

# An Interactive Tool for Teaching and Learning English at Upper Primary Level for Mauritius

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**Abstract**—E-learning refers to the specific kind of learning experienced within the domain of educational technology, which can be used in or out of the classroom. In this paper, we give an overview of an e-learning platform ‘An Innovative Interactive and Online English Platform for Upper Primary Students’ is an interactive web-based application which will serve as an aid to the primary school students in Mauritius. The objectives of this platform are to offer quality learning resources for the English subject at our primary level of education, encourage self-learning and hence promote e-learning. The platform developed consists of several interesting features, for example, the English Verb Conjugation tool, Negative Form tool, Interrogative Form tool and Close Test Generator. Thus, this learning platform will be useful at a time where our country is looking for an alternative to private tuition and also, looking forward to increase the pass rate.

**Keywords**—educational technology, e-learning, Mauritius.

## I. INTRODUCTION

E-LEARNING refers to the specific kind of learning experienced within the domain of educational technology, which can be used in or out of the classroom [14]. Distance learning, computer-based training and social networking tools are just a few examples of e-learning. As the Internet is becoming an increasingly vital tool in our information society, it is incomprehensible that anyone today would argue that banks, hospitals or any industry should use less technology. Nowadays students all over the world are accepting online education, thus compelling educational institutions to provide online facilities [11], [15].

The immediate responsiveness of computer-based programs and self-paced private learning environment that educational technology warrants seeks to promote higher levels of motivation among students worldwide. The benefit of an educational platform is that it may include the aims of education, views of knowledge, the social significance of student’s learning, the image of the learner, the image of the curriculum, the image of the teacher, the preferred pedagogy, and the preferred school climate [17].

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The platform, “An Innovative Interactive and Online English Platform for Upper Primary Students” is an interactive web-based application which will serve as an aid to the primary school students in Mauritius. It will allow the students to learn the English language by practicing online exercises at their own pace. It is a learning tool which the child can access anytime and anywhere around the globe given that he has a web-enabled computer. This project will alleviate the major existing problems in our education system namely private tuition and the alarming failure rate at the Certificate of Primary Education Examination.

The main aims and objectives of this learning platform are listed below:

- To offer quality learning resources on a variety of subject areas available at our primary level of education.
- To enable the students to learn the English language and increase their knowledge in a more interactive way.
- To encourage self-learning among primary school students and allow them to work at their own pace.
- To enable the students to think and explore a given subject area and increase their knowledge in a more interactive way.
- To promote e-learning and hence, to help making Mauritius a cyber-island.

According to the ex-Minister of Education, Steven Obeegadoo, 18% of student never obtains their CPE and according to international findings, a third of students completing primary education do not master basic literacy skills and some 42% elementary numeracy skills [10].

Each year that goes by without change means 3,000 more of our children failing the CPE for good, and deprived of the basic literacy skills to live a life of dignity. Educational failure is socially disruptive, economically inefficient and morally repulsive [10].

The paper proceeds as follows. Section 2 briefly describes the educational system at primary level in Mauritius. In

Section 3, the current problems facing primary education in Mauritius are elaborated. Some alternative solutions are also proposed and evaluated. Section 4 describes the online tool. The major features are discussed in detail and evaluated. Finally, we conclude on the merits of our system.

## II. PRIMARY EDUCATION IN MAURITIUS

Children are enrolled in primary school from the age of six and enter Standard I and move automatically up to Standard IV. As the child reaches Standard IV, there is a streaming process that follows. The system is highly competitive and a two-year preparation starts since Standard V up to Standard VI for the Certificate of Primary Education (CPE). The CPE is a national examination taken by students of Standard VI [8].

Five subjects are compulsory and taken into account for the grading process: English, French, Mathematics, Science, and History and Geography. The best students then enter Star Colleges to continue their secondary education while other students are offered seats in other State and/or private colleges.

The website [ssr.mu](http://ssr.mu) which came online in 2009 is dedicated for primary education in Mauritius. It is good resource for primary school students where they can access past exam papers and tailor-made content for their particular subjects and levels.

