

# An Innovative Learning Platform for Pre-Primary Students

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**Abstract.** In this paper, we present an innovative e-learning platform developed for pre-primary students in Mauritius. The kids are usually aged from three to five years old. The objectives of this platform were two-fold: firstly to offer exercises on the different learning areas based on the National Curriculum Framework for Pre-Primary Education and secondly to enable students to grasp relevant ICT skills at a tender age. The application developed enables students to perform exercises online though guidance is often necessary. One of the advantages of this website is that the results are available instantaneously. User acceptance testing was also carried out in a pre-primary school and many of the lessons learned have already been incorporated. Nevertheless, this software does not intend to render obsolete or replace the existing pedagogical approaches but will be used to enhance or complement the traditional way of teaching and learning processes.

**Keywords:** e-learning, pre-primary, Mauritius

## 1. Introduction

E-learning (electronic learning) is the use of technology more particularly a network to enable people to learn anytime and anywhere [1]. In the world of today, students all over world are accepting online education and thus compelling institutions to provide them with such facilities [2,3]. The aim of this paper has been the implementation of a web-based application that can be use to teach pre-primary students and to help them to perform different exercises and thus improve their knowledge in different learning areas and grasping necessary technological skills at the same time.

The paper is organised as follows: Section 2 briefly describes pre-primary education in Mauritius and ICT in the island. In Section 3, the proposed system is explained. Testing as well as the results is demonstrated in Section 4. Finally, a conclusion and some future enhancement of the system are provided.

## 2. Background Study

### 2.1. Pre-Primary Education in Mauritius

Pre-primary education is gaining tremendous importance in the island. All pre-primary schools follow the National Curriculum Framework for pre-primary education set by the Mauritius Institute of Education and the Early Childhood Care and Education Authority [4]. The number of children enrolled in 2010 is 34,289, of whom 17,416 were boys and 16,873 were girls [4].

### 2.2. ICT in Mauritius

The Government of Mauritius has actively promoted ICT since 1989. It has set up four institutions: the National Computer Board (NCB), the Central Information Bureau, the State Informatics Limited and the State Training Centre Limited. The Ministry of Information and Communication Technology deals with the formulation and implementation of government policies in the ICT Sector [5].

Mauritius is on the verge of becoming a cyber island [6,7]. Recent statistics shows that our country has 29.6% internet penetration ratio with 380,000 internet users [8,9]. Mauritius rank 51<sup>st</sup> worldwide in the use of

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ICT for development [10]. Research is being done how to introduce Computed-Aided Learning Environments in the Mauritian context but we cannot blindly copy the way it is done elsewhere [11].

### 2.3. ICT in Education in Mauritius

No one has yet put forward the idea of integrating ICT in pre-primary education although a lot is being done at the primary level and higher up. We feel that it should also be introduced at the pre-primary level to help our children acquire life-long skills early in life.

## 3. Description of the System

The application will be based on the areas of learning in the National Curriculum Framework from three to five years old. It consists of three types of users namely: children, teachers/parents and administrators.

### 3.1. Children Section

This section provides explanation and exercises on different areas like Mathematics, Logical Thinking, Language & Literacy, Body & Environmental Awareness and Rhythms. The children can work out exercises on their own. Answers are also provided. The website also provides videos of children's songs.

### 3.2. Teachers/Parents Section

Teachers and parents will find different images which children can use for painting. Materials for shapes differentiation, alphabets and numbers are also provided. In addition, the teacher or the parent can view and post comments on the website and will be able to upload new exercises in any format.

### 3.3. Administrator Section

The system administrator will update the website if ever there is a change in the curriculum. He/She will add a teacher or parent if ever they are having problems in registering themselves. Furthermore, the system administrator will manage the forum by viewing and deleting the comments.

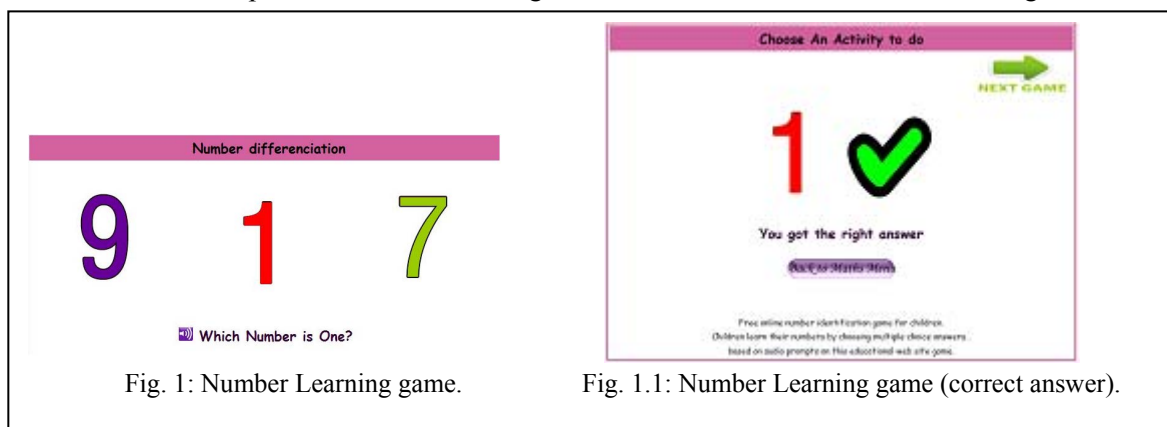
## 4. Testing and Results

In this part testing of various exercises in different sections of the website is shown. The results have been displayed as well. The exercises are repeated 10 times with different questions and then the system asks the user whether she wants to practice it again before switching to another exercise.

