

ACADEMIC LANGUAGE FUNCTIONS IN TEACHING CONTENT SUBJECTS

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ABSTRACT

This study focuses on the use of academic language functions and the problems of their use in the process of teaching content subjects by using English as a means of instruction. Direct observation and recording were done to gather the data. Based on the overall data analysis and interpretation, the teachers have used academic language functions in English, but not all teachers use full-English in the teaching learning process. They applied academic language functions for the purpose of acquiring knowledge and skills. Furthermore, some teachers do not have adequate mastery of English because they just took a short English course. So, most content teachers sometimes find difficulties related to vocabulary/diction, grammar, pronunciation, intonation and they often switched codes from English to Indonesian and vice versa. They have problems to express their idea in English due to their lack of vocabularies used and pronunciation. Therefore, it is suggested that content teachers improve their competence especially in the classroom interaction using English.

Key words : academic language functions, and content teachers.

INTRODUCTION

Academic language is the language that is used by teachers and students for the purpose of acquiring new knowledge and skills (Chamot and O'Malley, 1994:40). Academic language differs in many ways from social language, the language that is used for purpose of interaction in social classrooms, the emphasis on academic language increases each year as students' progress to higher grades. Academic language is more difficult and takes longer to learn than social language (Cummins, J. 1984), two factors affect language comprehension: context and cognitive complexity. Academic language, on the

other hand, may be less interactive and may provide limited context clues to assist comprehension. Academic language has very specific purpose, including imparting new information, describing abstract ideas, and developing students' conceptual understanding. The purposes are cognitively demanding, thus increasing the comprehension difficulties students' experience.

The identification of academic language is an inexact science, most probably because it is closely intertwined with academic content (Chamot and O'Malley, 1994:40). Academic language consists primarily of the language functions

needed for authentic academic content. Academic language functions are the tasks that language users must be able to perform in the different content areas. These differ from social interactive language functions such as a social language functions are greeting and addressing another person. Sub categories of *greeting* are greeting a peer, a superior, or a subordinate, and making the greeting either formal or informal. On the other hand, academic language involves using language functions such as identifying and describing content information, explaining a process, analyzing and synthesizing concepts, justifying opinions, or evaluating knowledge. But academic language can also be interactive. Teachers and students can discuss new concepts, share analyses, and argue about values in both teacher-students and student-student interaction (Chamot and O'Malley, 1994:41).

Language functions needed in the grade-level academic classroom include explaining, informing, justifying, comparing, describing, classifying, proving, debating, persuading, and evaluating. (Chamot and O'Malley, 1994:41). Most of these functions are necessary in all content area, e.g. in order to *explain* how a word problem in mathematics was solved, a student needs to organize the explanation so that it communicates the desired message in mathematically appropriate way. On the other hand, in order to justify a conclusion about the values of democracy as a form of government, a student might need to

analyze the important features of democracy and compare them to other types of government. Academic language is used to justify values in one culture and to analyze different values in another. In science, students might have to justify a conclusion from an experiment that requires them to analyze and reject alternative hypotheses (Freeman and Freeman, 2009; Nunan, 1989.).

Academic language functions are the function when the language is used in the teaching and learning process, especially in delivering content material (Allen and Valette, 1998; Zwiers, 2008.). Therefore, the academic language instruction and opportunities for practice should be integrated with academic content instruction (Chamot & O'Malley, 1994:42). There are 11 academic language functions. They are: (1) seeking Information, used to observe and explore the competency of students, to acquire information in the teaching learning process (e.g. use who, what, when, where, which and how); (2) informing, used to identify, to report, or to describe information (e.g. recount information presented by teacher or text, retell a story or personal experience); (3) comparing, used to describe similarities and differences in objects or ideas (e.g. make/explain a graphic organizer to show similarities and contrasts); (4) ordering, used to explain sequence objects, ideas, or events. (e.g., Describe/make a timeline, continuum, cycle, or narrative sequence);

