

Using Duolingo in the Spanish Classroom of Engineering Students - A Case Study and New Insights

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Abstract – In the current globalized world, engineering and technology education is considered incomplete if you are not learning any foreign language. Some of the primary reasons for this has been the extensive network of multinational companies in different parts of the world and the broader scope of going for higher studies in different universities across the world. Considering all these points, learning a foreign language has been made mandatory for all the engineering students in VIT. Spanish is one of the foreign languages which many of the engineering students in VIT prefer to learn.

While learning Spanish, Duolingo app or website is used as a part of one of the digital assignments in my classroom because technology has made its way into language learning. Although there are several language learning apps or websites for self-study, I have used Duolingo with my students because of its effectiveness and free availability to all without any subscription fee. This research paper will look into one of the important questions, and that is Will making ‘Duolingo’ as part of digital assignment help students improving Spanish and finally performing better in their Final semester exam of Español Fundamental ESP1001?

In this paper, the research is conducted among the students of Español Fundamental class in VIT who were learning Spanish. The study had 11 students who were all from BTech course but in different years. As a part of their digital assignment, all the students of the class were given ten topics to complete on Duolingo before a deadline after the conduct of the second continuous assessment Test (CAT 2). One of the prime objectives of this assignment was to make students practice and revise Spanish lessons and clear their doubts before sitting for the final assessment test of the semester. The goal of this study is to evaluate the effectiveness of Duolingo among eleven students whose average total score of CAT 1 and CAT 2 was less than fifty percent. The students’ performance was compared with the performance in the Final assessment Test after completing their digital assignment on Duolingo. The two conditions were compared in terms of gains on pre- and post-Duolingo assignment relevant to the particular course.

Keywords - Duolingo, Spanish Language Learning, FLT, Language Evaluation.

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INTRODUCTION

We live in an age that has become globalized and connected to the degree that almost all things in life are done differently than they were done decades ago and one of the vital reasons for this has been the technological innovations. Similarly, learning foreign languages has become very important because unknowingly it is connected with day to day activities and life challenges where we need to speak, listen, read and write. The given situation is seen in the case of English where one has to use the language when working with technologies and internet automatically. In this regard, if we want to learn any other foreign language, then e-learning provides

various options and due to this reason e-learning is extensively used in learning languages.

In this regard, the L2 classroom has not remained an exception to this development. It is still evolving with the dynamic changes in the learning environment. One of the examples of this can be seen through the increased mobility and that more students are presently looking to study abroad. One of the main reasons for this is that the students have now become conscious about the advantages of engrossing themselves in different language and culture which finally internationalize their profile thereby possibly providing an edge in today’s competitive workforce. In this regard, online instruction or e-learning has become a prominent

part of foreign language learning which is often referred to as computer-assisted language learning [1].

While online second language learning started in western countries, perhaps most notably with the PLATO system [2], this trend has grown worldwide, with online language learning becoming prominent in many countries around the world. Due to the rapid development of the internet, online learning is gradually taking the place of the part of offline learning. Simultaneously, different kinds of methods have been adopted to improve the e-learning system. As a result, the e-learning system has made significant progress and is playing a more critical role in language learning [3].

Online language learning has several advantages over other forms of instruction. One of the crucial advantages has been the exposure of learners to native pronunciation which can be challenging to find in many countries with live instructors [4]. Apart from that online learning also offers the assurance of adjustment to individual learner differences which leads to improved and more effective learning [5]. However, with the coming of many online and adaptive learning products over the last decade, it is still unclear to know the effectiveness of these products [6]. Nevertheless, the efforts to endeavor to confirm incisiveness are still more dissilient in the Indian educational market. Therefore, it is difficult to know whether these new solutions are genuinely better than traditional approaches. One of the critical problems that come into play is that it is not comprehensible that a lot of adaptive features that have been examined and corroborated within the western populations will be equally effective in the Indian population. Many adaptive features that were thought to be highly valuable at first have not been shown to lead to differences in student outcomes in the United States [7]. It is known that adaptive learning environments are often used in different ways by students in different cultures and countries [8, 9]. Therefore, it is worth asking whether forms of adaptivity that are effective in the United States, such as using knowledge spaces to select items [10], will be equally useful for Indian students.

