

Open Educational Resources – an appropriate tool for teachers to address the challenge of
Inclusive Education in Mauritius?

Dr Fiona Grant, Charles Telfair Institute
Jennifer Jeanne
Mushiirah Moolkeea
Isabelle Domijan, Charles Telfair Institute
Pritee Auckloo, Mauritius Institute of Education
Odylle Charoux, Charles Telfair Institute

MAURITIUS RESEARCH COUNCIL
SMALL SCALE RESEARCH AND INNOVATION GRANT SCHEME
Final Report
July 2018

Final Report

Introduction and Literature Review

Research Questions

General Methodology

Results

Phases 1 and 2

Phases 3, 4, 5

General Conclusion

-Summary of Results

-Limitations

-Future research

- Appendix

Abstract

Open Educational Resources - an appropriate tool for teachers to address the challenge of Inclusive Education in Mauritius?

Inclusive education is crucial to achieving quality education for all students in Mauritius, and teachers are key to this process. With an ever changing society and learning community, there is a need for teachers to further their skills, knowledge, and attitudes in order to work within their diverse classroom. The current research project investigated the use of Open Educational Resources (TESSA toolkit) in teacher education on inclusive education. At time 1, we examined the current state of inclusive education in Mauritius from the teachers' perspective, the use of Information Technology and OERs. We then introduced the TESSA toolkit for inclusive education and provided opportunities for teachers to experience its usefulness as a brief intervention. At time 2, we evaluated attitudes and behaviors toward inclusive education, IT and OERS as well as the use of the toolkit. Findings showed that a majority of participants knew how to define inclusive education and had the desire to put in place inclusive education practices in their classrooms. Participants were open to using technology to support inclusive teaching and were willing to use OERs to help them in this task. Teachers shared that IT and OERs were useful tools which could support them. Some predictors of inclusive teaching practices were also uncovered: the number of years of teaching experience, the types of schools, and the use of IT in schools. Furthermore, teacher identification with the school was an important predictor as it showed that beyond external factors, the way in which teachers themselves feel included into the school plays a key role in determining how inclusive they are in their practices. Additional findings will be discussed as well as directions for future research.

Keywords: Inclusive Education, Teacher Education, OERs

Introduction and Literature Review

In Mauritius, there is broad access to education but challenges to quality and equity remain (World Bank Group Report, 2015). Practically all Mauritian children attend primary education, and 88% move towards secondary education. However, Mauritian children lag behind their peers in comparative countries with regards to basic literacy, math, and science skills.

The Ministry of Education in Mauritius (2009, 2015) has pledged for the development of a culture of achievement and excellence by promoting inclusive and quality education for all. The goal is to ensure “inclusive and quality education for all and promoting lifelong learning” (Dookun-Luchoomun, IOREN International Conference Speech 2015). Indeed, this approach consists of taking all pupils into consideration and tailoring the learning to individual differences. This inclusive and personalized education increases students’ participation in classrooms and engagement in their academic future, which simultaneously improves their academic performance.

Despite this push for inclusive education, little is known about the current state of inclusive education in Mauritius and what strategies can be used to promote it. This research project was undertaken to examine an effective response to the challenge of inclusive education in Mauritius. First, this report provides a succinct review of the literature pertaining to three themes which are: the importance of inclusive pedagogy, the role of teachers in fostering inclusive education, and what are the tools available to respond to the challenges of inclusive education. Second, research methodology and findings are detailed. Finally, a short summary of the findings is provided and some recommendations are mentioned.

Why inclusive education?

Inclusive education is defined as “an ongoing process aimed at offering quality education for all while respecting diversity and the different needs and abilities, characteristics, and learning expectations of the students and communities, eliminating all forms of discrimination” (UNESCO, 2008, p.3). Inclusive education also entails the “recognition of the need to work towards ‘schools for all’ - institutions which include everybody, celebrate differences, support learning, and respond to individual needs.” (Salamanca Statement 3, United Nations, retrieved from the worldwide web, 2017). Inclusive education hence concerns itself with various issues, ranging from gender, ethnicity, class, social conditions, to health and human rights.