(5) classifying, used to make group objects or ideas according to their characteristics (e.g. describe organizing principle(s), explain why A is an example and B is not); (6) analyzing, used to separate whole into parts; identify relationships and patterns (e.g., Describe parts, features, or main idea of information presented by teacher or text); (7) inferring, used to make inferences; predict implications and hypothesize (e.g. describe reasoning process inductive or deductive or generate hypothesis to suggest causes or outcomes); (8) justifying & persuading, used to give reasons for an action, decision, point of view; convince others (e.g. tell why a is important and give evidence in support of a position); (9) solving problem, used to define and represent a problem; determine solution (e.g. Describe problem-solving procedures; apply to real life problems and describe); (10) synthesizing, used to combine or integrate ideas to form a new whole (e.g. summarize information cohesively; incorporate new information into prior knowledge); and (11) evaluating, used to assess and verify the worth of an object, idea, or decision. (e.g., Identify criteria, explain priorities, indicate reasons for judgment, confirm truth).

Content area subjects interchangeably to refer to subjects of the curriculum such as science, mathematics, social studies, and language arts. Chamot & O'Malley (1994:5) introduce content area in stages to make students easier in the teaching and learning process. They explain that the

goal of the science curriculum can be expressed in terms of concepts and generalizations, process of inquiry and discovery, scientific attitudes, and interest and appreciation. The study of science for concepts and generalizations suggests that students not only gain an understanding of the facts and theories of science but learn the importance of scientific knowledge for solving problems in their environment. Scientific inquiry is the process by which individuals discover new information through the applications of data gathering, measuring, classifying, organizing, predicting, and problem-solving. Students develop scientific attitudes such as an open-minded approach to data, interest in the experimental approach, and willingness to challenge suspect information. An interest and appreciation of science is important as students unlock the mysteries of the world and expand upon their naïve understandings of natural phenomena toward increasing scientific sophistication (Allen and Valette, 1998).

Content teacher is the teacher who specializes in a particular subject area of the curriculum, such as language arts, mathematics, science, and social studies. Content teachers are important resources for content selection. Content specialist teachers have extensive knowledge about their subject areas and are also experienced in effective ways of presenting content-specific material. In addition, the content teacher knows what prior knowledge and skills are needed before

introducing particular topics. ESL teachers should meet with grade-level content teachers to discuss aspects of the local curriculum students should know upon entering the grade-level classroom. Content teachers should select content and they are guided by a curriculum framework. They rely mainly on textbooks for content selection then select certain topics. The content teachers should choose content based on their own experience in assessing the needs and interests of students. Content teachers may use a combination of approaches to content selection. In any case, ESL teachers can benefit from the advice of content experts (Brown, 2001).

Chamot and O'Malley (1994:26) mention that there are at least four reasons for incorporating contents subjects into English as a second language class: (1) subject area concepts and relationships provide a foundation for learning grade-level information in important subjects. 2) Students can practice skills and processes needed in the content areas. 3) Content is more motivating than language alone. 4) Content provides a context for learning and applying learning strategies. In teaching and learning content area subjects there are some components which are should be prepared: 1) Content teachers, 2) Curriculum, 3) Textbooks, 4) Curriculum analysis, 5) Student's interest. Content teachers are the most important component in teaching and learning content area subjects. Content specialist

teachers have extensive knowledge about their subject areas and are also experienced in effective with of presenting content-specific material. In addition, the content teacher knows what prior knowledge and skills are needed before introducing particular topics (Van Lier, 1988).

Chamot dan O'Malley (1994:33-37) explain guideline in teaching and learning content. They suggested a variety of ways in which CALLA teachers can make content more relevant and accessible to students learning English, they are :

- Activities: content should be taught as experiences rather than merely as facts.
- Prior knowledge: all new information needs to be linked to students' relevant prior knowledge.
- Technical vocabulary: teach and have students use technical vocabulary appropriate to the content subject.
- Learning styles: address different student learning styles, use visual, auditory, and kinesthetic means.
- Overviews: follow general overviews of the lesson or unit with new information in chunks; include active practice
- Questioning: show the students how to ask and answer higher-level questions about content.
- Teacher monitoring: monitor students' comprehension on an on-going basis.
- Student monitoring: teach students how to "know they don't know"- and what action to take.