II. THIS STUDY

This study investigates how slow learners in the class of Español Fundamental in VIT respond to the exercises on Duolingo. As a part of their digital assignment, all the students of the class were given ten topics to complete on Duolingo before a deadline. This study looks in to the two important research questions which are: (a) Was making 'Duolingo' as part of digital assignment helped students in improving their Spanish and finally performing better in their final semester exam of Español Fundamental; (b) What skill sets the students gain after using this application for completing digital assignment.

III. THE DATA

In this study, eleven university level students were taken who enrolled for the Español Fundamental Class as part of their course curriculum. The students were chosen based on their performance in two internal exams which is called Continuous Assessment Test. In the courses offered by VIT, the system of evaluation is divided into internal and final exams. The internal evaluation is done by taking two Continuous assessment tests (CATs), one quiz and two digital assignments. The CATs and quiz are written test where students are given fixed time to complete whereas Digital Assignments are completed by the students digitally on their laptop or mobile.

In the classroom of Español Fundamental, in order to complete the first Digital Assignment students were assigned ten topics from Duolingo as we can see in the below image that on Duolingo, students have to complete all the lessons till the first Level of each topic. These ten topics were work, Present 1, Travel, Routines, Restaurant, Emotions, Present2, Shopping, Time and Weather. All these topics were chosen while keeping in mind the syllabus of Español Fundamental. There was a deadline given to complete the given digital assignment. The assignment was given after the completion of CAT 2 exams because by that time 80 percent of the syllabus was completed in the class and students were starting to prepare for the final exam.

The assignment worked as a practice and revision exercise for those students who are fast learners. For slow learners, the assignment helped them in understanding the topics again and clearing their doubts through practice. The digital assignment was given on Duolingo while keeping in mind some of the following points:

1. Each student completes his assignment.
2. Teachers can send reminders to those students who have not completed their assignments.
3. Students cannot copy from others.
4. Teachers can even edit the deadline for assignment completion.

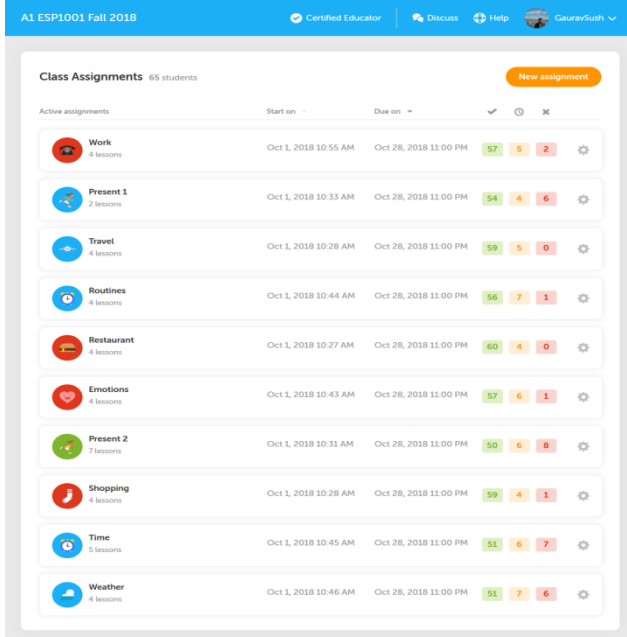
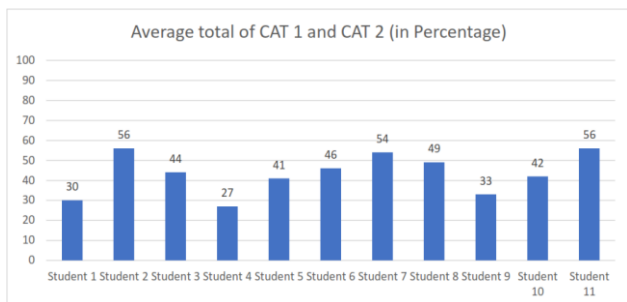