Moreover inclusive education values diversity and respects individual differences present in learning communities. It favors a dynamic, open, and participative process. Concretely, inclusive education practices entail that teachers take into account the context, adapt their lessons to the sociocultural reality and to the diversity of their classroom (Monge & Monge, 2009; Moreno et al., 2015). This process increases students’ participation in classrooms, curriculum, and academic future, which simultaneously improves their academic performance. The Council of the European Union (2010) summarized the link between inclusion and quality education eloquently:

“Creating the conditions required for the successful inclusion of pupils with special needs in mainstream settings benefits all learners. Increasing the use of personalized approaches, including individualized learning plans and harnessing assessment to support the learning process, providing teachers with skills to manage and benefit from diversity, promoting the use of co-operative

teaching and learning, and widening access and participation, are ways of increasing quality for all” (p.5).

Inclusive education practices and ensuing benefits clearly extend beyond the mere boundaries of the classroom. The benefits of including learners with differences into the school system encompass the wider community. Indeed, when included, children feel supported to succeed academically and socially whilst simultaneously helping to ‘break down barriers and prejudice’. In turn, communities become more open and accepting of differences. Another benefit of inclusive education is in terms of cost effectiveness and long-term sustainability. Indeed fully including children with differences lessens the risks of the latter being provided with ‘inferior education’ which is often all too symptomatic of a segregated approach (United Nations, retrieved from the worldwide web, 2017).

In Mauritius, inclusive pedagogy has been highlighted by the Ministry of Education since 2005, and formalized in the Education and Human Resources Strategy Plan 2008-2020, as well as reiterated by the Minister of Education in 2015. It has also been included in teacher training. For example, the Mauritius Institute of Education (MIE) offers a Postgraduate Diploma in Inclusive and Special Education (PGDISE; MIE, 2015). Advances in the field of inclusive education in Mauritius are still at a budding stage and much research is required to understand the application of inclusive education in Mauritius. Therefore, one objective of this research is to examine the current state of inclusive education in Mauritius from the teachers’ perspective.

What is the role of teachers in inclusive education?

The demands on the teaching profession are evolving rapidly. In a globalized world, the classrooms are more diverse, the students have new learning needs, and the rise of technology has changed the way we access and process knowledge.

In addition, in Mauritius, teachers are often confronted to diversity and inequity issues. First, Mauritius is known as the “rainbow nation” or the “fruit salad country” (Ng Tseung Wong, 2012), meaning that children from the 4 main religious groups and different ethnic groups, using different languages, learn and play together at school. The challenge is to include these differences for optimal learning and achievement. Second, children from low income families have lower primary completion rates and performance than their well off peers. Third, due to a very selective educational system, the variance in reading performance is very high between schools as a result of students with similar abilities and similar socio economic backgrounds clustering together (World Bank Group, 2015).

These inequalities are often perceived as a disadvantage, but should not, as highlighted by the findings of the UNESCO report ‘learning divides’ (Willms, 2006). This report provides evidence that strong school performance and equity can go hand in hand. Schools with heterogeneous intakes on average tend to perform as well as those with homogeneous intakes, granted teachers are trained in inclusive pedagogy. Teachers’ education need to provide them with the skills, knowledge, and attitudes to work with *all* of their future students (Jones & Fuller, 2003). Indeed, the knowledge, skills, and commitment of teachers in inclusive education are important factors in achieving high quality educational outcomes.

Thus, there is a need for teachers’ training, preparing teachers to teach effectively in diverse settings. The traditional models of teachers’ training for inclusive education consist of mandatory or elective courses, as part of the initial education degree or diploma (Lancaster & Bain, 2007). Recent research (European Agency for Development in Special Needs Education, 2010) shows

that there is no significant difference between traditional and online presentation of courses in inclusive education, providing a strong indication for the development of future courses, such as the use of Open Educational Resources (OERs).