- Graphic organizers: show students how to use graphic organizers to identify prior knowledge, prepare study guide, and restructure prior knowledge. The followings are examples of graphic organizers and cycle.
- Resources: provide books, articles, other resources on content topics; teach students how to use them.
- Learning strategies: provide explicit instruction in learning strategies for understanding, remembering, and using content.

This article describes the use of academic language functions and the problems of their use in the process of teaching content subjects by using English as a means of instruction.

METHODS

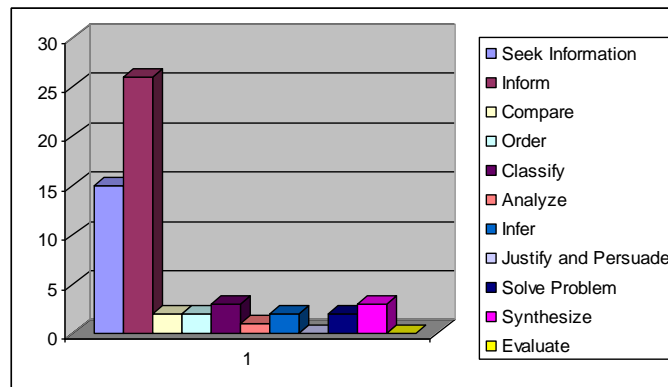
This study adopted an applied descriptive qualitative approach to analyze the patterns of interactions between teacher and students in the classroom especially to obtain description about the use of

academic language function. The data are teacher-student interaction in bilingual classroom. The subjects were five Senior High School teachers teaching content materials, including Geography, Mathematics, Chemistry, Physics, and Biology. The data were obtained by using observation, recording and documents, and interviews and analyzed by using the CALLA (Cognitive Academic Language Learning Approach) model designed by Chamot (1995). The unit of analysis of this study is the utterances of the academic language functions used by the content teachers in teaching learning process. The validity of the data was achieved through triangulation.

RESULTS AND DISCUSSION

The use academic language functions in teaching content subjects in English by five different content teachers is described to illustrate how they applied these language functions in their classroom as in the following graphs.

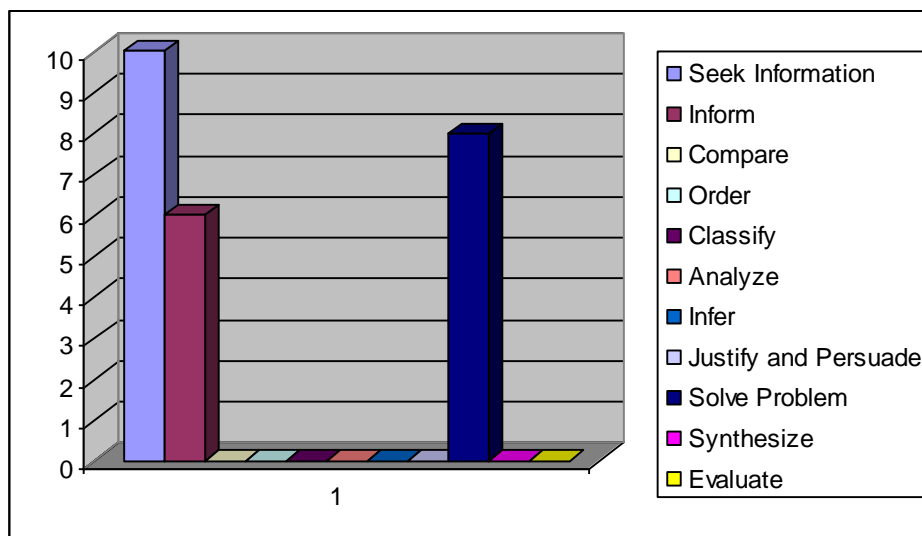
Graph 1 Academic language functions used by Geography teacher