Fig. 1

IV. METHODOLOGY OF ANALYSIS

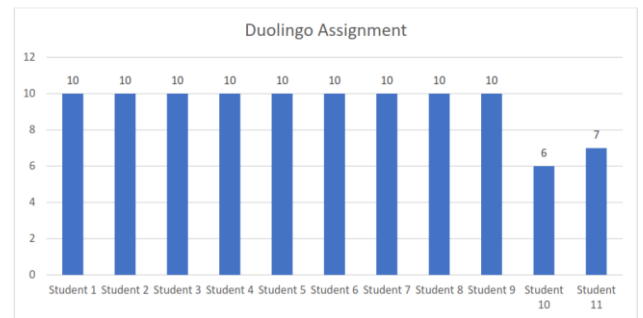
For this study, the performance data of eleven students in CAT1, CAT2, DA 1 and FAT was collected in order to do the analysis. Before starting the analysis of the students' performance, it is necessary to explain the methodology for awarding marks for completing DA 1, i.e., Duolingo Assignment. In this regard, each student was given full ten marks if they were completing all the ten topics on Duolingo before the deadline completion. For each late completion of topics on Duolingo 0.5 mark was reduced and one mark was deducted for non-completion of each topic.

For analysis, firstly the average percentage of marks of CAT 1 and CAT 2 of eleven students were taken into consideration. It is because, as per the academic rule in VIT, fifty percent marks is the minimum threshold to pass CAT exams. Based on the below chart, we can see the performance of these eleven students in percentage where most of them have scored below fifty percent marks either in CAT 1 or CAT 2. In the below graph, it is also evident that the performance of student 11 has been better in comparison to the other ten students in the graph.



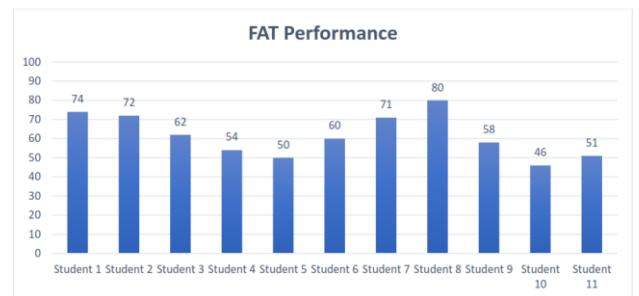
Graph 1

After going through their performance in mind, the students were given assignments on Duolingo. The assignment was given to all the students in the class. For fast learners, the assignment was a medium to revise the topics taught in the class by practicing all the lessons. For these eleven students, the assignment was given so that it helps them in understanding the topics again and clearing the doubts through practice. So, after the completion of the deadline the eleven students were given marks based on the completion of topics on Duolingo. As we can see in the below paragraph that out of eleven students nine students were given full marks for completing all the topics while students 10 and 11 got 6 and seven marks respectively for not completing all the topics on Duolingo.



Graph 2

After the completion of the digital assignment on Duolingo, all the students gave their final assessment test exam. It is essential to see the performance of these eleven students in the final assessment in order to do a comparative analysis of their performance. In the below graph, we see that the majority of the students have got more than fifty percent marks in the final exam.



Graph 3

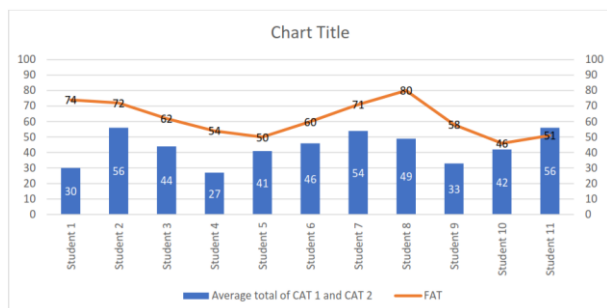
V. RESULTS AND DISCUSSION

According to the data shared above of the eleven students, we see the average percentage marks scored in CAT 1 and CAT 2 to be around 43 percent which was below the 50 percent passing marks in CAT 1 and CAT 2. However, on comparing the results of student 2 and student 11 with the other nine students we see that their performance has been relatively better in CAT 1

and CAT2. Both the students scored more than 50 percent marks in CAT 1 and CAT 2.