In Mauritius, teachers are required to adapt to their diverse environment, to reflect on their own learning requirement, and to take greater responsibility for their own lifelong learning on inclusive education. More often, the common teacher training entails attending a course or a workshop to further one's knowledge on inclusive education. However, could online resources be an effective tool for educators?

Can OERs be used in teacher training in Mauritius?

Open Educational Resources (OERs) are “any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation” (UNESCO, 2015). Auckloo (2014) described the first Mauritian story in adapting OERs to the national educational landscape, in an effort to address the rate of failure at the Certificate of Primary Education (CPE), combat illiteracy, and integrate ICT in the education system. This project used OERs from TESSA (Teacher Education for Sub Saharan Africa) for education of Mauritian teachers. TESSA is Africa's largest teacher education network. Since 2005, it has focused on the creation and use of OERs to improve the quality of, and extend access to, school based teacher education (www.tessafrica.net). TESSA supports and challenges teachers to experiment and reflect on their classroom practices, and adapts OERs to local contexts and language. Wolfenden and colleagues (2010) have argued for the effectiveness of using OERs to improve teacher quality and its successful implementation in Africa. More specific to this proposal, findings (Auckloo, 2014) show that 1) teachers in Mauritius were very motivated and enthused by the OER project, 2) OERs impacted positively the teaching and learning environment and created opportunities that lead to novel and authentic practices, and 3) teachers gained confidence to use the resources independently, developed clarity of purpose, and became reflective in their own school environment.

In light of these findings, we propose that the use of OERs in teacher training could be an appropriate response to the challenge of inclusive education in Mauritius.

Current Research

As aforementioned, inclusive education is crucial to achieving quality education for all students in Mauritius and teachers are key to this process. With an ever changing society and learning community, there is a need for teachers to further their skills, knowledge, and attitudes in order to work within their diverse classroom.

The current research investigates the use of OERs (TESSA toolkit) in teacher education on inclusive education. The specific objectives are to a) examine the current state of Inclusive Education in Mauritius from the teachers' perspective, b) investigate the effectiveness of Open Educational Resources (OERs) in Inclusive Education training for teachers, and c) formulate best practices to facilitate inclusion in the Mauritian educational system.

Research Methodology

The current research investigates the use of OERs (TESSA toolkit) in teacher training in inclusive education in 5 phases. First, we examine the current state of inclusive education in Mauritius from the teachers' perspective. Second, we introduce the TESSA toolkit for inclusive education and third, provide opportunities for teachers to experience its usefulness. Finally, we evaluate the effectiveness of this toolkit and finally, formulate best practices in teachers' training in inclusive education for Mauritius.

This innovative approach is selected for the following advantages. It helps overcome the problem of scarce resources in teacher education on inclusive education by using easily accessible online materials. The toolkit is flexible but structured, allowing teachers to freely select their learning materials, as well as giving them voice in their professional development. Finally, this approach is cost effective, using inclusive education training of high quality but readily available for free, and adapted for Mauritius.

