, and what actually occurs. Canale and Swain (1980) defined communicative competence in the context of second language teaching. They synthesized communicative competence as a synthesis of knowledge of basic grammatical principles, knowledge of how language is used in social settings to perform communicative functions, and knowledge of how utterances and communicative functions can be combined according to the principles of discourse.

Canale and Swain (1980) classified communicative competence into grammatical

competence, sociolinguistic competence, discourse competence, and strategic competence. Grammatical competence means the acquisition of phonological rules, morphological rules, syntactic rules, semantic rules and lexical items. Sociolinguistic competence refers to the learning of pragmatic aspect of various speech acts, namely, the cultural values, norms, and other socio-cultural conventions in social contexts. The speech acts include the context and topic of the discourse, the participants' social status, sex, and age, and other factors which influence styles and registers of speech. Since different situations call for different type of expressions as well as different beliefs, views, values, and attitudes, the development of sociolinguistic competence is essential for communicative social action. Discourse competence is the knowledge of rules regarding the cohesion (grammatical links) and coherence (appropriate combination of communicative functions of various types of discourse. Canale and Swain (1980) emphasized that sociolinguistic rules of use and rules of discourse are crucial in interpreting utterances for social meaning, particularly when the literal meaning of an utterance does not lead to the speaker's intention easily. Strategic competence is to do with the knowledge of verbal and nonverbal strategies to compensate for breakdowns such as self-correction and at the same time to enhance the effectiveness of communication such as recognizing discourse structure, activating background knowledge, contextual guessing, and tolerating ambiguity.

Gottieb (2006) identified that Academic Language proficiency centers on the delivery of understanding of an idea or message through one or more language domains; listening, speaking, reading, or writing. It generally involves three criteria: (1) comprehension and use of the specialized or technical vocabulary and language patterns associated with content, (2) linguistic of complexities of variety and length (phonology, syntax, and meaning), (3) demonstration of understanding or use of language system such as phonology, the grammatical structure, and the meaning of the language. Meanwhile, Stern (1983) claimed language proficiency as the actual performance of learner in a given language, it involves the mastery of (1) the form, (2) the linguistic, cognitive, affective and sociocultural meaning of those form, (3) the capacity to use the language with focus mainly on communication and attention to form. Language proficiency is associated with Communicative language ability involving linguistic proficiency and communicative proficiency.

Bachman (1990) argued language proficiency reflects how well one can use the rules of use of language and the rules of speaking in communication in specific situation setting purpose activities. Language Proficiency is individual's competence to use language or an expression of Students' linguistic knowledge and language use in four language domain, reading, writing, speaking, and listening in and outside school contexts and interactions. Cummins (1981) suggested two kinds of language ability that should be acquired when science taught in foreign language or second language. First, the science teacher has to have Basic Interpersonal Communication skills (BICS). BICS is needed in interpersonal relations or in informal situation. BICS is the day-to-day language needed socially with other people. The language can occur in the playground, lunch room, the school bus, sport area etc. Social Interactions are usually context embedded. They happen in a meaningful social context. They are not very demanding cognitively meaning that they are not dealing with synthesis, drawing

conclusion, inferring. The language is not specialized. The language is face-to-face Conversations (verbal language), for instance, nonverbal features like gestures, body movement, and facial expressions all convey meaning and aid understanding. Due to contextual support, a second language is more easily acquired in this „context-embedded" situation. However, a student's good performance in BICS is not a predictor for her/his success in schools.

Second is cognitive academic language proficiency (CALP). Cummin (1981) defined CALP is a kind of language proficiency to make sense of and use academic language in less contextual situations. CALP is required in the classroom, where higher-order thinking skills (analysis, synthesis, evaluation, etc.) are involved, the language is frequently more formal, more Technical, more specialized, and more abstract „disembodied" from a meaningful, supporting context. This „context reduced" classroom communication (in listening, speaking, reading, and writing) would certainly pose more difficulty to students and teachers in acquiring language and literacy in English. Even if they have adequate literacy skills and strategies in Indonesian (top- down processing)- and these are transferable to English, still they are not sufficient conditions for a thorough comprehension of texts in English, for instance. Adequate knowledge of language and skills in English vocabulary, grammar and orthography are also necessary components for a full understanding.

