THE APPLICATION OF MATH LOGIC IN ENGLISH LANGUAGE TEACHING

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Abstract- Mostly of peoples unconscious that is math logic has some relation with English especially in conditional sentence. The conclusion of premise in math logic can be applied in English language teaching, especially in the material about conditional sentence. For example, the conclusion of premise, premise (P) 1: if mother cook then, I am happy, premise (P) 2: mother cook, the conclusion (q): I am happy, therefore in conditional sentence it can be like, if mother cook, I am happy. The purpose of this paper is to describe the application of math logic in English language teaching and the advantages of using it so that, unconsciously when the teacher teaches about conditional sentence, indirectly the students has a description about premise in math logic. So that, the teacher can improve the student's skill by applied the math logic in English language teaching. The students can learn about math in English learning. The English teaching strategies can be developed by using the combination between premise and conditional sentence.

Keywords- Math Logic, English Language Teaching, Premise, Conditional Sentence, Application, Strategies.

I. INTRODUCTION

English language as the first language which is used in 43 countries, the total of about 375 million people, English language as the second language which is used in 63 countries, the total about 375 million people and half of them has changed English language to be first language. The total of books which is published by using English language is the biggest than the other language (Ali Saukah 2003).

Each of us has a unique way of getting from one place to another. Each student brings unique talents from his or her individual strengths and from his or her cultural background (Larry 2012; Katie 2012). New English language learners may be more knowledgeable about the basic of math than in English language, because the ELL well-known about basic of math from scratch in school. Students who are well trained in working with numbers can transfer their skill to the English speaking context (Lorie Hammond 2012). Nowadays English language teaching has many improvement, like there are so many method that the teacher can use in English language teaching.

As we know that, English is the international language, consequently the students from many countries especially in Indonesia have to learn about English language. Indonesian's learners, especially learn not only about English, but when the students in senior high school, junior high school or elementary school, the student learn many subject, like math, English, biology, sociology etc. the fact is many people unconscious that English language has a relation with math logic, if the teachers can apply the math logic in English language teaching, it will makes the student to be easier in learning both of them. We know that, English language learners have to know the basic of math and math learners also have to learn English for their communication or for translate math books."Data shows that English language learners initially test below their peers in mathematics, but once fluent these students are able to accurately demonstrate their higher math skills (Lorie Hammond 2012).

II. THEORETICAL BACKGROUND

Language learners must have a basic to learn language, especially English language. Actually, For Indonesia, the basic to learn English language already have, that are Indonesian language and foreign language. The English language learners just improve both of this basic. Beside of the basic of learning English, the English language teachers have to improve the strategies to English language teaching (Nizamuddin Sadiq 2013). One of the improvements which the English language teacher may be used is the application of math logic in English language teaching. Methods serve as a foil for reflection that can aid teachers in bringing to conscious awareness the thinking that underlies their actions. We know that, teachers come to teacher training with ideas about the teaching or learning process formed from the years they have spent as students themselves (Lotrie 1975).

English language is needed for the development of science and technology, because we know that, the book is mostly written by English language. (Department of Education and Cultures 1994; Department of National Education 2001). Teacher's ability is necessary for the application of math logic in English language teaching. The English language teacher has to be more creative, because they have to combine the math logic with English language.

III. CONCEPTS AND CONTEXT

We can found the connection between the conclusions of premise (math logic) with conditional

sentence in English language. The analysis of conclusion of premise with conditional sentence can be described like this:

Conditional sentence:

Type	The Formula Conditional Sentence
0	if + simple present, simple present
1	if + simple present, will + bare infinitive
2	if + simple past, would/could/might + bare infinitive
3	if + past perfect, would/should/could/might have + past participle

Type	The Examples of Conditional Sentence
0	If we sweep the floor, it becomes clean.
1	If I go to shopping, I will spend a lot of money.
2	If the teacher came tomorrow, I would go to the school.
3	If you had remembered to invite me, I would have attended your party.

(Yolma Wilia 2013)

Math logic: conclusion of premise

a. Modus ponens

Premise 1: $p \rightarrow q$

Premise 2: p

Conclusion: q

The definition of modus ponens is "if we know p $\rightarrow$ q and p, then we can make the conclusion q" as the examples:

Premise 1: if the mother cooks then I am happy

Premise 2: mother cooks

Conclusion: I am happy.

b. Modus Tollens

Premise 1: $p \rightarrow q$

Premise 2: $\sim q$

Conclusion: $\sim p$

The definition of modus tollens is "if we know p $\rightarrow$ q and, q

"We can make the conclusion $\sim$ p as the example"

Premise 1: if today it is raining, then I will use the umbrella

Premise 2: I do not use the umbrella

The conclusion: today it does not rain

c. Syllogism

premise1 : p ⟶ q

premise2: q ⟶ r

Conclusion: p ⟶ r

The definition of syllogism is if we know p q and q r, then we can make the conclusion p r

Premise 1: if the father works, then I have a lot of money

Premise 2: if I have a lot of money, then I am happy

The conclusion: if the father works then I am happy (Gie JP 2014)

The English language teacher may be being able to apply math logic in English language teaching, for examples:

- modus ponens

Premise 1: if we sweep the floor, then it becomes clean

If + simple present, simple present

Premise 2: we sweep the floor

Conclusion: it becomes clean

The teacher can apply this formula to teach about conditional sentence

If we sweep the floor, it becomes clean if + simple present, simple present

The English language teacher gives the instructions for English language learners to make the example of conditional sentence, but the students have to make the modus ponens by using the example of the conditional sentence, consequently the students will have the illustration about math logic by learning English.

- Modus tollens

Premise 1: if today it is raining, then I will use the umbrella

Premise 2: I do not use the umbrella

The conclusion: today it does not rain

If this formula is applied for teaching conditional sentence, the teacher can make it to be: if today is raining, I will use the umbrella if + simple present will+ bare infinitive. The English language teacher also can use negative sentence in this strategies, because in math logic, there a negation, the negation is for an opposite of the sentence.

For example: modus tollens

Premise 1: if today is Sunday, then I will go to the beach

Premise 2: I do not go to the beach

The conclusion: today it does not Sunday

Conditional sentence: 1. if today is Sunday, I will go to the beach 2. Today is not Sunday, I do not go the beach > the teacher can gives the instruction for English language learner to make the example of conditional then, make the conditional sentence like the example of modus ponens.

The advantages of application math logic in English language learning

- It will make the students enthusiastic especially for mathematics students ⟶
- It will make the English language learners easier to learn about math logic
- It will increase the analysis skill for students
- The students learn English while learning math logic
- It will gives the new experience for students

CONCLUSION

The application of math logic in English language teaching will make the students learning English while learning math logic. There are there parts of math logic which has the connection with English language teaching especially in conditional sentence that are: modus ponens, modus tollens and syllogism. The application of math logic in English language teaching will give the benefit depend on the teacher's strategies in teaching English.

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