However, the major drawback of this website is its lack of interactiveness in delivering the material. Most of the material can only read online or downloaded to a PC. There is very little interaction between the user and the content.

Another major e-learning website is [mca.ac.mu](http://mca.ac.mu) which is primarily dedicated to the production of educational content for secondary level. Education.mu also do not caters for primary students. Thus, it is high time that a new website or new ICT are tools are developed for the benefits of Mauritian kids.

## III. PRESENT PROBLEMS AND POSSIBLE SOLUTIONS

In this section, the two main problems facing primary education in Mauritius are described in detail.

### A. Alarming Failure Rate

One major problem with our present primary education system is the alarming failure rate. Statistics shows that despite the number of reforms that we have had in our education system, none of them have decreased the failure rate significantly enough.

The Government talks of 'World Class Education' but according to statistics for the year 2009, out of 26,671 candidates at the Certificate of Primary Education examination, 8500 have failed. This is a significant number of students, representing a percentage of 31.87% of primary school students. The failure rate in 2008 was 32.6%. The statistics for the last five years are given in the table below.

TABLE I  
CERTIFICATE OF PRIMARY EDUCATION (CPE) EXAMINATION  
RESULTS BY GENDER (SCHOOL CANDIDATES ONLY) 2005 – 2009

Year	% Passed		
	Male	Female	Total
2005	59.0	71.2	64.9
2006	62.0	74.3	67.9
2007	60.1	72.7	66.2
2008	62.1	73.2	67.4
2009	-	-	68.1

The graph in Figure 1.0 shows the passing rate for primary students at the CPE examination.

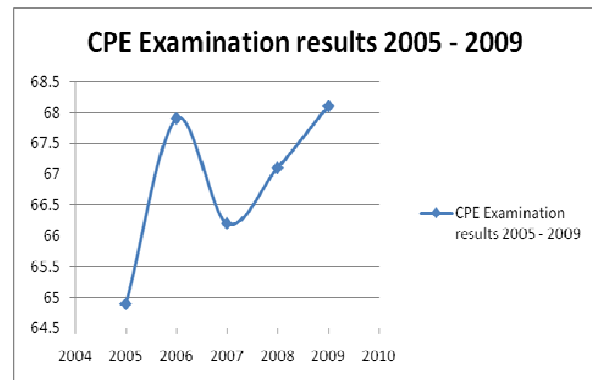


Fig. 1 CPE Examination results

### B. The Need to Abolish 'Private Tuition'

Private Tuition is another cause for concern because education is not free for the students who are taking private tuition. It is noted that lack of knowledge is created in class on purpose by teachers, so that what is missing is covered in tuition [16]. Moreover, how 'private' is the tuition when it is provided in classes of forty and upwards? Several attempts were made by former Governments to ban private tuition but in vain. The most recent attempt was that from the Minister of Education, Culture and Human Resources, Vasant Bunwaree, in the year 2009.

The Government tried to put a brake to this system by extending class hours by forty-five minutes and reducing school holidays. However, teachers were fighting so that the

system remained the same, to save the lucrative business which is private tuition, and further, there was a need to cram up the students more during holidays to justify the wages obtained from it. The fact remains that, the business of private tuition exists because the demand is there, and the demand is there because of the highly competitive nature of our education system.

Furthermore, the Government has also tried to ban private tuition for students of Standard IV, so that they are not pressurised right from the age of 9 years old [13]. The opponents to this measure, mainly teachers and members of the General Teacher's Union (GTU), decided to take to the streets of Quatre Bornes in the morning of Friday 11<sup>th</sup> of December 2009.

The president of the GTU noted some incoherence in the objectives of the Minister. He explained that the Minister wants to have a passing rate of 70% in 2010 for the C.P.E examinations, but he does not want teachers to give private tuition. Moreover, the president of the GTU argued that it is difficult to follow 40 to 45 students individually in one class without giving private tuition and that the contents for Standard IV, V and VI are closely related [12].

### C. Proposed Solution

It is clear that nowadays new Information Technology based skills are rapidly replacing the traditional skills all around the world. In addition, due to the fact that the Sugar Industry is no longer as profitable as before, Mauritius is trying to make ICT one of the pillars of its economy.