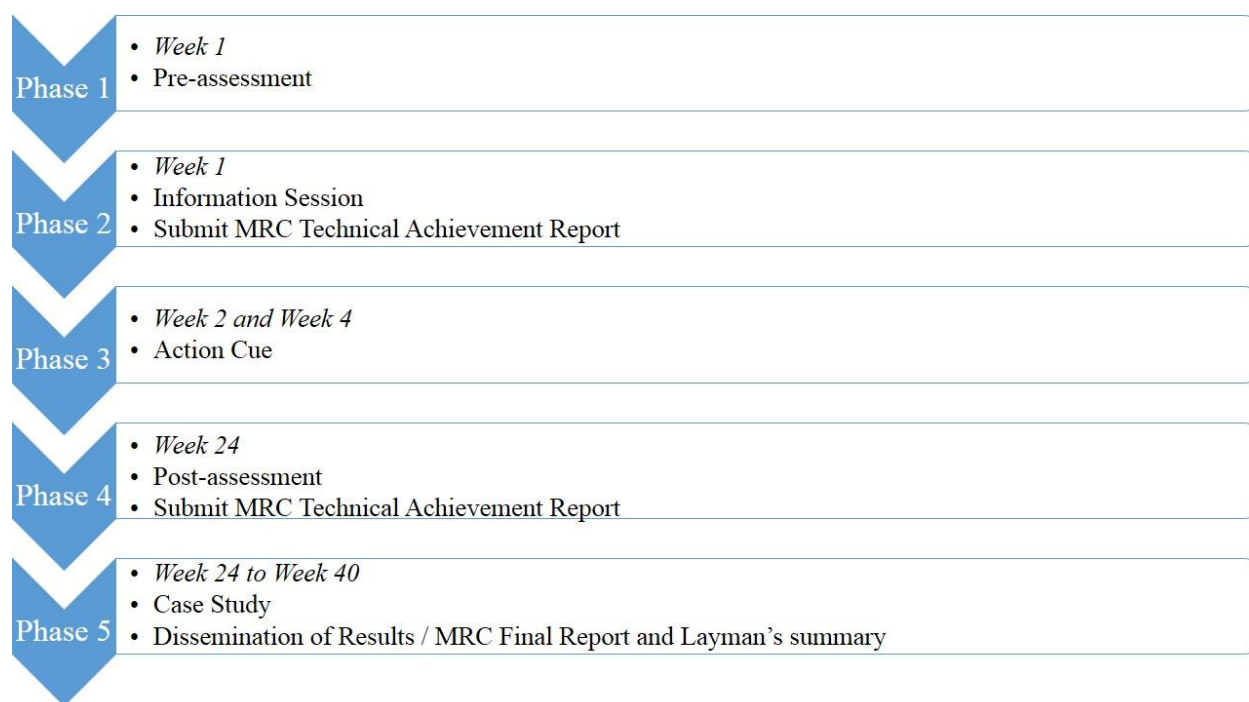


Figure 1.1a Five phases of the research

The next part of the final report is comprised of two sections:

- Reporting Phases 1 and 2 (July 2016)
- Reporting Phases 3, 4, and 5 (January to May 2017)



Figure 1.1b Research Design

Results

Phases 1 and 2

First, we will report on Phase 1 and Phase 2.

Phase 1. Pre - assessment.

Teachers were invited to participate in a workshop at Charles Telfair Institute. Upon their arrival they answered a questionnaire to:

- Measure the current state of inclusive education in Mauritius as perceived by teachers: investigate teachers' definition of inclusive education, teachers' self-report of best practices in inclusive education in the 4 key areas of physical space, language, lesson planning and preparation.
- Assess the current use of online/ Open Educational Resources: assess awareness of these resources, frequency of use, attitudes towards OERs, intentions to use them in the future, motivation to incorporate IT and inclusive education training in teacher education.
- Demographic questions were also asked: age, gender, teaching experience, prior training in inclusive education and OERs...

All data collected was anonymous and confidential.

This constituted the Survey T1.

Phase 2. Information Session.

After completing the questionnaire, teachers attended a presentation on open educational resources, the TESSA network, and they were given the opportunity to explore hands-on the "TESSA toolkit for teacher education in inclusive education". This toolkit is a 72 page-document, including online activities, case studies, and information on inclusive education. It provides tools for teachers to learn about the different types of schools, the definition of inclusive education, the characteristics of a teacher trained in inclusive education, the design of inclusive classrooms, the use of inclusive language and mentorship, as well as ways of incorporating the whole learning community.

Teachers were given educational materials, the web link to the OER, soft copies of slides and instructional materials. This was part of the intervention in teacher training.

The workshop on "Quality Education" was held on Monday the 18th of July 2016 at Charles Telfair Institute (CTI). A positive response from educators all over the island was recorded. The team welcomed the first arrivals around 7:30 am with intense interactive sessions and workshop activities till 1:30 pm.