Based on the performance in CAT exams, the assignment on Duolingo was assigned to all these students who were supposed to be completed before a deadline. After the completion of the deadline, it was found that student 10 and 11 got six and seven marks respectively because of non-completion of all the topics on Duolingo. On the other hand, rest all the students got full marks because they completed the assignment on time.

Subsequently moving forward, the performance of all the students in FAT is considered very important for doing analysis. In this regard after the completion of Duolingo assignment, it is found that the total average marks of these eleven students increased to 61 percent which is 18 percent more than the average total marks of CAT 1 and CAT 2. Moreover, if we see the individual performance of these eleven students, then it shows that the student 1 has shown a maximum improvement in FAT marks with a difference of 44 points from the average of CAT marks. Similarly, student 8 has shown second-best improvement in FAT marks with a growth of 33 points respectively. However, student 11 has shown a decline in the performance in FAT when compared with CAT. It is visible from the below graph that there is a decline from 56 percent to 51 percent. Similarly, Student 10 has scored just 4 percent more marks in comparison to the average total of CAT marks.



Graph 4

On doing further analysis of the performances of these students, it is found that there is a direct correlation between the performance of students in FAT exam and marks scored in a digital assignment on Duolingo. On comparing the data in graph 2 with graph 4, it is visible that student 1 to student 9 has scored full marks in Duolingo Assignment and likewise, their performance in the FAT exam has improved in comparison to CAT exams.

Similarly, student 10 performance improved very mildly in the FAT exam in comparison to CAT exams. One possible reason for this could be the non-completion of Duolingo Assignment in which students 10 got six marks out of ten. Likewise, student 11 performance in FAT went down, and we can attribute it to the non-completion of Duolingo

assignment in which student 11 got seven marks out of ten.

Based on the above analysis and discussion, it is found that the completion of all practice exercises on Duolingo has directly helped the slow learner student to improve their learning of Spanish which was visible with their improved performance in the FAT exam. So, it can be considered that Duolingo can be considered as a valid addition to any course and making it compulsory is going to help in improving the students learning the outcome. Moreover, it also gives freedom to fast learners to learn more by solving the higher level of exercises. It allows students to augment the classroom learning by providing flexible learning which finally enriches the classroom experience.

From the teachers' perspective, Duolingo helps the teacher in many ways. Firstly, it helps in keeping a track whether each student completes his assignment or not. Secondly, teachers can send reminders to students for completing the assignment. Thirdly, assignment deadline can be edited, and there is no scope for students to skip any assigned topic in the assignment.

VI. CONCLUSION

In this paper, we have studied the impact of using Duolingo in the Español Fundamental class of engineering students in VIT. The impact of Duolingo has been studied by making an experimental comparison of the performances before and after doing the courses on Duolingo. Through this study, we find that students doing complete assignments on Duolingo learned statistically significantly more than students not doing complete assignments on Duolingo. This pattern was specially measured in eleven students who could not perform very well in their internal exams. This finding suggests that implementation of Duolingo in the traditional language learning classes improves the learning skill which can be finally seen in their final exam performance.

Overall these results represent evidence that exercises given to students on Duolingo generally have a positive impact on the Spanish learning students. However, these results cannot be considered conclusive. This study, while distinct in some ways in terms of its design and implementation, compared between the two performances in the same course. While the topics assigned on the Duolingo platform were very similar to the topics taught in the class, the performances in the internal and the external exams showed much difference. It is possible that the performance of the students could have been better even without implementing the assignment completion on Duolingo. However, this study's findings concord with the evidence that using

Duolingo in traditional classrooms are effective in improving the learning outcome of students.

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