The ability to access information, to compose, to evaluate, to use information and to communicate with others has become a necessity. We must, therefore, integrate ICT into the Mauritian education system as soon as possible. To achieve this objective, teachers are expected to bring behavioural changes in the students by integrating their lessons with ICT. Thus, the teacher should be trained, if necessary, to acquire a sound knowledge of ICT.

One way to solve the problem is to develop a learning platform for our primary school students. The Internet being a craze among youngsters in Mauritius, the learning platform will allow them to benefit the maximum from it. The learning platform can promote self-learning and develop their skills in ICT. The learning platform will offer a wide range of learning resources for their studies although in the current prototype the emphasis has been to develop tools to cater for the English language only.

## IV. THE APPLICATION PROTOTYPE

### A. The Application Prototype

The current learning platform introduces several interesting tools which can be used to supplement the exercises given by the teacher in class. An example is used to demonstrate each feature. Tools for true/false type questions, matching exercises and multiple choice questions, though important, have not been discussed in this paper mainly because these are general tools which are available in many off-the-shelf packages and can very easily be configured to be used along with the innovative tools we have developed.

### B. English Verb Conjugation tool

This tool will locate the word denoting tense in a sentence and will then convert the verb given by the student accordingly.

Fig. 2 English Verb Conjugation tool

Consider the example below:

Input: "Yesterday I ( ) to Port-Louis."

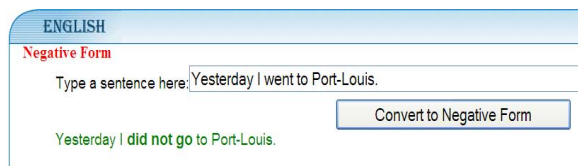
Verb: go

Output: "Yesterday I went to Port-Louis."

This tool can be improved by allowing the student to input a sentence like "Yesterday I go to Port-Louis." The tool should also be able to locate the verb in the sentence, in addition to the word denoting the tense.

### C. Negative Form tool

The Negative Form tool allows a user to input a sentence in affirmative form. The tool then converts the sentence to its negative form.



ENGLISH

**Negative Form**

Type a sentence here: Yesterday I went to Port-Louis.

Convert to Negative Form

Yesterday I did not go to Port-Louis.

Fig. 3 Negative Form tool

Consider the example below:

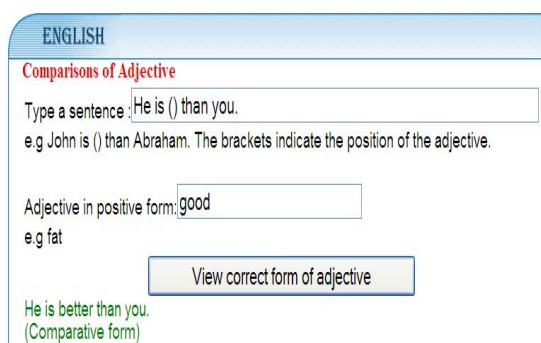
Input: "Yesterday I went to Port-Louis."

Output: "Yesterday I did not go to Port-Louis."

This tool in its current version cannot convert a negative sentence into its affirmative form. The tool may also fail if the sentence is a long one with multiple words.

#### D. Comparison of Adjectives tool

The aim of this tool is to correct an adjective in its proper form. The form of the adjective can be positive, comparative or superlative.



ENGLISH

**Comparisons of Adjective**

Type a sentence: He is () than you.

e.g John is () than Abraham. The brackets indicate the position of the adjective.

Adjective in positive form: good

e.g fat

View correct form of adjective

He is better than you.  
(Comparative form)

Fig. 4 Comparison of Adjectives tool

Consider the example below:

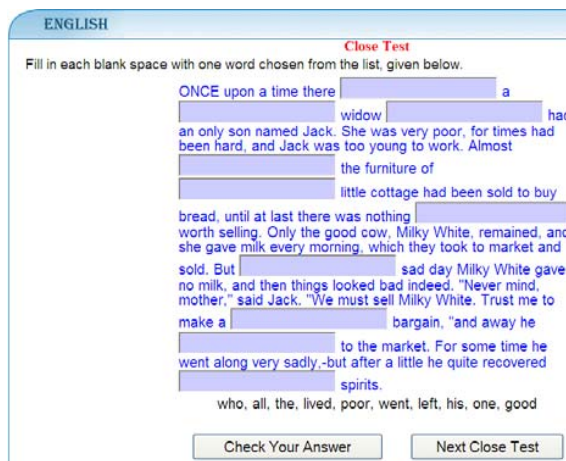
Input: "He is () than you."