Graph 1 shows the description of how the content teachers develop classroom interaction in teaching content subject especially in using the academic language function in the teaching learning process in Geography class at second grade with the topic Disaster. The finding shows that the academic language functions used by the teacher are 15 seeking information, 26 informing, 2 comparing, 2 ordering, 3 classifying, 1 analyzing, 2 inferring, 2 solving problem, 3 synthesizing. Based on the findings above, the teacher has used 91.82% (9 of 11). The teacher tried to use full-English but sometimes he still used Indonesian when he couldn't find the words in English. In this teaching learning process the teacher talks were dominated by giving information and seeking

information. Giving information refers to the teacher's efforts to deliver some information to students related to the lessons that were being taught. It is commonly employed by the teacher during teaching learning process. The information given in the Geography class involves facts, opinions about content or procedure, expressing own ideas, lecturing, and giving own explanations. Besides, the teacher also asked questions. As shown in graph 1, the teacher gave information most of the time in the form of lecturing in order to explain the lesson clearly. These findings show that the teacher still become the center of content teaching process but the students are active enough to response the questions

Graph 2. Academic language functions used by Mathematics teacher



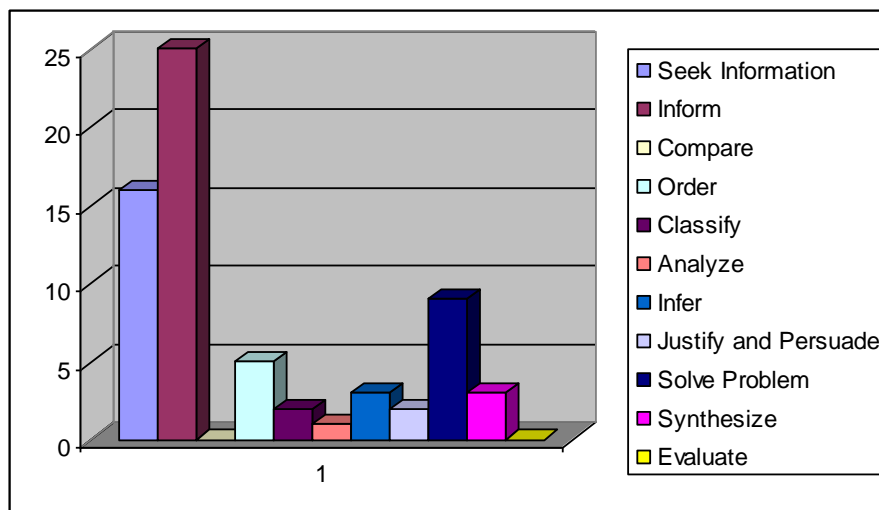
Graph 2 shows the description how the content teacher develops classroom interaction in teaching content subject

especially in using the academic language function in the teaching learning process in Mathematics class at second grade with

the topic Derivative Function. The finding shows that the academic language functions used by the teacher are 10 seeking information, 6 informing and 8 solving problem. Based on the findings above, the teacher has not used academic

language functions properly, only 27,27% (3 of 11). In this teaching learning process the teacher didn't speak a lot because she used most of time for doing exercises and the teacher talks were dominated by asking information and solving problem.