### 4.1. Simple Mathematics

- Number learning game

This exercise will help the children in learning numbers. The child has to click on the right number.



- Represent Number (up to 10)

Here the pages are dynamic that is each time you will enter this part a different question will be asked as well as different images will appeared. If you have checked the wrong answer, a cross will appear and a tick will appear when the answer is correct.



Fig. 2: Represent Number.



Fig. 3: Represent Number Difficult.

- Represent Number Difficult (up to 10)

This part is like the one above except that different images are given to choose for the right answer thus making a bit more difficult for children. This is shown in Fig. 3.

- Names of numbers (up to 10)

If you enter a letter, a message will be displayed to tell the student to enter a number.



Fig. 4: Names of Numbers (error message).



Fig. 4.1: Names of Numbers (correction).

If the child press submit even if the answer is an alphabet, it will give a cross and will provide the good answer and then the page is redirected to another related exercise.

- Count objects (up to 10)

Here, the child needs to count the number of objects and then enter the answer in the textbox. If the answer is correct a tick will appear otherwise a cross along with the correct answer will appear.



Fig. 5: Count Objects.

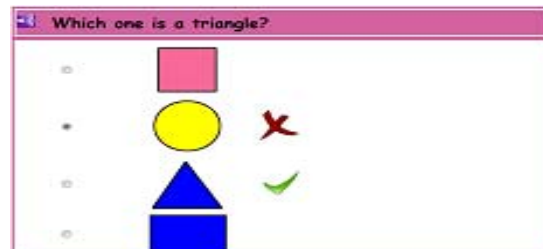


Fig. 6: Shape Differentiation Exercise 1

## 4.2. Logical Thinking

- Shape differentiation

Exercises in this section will help children in differentiating between different types of shapes whether square, circle, triangle or rectangle. The pages are dynamic and the images as well as the row keeps on shuffling that is each time you enter this exercise the answer will not be located where it was the previously. For shape differentiation the exercises are in two types. They are shown below:

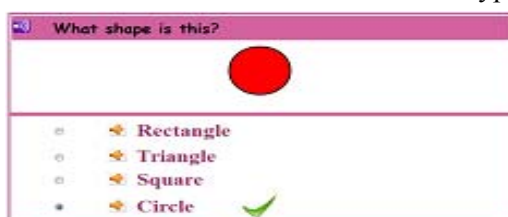


Fig. 7: Shape Differentiation Exercise 2

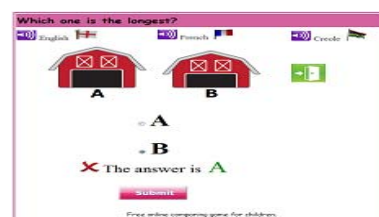


Fig. 8: Difference between short and tall

- Difference between short and tall

These exercises help children to learn about objects of different sizes. They are further supported by audio in English, French and Mauritian Creole languages. This is shown in Fig.8.

### 4.3. Language and Literacy

Here the exercises are provided in both English and French languages.



Fig. 9: Language and Literacy Page



Fig. 10: Choosing and the correct alphabet

- Choosing the correct alphabet

The children will need to identify the correct alphabet. If the answer is correct a tick will appear. Otherwise a cross at the wrong answer will appear along with a tick at the good answer will be displayed.

- Learning of Fruits in French

This exercise is available in English as well.



Fig. 11: Learning of Fruits in French



Fig. 12: Practicing days of the week

- Practicing exercise on days of the week

In this part, if the child types the correct answer, it is accepted irrespective of its case.

- Learning names of animals in French

In this exercise, the children have to choose the correct name of the animals and drag and drop it below each of them. If the answer is correct then the box will become green otherwise it will become red.



Fig. 13: Animal learning game



Fig. 14: Body Awareness Page.

The website also contains information on body awareness (Fig. 14). In this part, explanation on the body and the five senses are given in both English and French. The differences between living things and non-

living things are explained in the environmental awareness section. It also covers animals and the sound made by them. A library of nursery songs is also provided [12]. Educational games are also provided to educate and entertain the children at the same time [13].

## 5. Conclusions

The aim of this e-learning platform for pre-primary students was to present a highly interactive online tool for kindergarten children. The system has been made available through a website so that children, parents and teachers can use it wherever they are if they have an internet connection. The number of exercises provided will help children to learn about their numbers, alphabets, fruits and animals well. At the same time, they will grasp relevant ICT skills. The forum available in the teachers/parents section can be used by teachers/parents to communicate and share their knowledge. To our knowledge, this is the first interactive tool in Mauritius to cater for the needs of pre-primary pupils. A user acceptance testing was also carried out during the implementation of this project and this allowed us to see some of its shortcomings. Many of these shortcomings have already been addressed. In the future, we intend to implement more exercises for the children to practice, to provide more explanation on the different learning areas and mainly to make the tool become even more user-friendly and appealing for kids.

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