3.2 Language Functions

There are over a hundred functional heading in English. In relation to an individual's need, for example, sociocultural language function is dominant. In the academic contexts, every teacher needs to communicate with the students. He/she needs a particular language function such as a personal, interpersonal, directive, referential, and imaginative. He/she learns to use language of expression of greeting, requesting, apologizing, questioning, and getting direction, giving information, like, dislike. (Halliday, 1973, Van Ek's, 1980 and Finocchiaro, 1983).

4. Research Method

The research employed qualitative method to identify the varieties of the Biology teachers' vocabulary, grammar and functions of English which could be understood by the second grade students of the Junior High School in Tulungagung, East Java Province, Indonesia during the process of teaching and learning. Method of collecting data used observation; interview and documentation. The obtained data were qualitatively analyzed with the procedure of data reduction, data display, drawing conclusions and data verification.

5. The Research Findings

Three categories of effective vocabulary that were used by the observed Biology teachers within three contexts of instructions can be elaborated in the following numbers: 1) High Frequency General Words (words that are used regularly in everyday context). For Examples: find, show, keep, help, speak, listen, get, cut, continue, decrease, advantage, disadvantage, live, can, do, draw, compare, continue, think, answer, question, need, choose, find, consist of, depend on, use, look at, change, completed, Whiteboard, ice, leaf, frog, tree, bottle,

schoolyard, flies, ant, deer, buffalos, book, hand on activities, people, friend, bottle, group, grasshopper, destruction, forest, river, fish, quite, silent, cold, careful, small, diligent, big, small, large, fertile, high, tall, round, hot, fresh, rotten, extinct, particular, dense, moderate, clear, loud, slow, artificial, deep, quick, different, same, natural, unnecessary, necessary, ripe, difficult, easy, carefully, loudly, quickly, slowly, well, generally, everyday, next week, last week, few minutes, long time, socially, economically, culturally, specially, naturally, approximately, I, you, they, we, she, he, it, its, or, and, because, so, but, because, so, on the other hand, therefore, unlike, at, on, by, after, before, to, with, among, between, around, beside, above, about, over, for, in front of, back of, beside, or instance, Wow. Hi, fine, well, All right etc (2) Non Specialized Academic Words (words that are used across content area). For Examples : Examine, sample, cause, marine, human being, Sample organism, item, ecosystem, conservation, natural, controlled, fire, forest, context hunted, sustainable, exploitation, habitat, component, animal, estimate, community, niche, observe , interaction, individual, eat, get, population, sand, store, interrelated, consume, erosion, protect, survive, virus, the science bacteria, chemical, substance, function, kill, element, harmful, source, termites, produce, preserve, affect, density, food chain, provide, transfer, mineral, processes, human, organic, density, bacteria, biotic, boundary, solar, logging, legal, illegal, energy, and (3) Specialized Content Area Words (academic words unique to specific content area/conceptual terminology of science). For examples: mutualism pollen, biosphere, food chain etc within three contexts of instructions (application of instruction, science instruction and vocabulary instruction). The three mentioned categories of words were used in the domain of the social and the academic functions. In the domain of social function, High Frequency General Words were used to build interpersonal communication such as to direct the students‟ physical behaviors, to give the orders or the tasks, to greet, to express feelings wants, needs and to have leave-takings. In the domain of the academic function, Non Specialized Academic Words and Specialized Content Area Words were used for the purposes of explanations, descriptions, clarifications, comparisons, and assessments, paraphrasing in the contexts of application of instruction, science instruction and vocabulary instruction. Data of Specialized Content Area Words were unfrequently captured because the delivered teaching materials cover only two subtopics.