Graph 3 Academic language functions used by Chemistry teacher



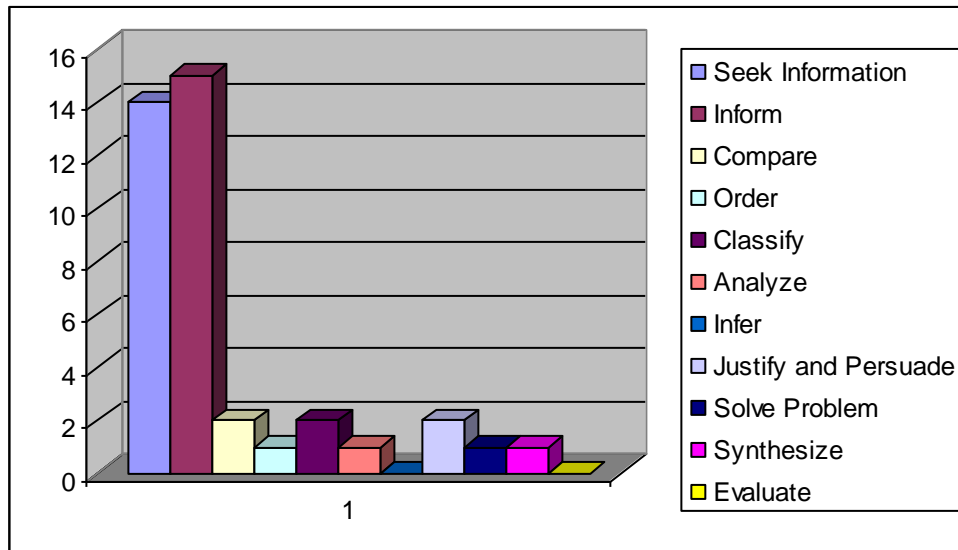
Graph 3 shows the description how the content teacher develops classroom interaction in teaching content subject especially in using the academic language function in Chemistry class at first grade with the topic Redox. The finding shows that the academic language functions used by the teacher are 16 seeking information, 25 informing, 5 ordering, 2 classifying, 1 analyzing, 3 inferring, 2 justifying and persuading, 9 solving problem, 3 synthesizing. Based on the findings above, the teacher has used Academic Language Functions properly that is 91.82% (9 from 11) from the functions of language in the teaching

learning process. In this teaching learning process, the teacher talks were dominated by asking questions and giving information. Giving information refers to the teacher's efforts to deliver some information to students related to the lessons that were being taught. It is commonly employed by the teacher during teaching learning process. The information given in the chemistry class involves facts, opinions about content or procedure, expressing own ideas, lecturing, and giving own explanations. Besides, the teacher also asked questions. As shown in graph 3, the teacher gave information most of the time in the form of lecturing in order to explain

the lesson clearly. In the teaching learning process the teacher has used English well. The teacher used bilingual in teaching content subject in order to make students

easier to understand the material. The teacher has very good competence in teaching content.

Graph 4 Academic language functions used by Physics teacher



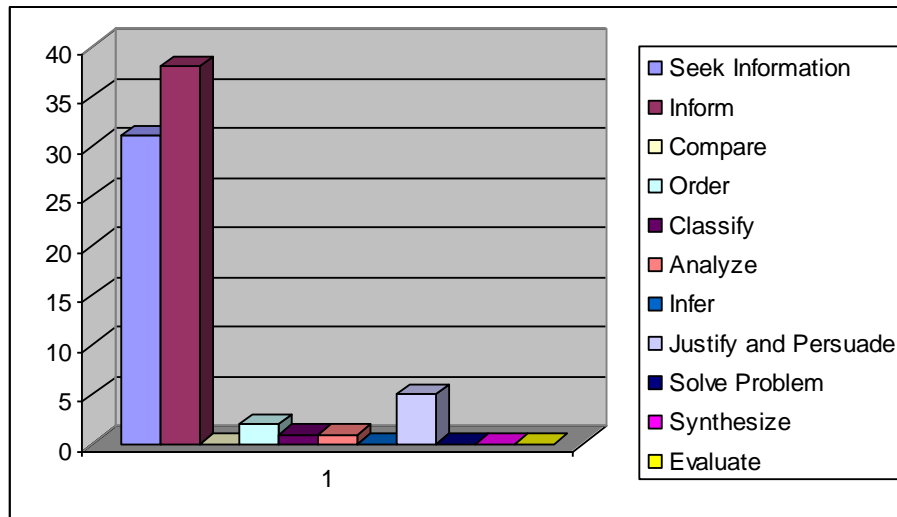
Graph 4 shows the description how the content teacher develops classroom interaction in teaching content subject especially in using the academic language function in the teaching learning process in Physics class at first grade with the topic Electromagnetic Wave and It's Application. The finding shows that the academic language functions used by the teacher are 14 seeking information, 15 informing, 2 comparing, 1 ordering, 2 classifying, 1 analyzing, 2 justifying and persuading, 1 solving problem, 1 synthesizing. Based on the findings above, the teacher has used Academic Language Functions properly that is 91.82% (9 of 11). The teacher talks

were still dominated by Seeking information and informing. Giving information refers to the teacher's efforts to deliver some information to students related to the lessons that were being taught. It is commonly employed by the teacher during teaching learning process. The information given in the Physics class involves, facts, opinions about content or procedure, expressing own ideas, lecturing, and giving own explanations. Besides, the teacher also asked questions. As shown in graph 4, the teacher gave information most of the time in the form of lecturing in order to explain the lesson clearly. These findings shows that the

teacher still become the center of content teaching process but the students are active enough to response the questions.