Output: "He is better than you."

This tool works very well for most adjectives that are used at this level of education. However, it may fail for complex and longer sentences. The user should also be able to input the sentence in this format: "He is tall then you."

#### E. Close Test Generator

The close test tool is a very complex tool which can be of tremendous help to both students and teachers. Students can use it to practice their close test skills while teachers can use it to create an infinite number of close tests with very little effort.



ENGLISH

**Close Test**

Fill in each blank space with one word chosen from the list, given below.

ONCE upon a time there lived a poor widow who had an only son named Jack. She was very poor, for times had been hard, and Jack was too young to work. Almost all the furniture of the little cottage had been sold to buy bread, until at last there was nothing left worth selling. Only the good cow, Milky White, remained, and she gave milk every morning, which they took to market and sold. But one sad day Milky White gave no milk, and then things looked bad indeed. "Never mind, mother," said Jack. "We must sell Milky White. Trust me to make a good bargain," and away he went to the market. For some time he went along very sadly, but after a little he quite recovered his spirits.

who, all, the, lived, poor, went, left, his, one, good

Check Your Answer Next Close Test

Fig. 5 Close Test Generator

The original text is shown below:

"ONCE upon a time there lived a poor widow who had an only son named Jack. She was very poor, for times had been hard, and Jack was too young to work. Almost all the furniture of the little cottage had been sold to buy bread, until at last there was nothing left worth selling. Only the good cow, Milky White, remained, and she gave milk every morning, which they took to market and sold. But one sad day Milky White gave no milk, and then things looked bad indeed. "Never mind, mother," said Jack. "We must sell Milky White. Trust me to make a good bargain," and away he went to the market. For some time he went along very sadly, but after a little he quite recovered his spirits."

Teachers are allowed to submit any piece of text between 140 and 160 words (the length of a standard CPE close test). Thus, the database will consist of many texts of varied nature and content. This will undoubtedly increase the knowledge and skills when tackling such exercises. When the student selects the Close Test tool, one of the texts is selected at random from the database and a close test is generated. The default number of blank spaces is 10. An option may also be provided to allow the user to input the number of words to be removed.

One interesting aspect of this tool is that even if the same text is randomly chosen by the same or a different user, the close test will certainly be different as even these 10 words are selected in a pseudo-random fashion. We call it a pseudo-random manner because the selection of words to be removed cannot be a completely random procedure as only certain kinds of words are allowed to be removed. For example, the tool will not remove words which start with a capital letter. The tool selects 10 different words but none of these words must be located one after the other. It also neglects words which are found inside brackets. It has also been suggested to

remove at most two words from one sentence though it has not yet been implemented.

The words that are removed are displayed below the close test. The student can then type in the words in their appropriate positions. He will then be allowed to verify how many of his answers are correct. Each correct answer usually scores one mark. His mark will also be displayed. The correct answers are displayed in green while the incorrect ones are displayed in red. The tool does not yet have a system to display the correct complete version automatically as it is felt that such a facility might be misused by the students.

#### F. Automatic marking of structured questions

This tool is useful for English comprehension. The answers are marked according to the number of keywords found. This is an innovative feature which enables the students to practice comprehension questions which are corrected on the spot.

Fig. 6 Marking of structured questions

#### G. Fill in the blanks exercise module

This module is used to generate five random 'fill in the blanks' questions. The questions are displayed and the words required to fill in the blanks are given on top of the exercise.

Fig. 7 Fill in the blanks exercise

#### H. Multiple Choice Question (MCQ) module

This module will allow students to practice MCQ questions for not only comprehension but also preposition, verbs and other grammar exercises. If the answer is correct, one mark is allocated otherwise the correct answer is displayed and no marks is allowed for that question.