The workshop was attended by a **total of 343 teachers**. In addition, this event mobilized 15 lecturers from CTI, 2 research assistants, 6 student ambassadors, and a large team for logistics and marketing.

We had 254 participants who signed up and came, and an additional of 89 participants came without signing up. Out of the 343 respondents, 306 questionnaires were completed. With a response rate of 89.2%, the findings described below are representative of the participants present.

The next section of this report details the methodology and research findings for the Survey T1.

Survey 1: Methodology

A. PARTICIPANTS

The total number of participants was 343 educators from primary and secondary schools.

The sample consisted of 79 males, 223 females, and 4 who did not want to disclose their gender. The male to female ratio is 1:3. This is coherent since the Mauritian education system employs 3 times more female educators (11,141) than males (3,532) (*Source: Mauritius Statistics Bureau, 2015*).

The mean age was 37 years ($SD = 10.3$) with a minimum age of 23 years and a maximum of 62 years. The detailed repartition by age group can be seen below. The largest proportion of teachers (37.9%) is aged 31 to 40.

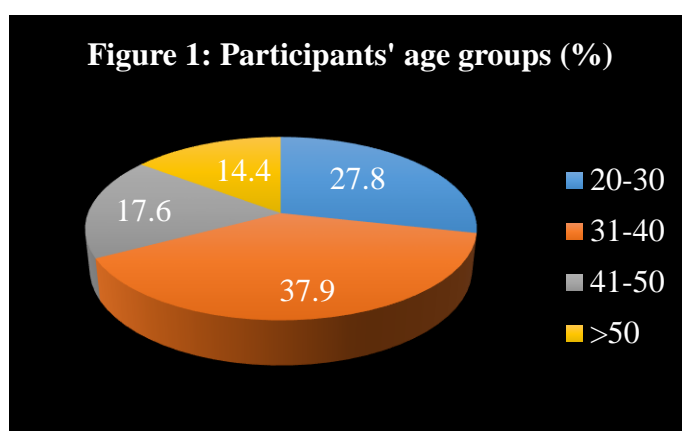


Figure 1.2 Participants' age groups

Teaching Experience

On average, participants had 13.5 ($SD=10.3$) years of teaching experience, varying from a minimum of 1 month to a maximum of 41 years. Forty six percent of participants had less than 10 years' teaching experience. The repartition of teaching experience was similar to the one in the general teaching population. Indeed, according to the Mauritius Statistics Bureau, 49.9 % of educators in Mauritius have below 10 years' teaching experience while those with more than 30 years of teaching experience make up only 8.5 % of the population.

