# The Teaching of a Mathematical Course for Albanian Students Enrolled in the English Language Program

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**Abstract**

*This paper presents the results of a study with regard to the way of delivering mathematics lectures for Albanian students that are enrolled in the English language program. The central study question was the following: Are English major students benefitting from a mathematics course when lectures are delivered in English language? Two questions were posed to 120 freshmen students, admitted to the English program due to their high scores received in the English Proficiency Admission Test. During the second semester of the first year in the program these students, grouped in four different sections, were required to take in English the "Basic Mathematics" course delivered by three different instructors. "The slope of a straight line" and "Independent and mutually exclusive events" were two discrete topics delivered during two different sessions. Only these lectures were delivered in Albanian language at a time distance of about two months from each other. "Do you think that presentation of the material in English would appeal to you (a) easier, (b) more difficult and (c) the same?" was the first question posed for all students at the beginning of the first session. Fifty seven percent, 20 percent and 23 percent were the corresponding percentages received for each case. "By hearing the lecture in Albanian did you find it (a) easier to understand, (b) more difficult, (c) no difference at all" was posed to the students at the end of the first session. Forty seven percent, 33 percent, and 20 percent were the corresponding percentages received for each case. The results showed that, although students had the perception of a better understanding of mathematical concepts when delivered in English, at the end of the session they found easier to understand the lecture when it was delivered in their national language. The study found similar results related to the second class. The study concludes that English language students in Albania are able to acquire much better when mathematical content and concepts are delivered in their national language and recommends delivering of this course in Albanian language. The author is aware of limitations of this study consisting in its sample small size, physical context, and the level of English proficiency on the part of Albanian students and instructors. However the value of the study lies in its originality and practicality for the system of higher education in Albania.*

**Key words:** *English students, mathematics, understanding.*

## 1. Introduction

Most of Albanian students are admitted to English language programs of Albanian universities based on their excellent grades obtained in the English language exam, part of National High School Leaving Examinations. Many of them have also obtained English language certificates by well known schools such as Cambridge and Certificates. In addition all students admitted in the program are required to receive high scores in the English Proficiency Admission Test conducted by our university. For the admitted students taking all courses of the program in English is a requirement and part of our university policies. Despite their strong preparation in English these first year students appeared confused when mathematics lectures were presented before them in the English language. This perception was not felt only by the students; it was also felt by the three mathematics instructors, charged to teach the "Basic Mathematics" course for these students. This situation initiated the presented study that took over to test the hypothesis originated by the previous perception. Thus, the main purpose of this study was to answer the following research question: Are English major students benefitting from a mathematics course when lectures are delivered in English language?

In order to answer this question a simple questionnaire with the same questions was administered twice to all English major students that in the period March-June of the last academic year 2008-2009 happened to be freshmen students attending the second semester. The questions asked students about their feelings related to understanding of mathematical concepts involved in two different topics taught by three different mathematics instructors for students grouped in four sections. A short review of existing literature about this topic, the method attended, the obtained results, and discussions about these results are presented below.

## 2. Literature Review

Most of research related to the topic of this study comes from non-Albanian researchers. Some of them emphasize problems faced by students when they strive to learn mathematical concepts no delivered in their native language. Some others point out that mathematics is a universal language and students of every nationality rapidly become accustomed when lectures are delivered in some other language.

Rishell and Terrell (1986) my be mentioned as representatives of the fist group. They point out that effort should be made by native math teachers to really become successful on their way to teach emigrant children that do not have a good command of English. Papastavridis (1989) makes an excellent comment on his students' graduation ceremony. Concentrating on the chapter of factorization, he did realize that it was the worst written till that time material. His mind was vibrating between what he had absorbed as a high school student in his native country and what he performed in his every day American teaching practice. The language he had grown up with during his adolescence made its appearance and shaped his thought, although he had spent more of his lifetime in the States.

There are some other authors that promote mathematics as universal language. Thus, Feller (1986), having in mind to employ a within subjects experiment, not to remote himself from his popular and every day statistical language, presented the material before in Greek. Obviously there was terminology that had to be translated right away into the native language and instances when a word-to-word translation inevitably occurred, but in general teaching process has never been seriously interrupted out of a language misconception. Likewise, in their paper presented at the 3rd Meditterenean Conference for Math Education, Hofmannova and Novotna (2003) really sublimated teaching of Math in English before Czech students. However, there are some other authors that belong to neither above stated group. Mamona (2008) for instance has emphasized that the teaching language, especially when Math is involved, although derived from the national language, is a three-fold set. It is: (1) a language between teaching staff, (2) a language of interaction between teachers and students, and (3) a vocabulary used among students and therefore sometimes slangs might be proven helpful while teaching.

As stated above there is a lack of Albanian studies dedicated to this field. The only study closely related to the topic authors Musai (1998), who states that high school students who study languages in their vocational school of foreign languages display more enthusiasm when they study mathematics and science in Albanian language rather than in their language of study(English, French, or Italian).

## 3. Methodology

As stated earlier the main purpose of this study was to answer the research question: Are English major students benefitting from a mathematics course when lectures are delivered in English language? In other words, what is the best way for students to acquire concepts of a mathematics course, when it is delivered in Albanian, the students' native language, or in English, the students' professional language? This research question is established based on the following hypothesis: The English major students, who are admitted in the program due to their excellent English language scores and motivated to be highly proficient in using this language, feel more comfortable when using English in all their classes of the academic program.