Fig. 8 Marking of structured questions

#### V. CONCLUSIONS

This e-learning platform will enhance education system in Mauritius as well as enable pupils to develop discrete ICT skills. With private tuition phasing out at primary level, this platform comes at the right time and may serve as a national solution to the problem. So, this learning platform will be useful at a time where our country is looking for an alternative to private tuition and also, looking forward to increase the pass rate. Looking at the structure and content of the platform itself and how original and well-suited it is for upper primary education in Mauritius, we can conclude that these are things to wish for. In the future, this platform can be extended in a way that it adapts to the unique strength, learning objectives, knowledge level and learning styles of each individual student.

#### REFERENCES

- [1] M.S. Sunhaloo, J. Narsoo, and A. Gopaul, 2009. An Interactive E-Learning Tool for Kids in Mauritius, Volume 6, 2009, School of Innovative Technologies and Engineering, University of Technology, Mauritius.
- [2] The Ministry of Education and Scientific Research, 09 September 2004, National Report of Mauritius, The Development of Education.
- [3] Shafika Isaacs, April 2007, ICT in Education in Mauritius, Survey on ICT and Education in Africa: Mauritius Country Report. p. 4-10.

- [4] Ministry of Education & Scientific Research, May 2001, Ending the Rat Race in Primary Education and Breaking the Admission Bottleneck at Secondary Level, The Way Forward.
- [5] Ministry of Education and Human Resources, 08 November 2006, Empowering the Nation's Children, Towards a Quality Curriculum. Available from <http://www.gov.mu/portal/goc/education/site/file/newcurr06.pdf>
- [6] Dr V.Ramharai and Mr K.Goodoory, 2003, ICT in Primary Schools of Mauritius: Policy and Practice, International Conference on Open and Online Learning, MIE.
- [7] Mauritius Research Council, May 2004, Teaching and Learning of Science in Schools (Republic of Mauritius), Volume 1, Recommendations & Action Plan (2004-2006), p. 10.
- [8] Wikipedia, the free encyclopedia, Education in Mauritius. Available from [http://en.wikipedia.org/wiki/Education\\_in\\_Mauritius](http://en.wikipedia.org/wiki/Education_in_Mauritius) [Accessed on 25/11/2009]
- [9] Pudaruth S., Moloo R.K, Mantaye A. and Jannoo N, The 2010 International Conference of Information Engineering, "A survey of E-Learning Platforms in Mauritius", July 2010, London, UK.
- [10] Steven Obeegadoo, ex-Minister of Education <http://www.lexpress.mu/story/9812-defining-our-priorities.html>
- [11] Elango, R. Gudep, V.K, & Selvam M. (2008). Quality of e-learning: Ananalysis is based on e-learners' perception of e-learning. Electronic Journal of e-Learning, 6(1).
- [12] St Pierre P., (2009). Abolition des leçons particulières : Les enseignants descendent dans les rues. L'Express – electronic version. Available from <http://www.lexpress.mu/services/archivenews-8242-abolition-des-lecons-particulieres-les-enseignants-descendent-dans-les-rues.html>
- [13] Hilbert P, (2009). EDUCATION La réforme Bunwaree reçoit le feu vert du gouvernement. L'Express – electronic version. Available from <http://www.lexpress.mu/services/epaper-72578-b-education-la-reforme-bunwaree-recoit-le-feu-vert-du-gouvernement-b.html>
- [14] The Global Information Technology Report 2007-2008. (2008). World Economic Forum.
- [15] Milani I, M. (2008). Cultural impact on online education quality perception. Electronic Journal of e-Learning, 6 (2), 149-160.
- [16] Linsay P, (2009). The need to abolish private tuitions L'Express – electronic version. Available from <http://www.lexpress.mu/news/135-blog-the-need-to-abolish-private-tuitions.html>
- [17] Sergiovanni, T. J. & Starratt, R. J. (1988) *Supervision: Human perspective* (4th edition). New York: McGraw-Hill.