The teacher tried to use full-English but sometimes he still used Indonesian when he couldn't find the words in English

Graph 5 Academic language functions used by Biology teacher



Graph 5 shows the description how the content teacher develops classroom interaction in teaching content subject especially in using the academic language function in the teaching learning process in Biology class at first grade with the topic Food Chains. The finding shows that the academic language functions used by the teacher are 31 seeking information, 38 informing, 2 ordering, 1 classifying, 1 analyzing, 5 justifying and persuading. Based on the findings above, the teacher has used Academic Language Functions that is 54,54% (6 from 11). The academic language functions used by the teacher are still dominated by seeking information and giving information. The teacher tried to use full-English, but sometimes he still

used Indonesian when he couldn't find the words in English. Interaction in this classroom was in three-way communication, there were interaction between teacher-students, students-teacher and students-students. The interaction between teacher and students could be seen from the teacher's activity in asking questions, giving information, justifying etc. The students-teacher interaction could be seen from the students' activity like students' response and students interaction appeared when the students had a discussion activity with their groups. The teacher is capable enough to create good atmosphere of teaching content subject. The class

seemed alive and the students were motivated.

In the teaching learning process some teachers still made some mistakes related to vocabulary/diction, grammar, pronunciation, and sometimes the teachers often switched codes from English to Indonesian or vice versa. The following are the examples of some mistakes in teaching content subject in English. The result of the study reveals that in the class under investigation it can be found that the most content teachers employed English as a medium of instruction during the class hour (about 70 %) although they sometimes make mistakes related to vocabulary / diction, grammar, pronunciation, intonation and they often switched codes from English to Indonesian and vice versa.

The results of the interview and observation show that the most content teachers have very good competence in teaching content. But, when they were teaching content subject in English it is not good as in Indonesian. It is caused by many factors, they are: The first is, the education background of the content teachers were not English. They usually just take short course to learn English. Beside that it is caused of some reasons, perhaps they are not brave enough to talk as they are afraid of making mistakes or maybe they do not understand what they are talking about. They are difficult to express their idea in English due to their lack of vocabularies used and pronunciation. As the result, teacher tends

to use Indonesian or even Javanese to make the students clearly understand about the lesson. Moreover, translation is become a solution to overcome their conversational gab problem.

CONCLUSION

Most content teachers have used academic language functions properly in the teaching learning process although they sometimes make mistakes related to vocabulary/diction, grammar, pronunciation, and intonation Therefore the teacher should improve their competence of classroom interaction in English. The result of the study reveals that in the class under investigation it can be found that the most content teachers employed English as a medium of instruction during the class hour (about 70 %) .They sometimes find difficulties in using academic language functions related to vocabulary / diction, grammar, pronunciation, intonation and they often switched codes from English to Indonesian and vice versa. Based on the results of the interview and observation it can be found that most content teachers have very good competence in teaching content. But, when they were teaching content subject in English it is not good as in Indonesian. It is caused by many factors. First, the education background of the content teachers is not English. They usually just take short course to learn English. Beside that it is caused of some reasons, perhaps they are not brave enough to talk as they are afraid of making

mistakes or maybe they do not understand what they are talking about. They are difficult to express their idea in English due to their lack of vocabularies used and pronunciation. As the result, teacher tends to use Indonesian or even Javanese to make the students clearly understand about the lesson. Moreover, translation is become a solution to overcome their conversational gab problem.

It is suggested that in teacher-student interaction in a bilingual classroom, the teachers should use the academic language functions when they are teaching in the class. The teachers should speak English more than Indonesian, be able to show their communicative competence, and become good models for the students to speak English.

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