In order to test this hypothesis a simple experiment, including 120 students registered in "Basic Mathematics" course, was designed. The experiment was conducted in two phases, which coincided with presentation of two different topics lectured from math instructors at a time distance of about two months from each other. The entire sample of 120 students was part of a bigger amount of first year English major students registered in 4 sections of the mathematics and taught by 3 different math instructors. It is important to point out that "the sample" was called the group of all students that happened to be present in the four sections at the time when started the first phase. It is to be noted that most of the "\sample" students took also part in the second phase.

The first phase started at the beginning of the class in which the math instructors had planned to teach the topic "The slope of a straight line". This occurred in April 2009. According to the university policies all courses for the English major students were to be delivered in English. Based on an earlier agreement with faculty administration and corresponding math instructors, that particular topic was arranged to be taught in Albanian. Students, not aware of the nature of experiment, at the beginning of the class were asked to answer in written form the question. "Do you think that presentation of this material in English compared with its presentation in Albanian, would appeal to you (a) easier, (b) more difficult and (c) the same?" In addition to a reserved place for the questions papers, distributed to students contained also a space for comments. After collecting the papers that contained the students' answers, the class, unexpectedly by students, went on in Albanian. At the end of the class students were distributed papers that contained a

similar question with the previous one: "By hearing the lecture in Albanian did you find it (a) easier to understand, (b) more difficult, (c) no difference at all". The second set of papers that contained students' answers were also collected to be analyzed.

The second phase started in June 2009 and a similar procedure with the previous one was repeated. Similarly, the same questions were administered to the students of the same sections. The second math topic titled "Independent and mutually exclusive events" was taught by the same math instructors. This time, compared with the first phase, the total amount of students was smaller; it numbered 114 students from the four different sections. Most of these students had participated in the first phase. This time all these students were aware of the nature of the experiment. Because of this fact a different result was expected. However, similar results with those of the previous phase were found. These results are presented in the following section.

## 4. Results

The results of the first phase are presented first. In this phase the topic "The slope of a straight line" was presented. The question posed at the start of this class was: Do you think that by presenting the material in English would appeal to you easier, more difficult or the same. Answers to this question are categorized in Table 1.

**Table 1.** The distribution of students' answers before the first lesson presentation.

|            | Easier | More difficult | The same | TOTAL |
|------------|--------|----------------|----------|-------|
| Number     | 68     | 24             | 28       | 120   |
| Percentage | 57%    | 20%            | 23%      | 100%  |

Upon finishing the presentation of the topic the following question was presented to students: "By hearing the **lecture in Albanian** did you find it (a) easier to understand, (b) more difficult, (c) no difference at all". The answers are shown in Table 2.

**Table 2.** Students' answers at the end of the first lesson presented in Albanian.

|            | Easier | More difficult | No difference | TOTAL |
|------------|--------|----------------|---------------|-------|
| Number     | 56     | 40             | 24            | 120   |
| Percentage | 47%    | 33%            | 20%           | 100%  |

In the second phase the topic titled "Independent and mutually exclusive events" was presented. Tables 3 contain the results coming out of students' answers to the first question presented at the beginning of this lesson:

**Table 3.** The distribution of students' answers before the second lesson presentation.

|            | Easier | More difficult | The same | TOTAL |
|------------|--------|----------------|----------|-------|
| Number     | 76     | 26             | 12       | 114   |
| Percentage | 66%    | 23%            | 11%      | 100%  |

Table 4 contains the results coming out of students' answers to the second question asked at the end of the lesson presented in Albanian:

**Table 4.** Students' answers at the end of the second lesson presented in Albanian.

|            | Easier | More difficult | No difference | TOTAL |
|------------|--------|----------------|---------------|-------|
| Number     | 46     | 38             | 30            | 114   |
| Percentage | 40%    | 33%            | 27%           | 100%  |

In addition to these quantitative results students' comments were taken also into account. Two following particular comments were considered more representative therefore are presented in this paper:

Student A. "At the beginning I really enjoyed the idea of hearing the lecture in English. Nevertheless when hearing the two word compound mutually exclusive, the adverb mutually made me conceptualize more leading me in sort of loosing the next thought of trail. Maybe it is I, but I do prefer the classical native terminology, you get used to it after all".

Student B. "To me, an English major student, math is rather boring subject. Unless it involves visualization like diagrams, sketches etc. it does not seem attractive to me. An innovation such as a language change made me more willing to participate in the activities".

## 5. Conclusions and Discussions

By simply viewing the obtained results it may be concluded as follows:

1. Most students have the perception of a better math understanding when lectures are delivered in English, compared with delivering in Albanian.
2. The previous perception does not seem to be true when we see that most students state a better understanding when they hear the math lessons delivered in their native language.
3. Comparing the students' answers given in two different points of time we find the following tendencies: Over time students tend to get more confidence in their abilities to understand math delivered in English and less confidence when these lectures are delivered in their native language.

Although these results are not deducted based on statistical quantitative analyses, they still seem significant. Their significance results from: (a) the experiment repetition, time distance between experiment phases, (c) administration to four different sections, and (d) administration to sections taught by three different instructors with different teaching styles.

From the above conclusion it may be elicited that English language students in Albania are able to acquire much better when mathematical content and concepts are delivered in their native language. Therefore we recommend delivering of this course in Albanian language. However this recommendation may be restrict only in the case when a math course is delivered for only one semester. If a math course is planned to be delivered for a more extended period, the English students may gain the required ability to learn and understand mathematics in English, their professional language.

We are aware of limitations of this study consisting in its sample small size, physical context, and the level of English proficiency on the part of Albanian students and instructors. However we think that the value of the study lies in its originality and practicality for the system of higher education in Albania.

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