Four sentence patterns (the declaratives, the interrogatives, the imperatives and the exclamatory) were found effectively used within the three contexts of instructions. In the context of application of instruction, the Biology teachers found using those sentence patterns for greetings, leave-takings, appreciating the students' works, directing the students' behaviors, directing the students to do the tasks. In the context of science instruction, the declaratives were used for explanations, descriptions, comparisons, clarifications and paraphrasing. The interrogatives were used to assess the students‟ knowledge and the clarifications. The question words began with "Which", "What", "Why", "Can", "May", and "To be ". The imperatives were used for directing the instructions and the students' behaviors. The exclamatory was used to express the Biology teachers' excitements, admirations or angers. The Biology teachers were observed using the Basic sentence pattern that consists of subject plus predicate. The subject was Noun-Phrase (NP). The predicate was Verb-Phrase (VP). A sentence transformation from the affirmatives to the interrogatives and the negatives

were chosen for certain instructional purposes. The Biology teachers dominantly used simple sentences to avoid the students' misconceptions and misunderstandings. Complex sentences were only used if the ideas were not possible expressed using simple sentences.

The findings revealed the teachers used past tense and non-past tense (the simple present and future tenses). The non-past tense was used to refer to the facts, events that were not in the past. In the domain of social functions, the findings showed that no language supports appeared when the Biology teachers had to use High Frequency General Words, Non-Specialized Academic Words, and Specialized Academic within three contexts of instruction (application of instruction, science instruction and vocabulary instruction) for the personal conversations in the classroom. This situation happened because both the Biology teachers and the students could recognize the ordinary or non-academic meaning of general English. A different case happened when the Biology teachers had to use the academic words. The three Biology teachers were found using the scaffolding strategy to lower the abstractness, the uniqueness, the level of difficulty and the particularity of academic vocabulary. Several ways were taken by the three Biology teachers to avoid the students' misunderstandings. Three Biology teachers were observed struggling to solve their instructional problems. They helped the students get the meaning of the introducing academic words by employing certain instructional strategies. They did highlight the academic vocabulary in the subject they taught by using the language switching, doing translation from English to Indonesian, giving definitions, providing synonyms, examples, visuals, the real objects and doing repetitions, description and the explanation of science concepts to transfer the meaning of words to the students' understanding. Beside instructional strategies, figures were chosen as another alternative help to make the students understand science instruction. For example, when the students did not understand the explanation about the interaction happen between organisms in certain ecosystem and concept of parasitism, the Biology teachers were found providing the examples, simile and comparison. They applied also the general approaches of language teaching. They prepared glossary/list of words before starting a new lesson. In a certain case, Total Physical Response seemed to be also effectively used to instruct the vocabulary. The vocabulary instruction involved the students in a contextual learning. The Biology teachers asked the students do concrete experiences like doing the experiments in the live laboratory (in the yard and the garden) to communicate the meaning and help the students remember a wide range of extensive vocabulary.

In the domain of academic functions, three Biology teachers used English for the explanations, the descriptions, the comparisons, the assessments, and the clarifications and paraphrasing. These language functions were used within the application of instruction, the science instruction and the vocabulary instruction. In the context of application of instruction, the Biology teachers used the explanations and descriptions to direct the students do the tasks. In the context of science instruction and vocabulary instruction, the Biology teachers used the six integrated language functions. The explanations were used to indicate the scientific relationships, guide the students' understanding of the scientific concepts and gave the reasons for the scientific theories and the experiments. The explanations were also used to give the scientific reasons for theories and experiments. The descriptions are used to provide

the students' background knowledge of the scientific concept. The descriptions were clarified by relating a real world and a science. The language function of comparisons were used to compare a new scientific theory, concept, or fact to another theory, concept, or fact that was understoodable to the students and the similarities and differences among two or more scientific theories, concepts, or facts. The language functions of clarifications were used to repair the students' misunderstanding of scientific concepts.

6. Conclusions

The research findings opened up the fact that English used by three observed Biology teachers worked effectively to conduct various instructions. Data gathered from the observations and interviews justified the evidence that the classroom interaction run well. The decision of three Biology teachers to choose the use of simple and ordinary English aid the students understand what the teachers instructed. This happened because the English used stood in the reach of the students'level English proficiency. The vocabulary, grammar of English they used confirmed the students'needs and content of subject. Hereby, the teachers'English was easy to understand. In addition, the English used by the teachers seemed appropriate to function of English that were demanded by the needs of application of instruction (directing students" physical behaviors, giving orders or tasks), the science instruction (imparting theories, the concepts, facts an information) and vocabulary instruction (helping the students understand vocabulary).

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