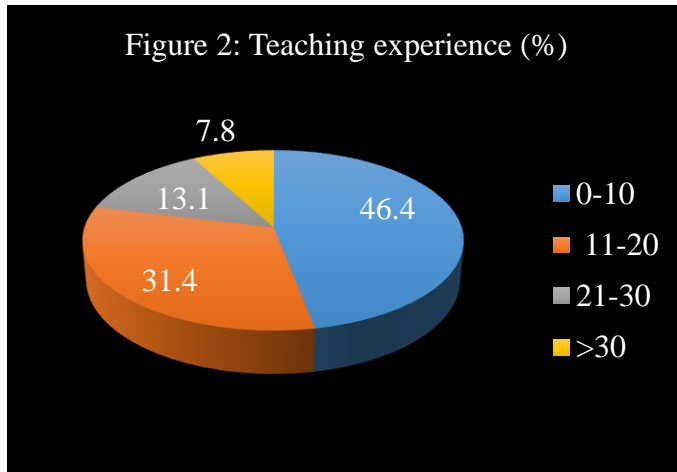


Figure 1.3 Participants' Teaching Experience

Educational Zones and Types of Schools

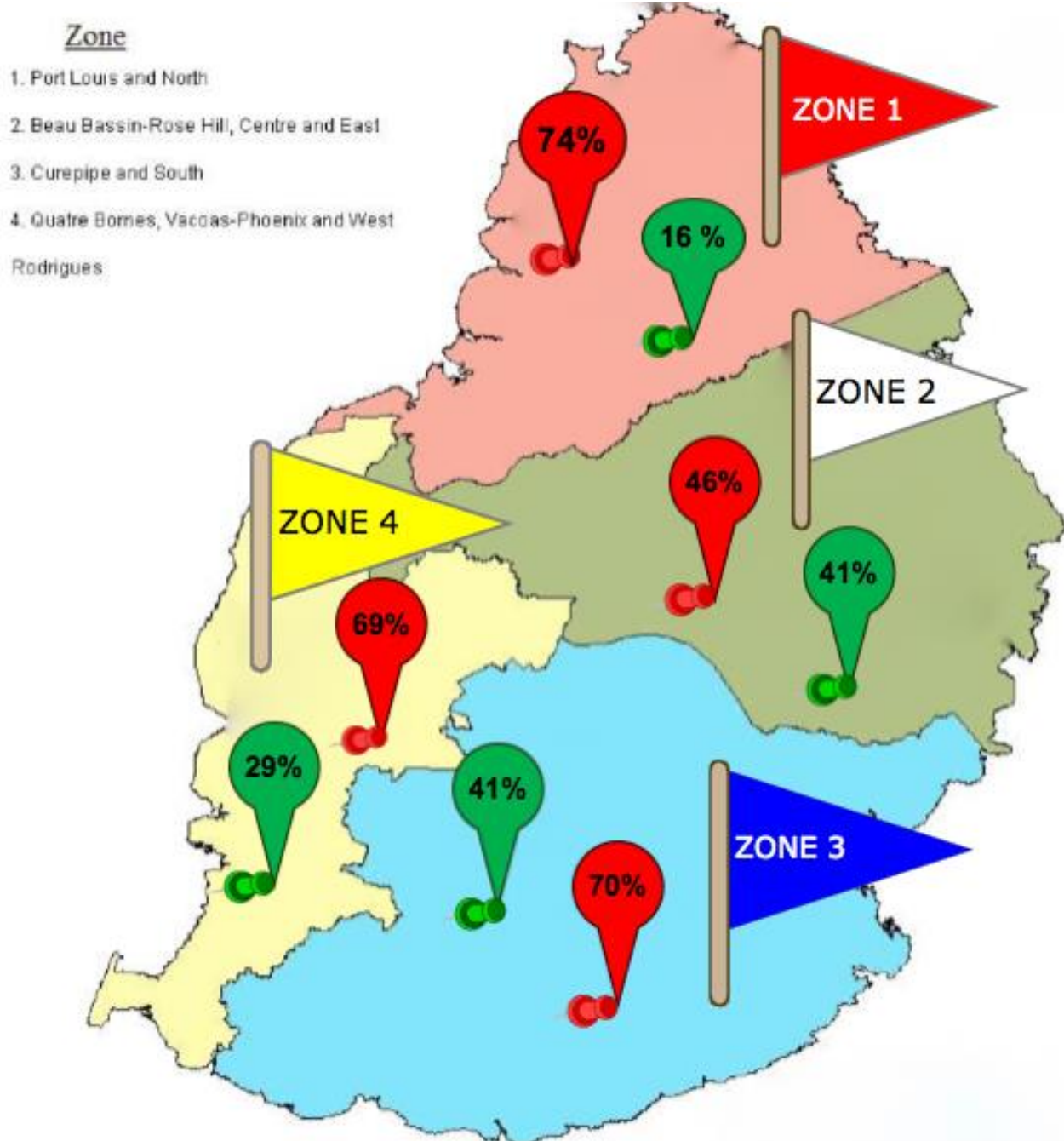


Figure 1.4 Educational Zones and Types of Schools of Research Sample

Red: Private school

Green: Public school

In this research, 27% of participants came from Zone 1, 28% from Zone 2, 22% from Zone 3 and 17 % from Zone 4, constituting a fair spread according to the 4 educational zones.

Procedure

Participants were welcome in the workshop and received a packet with information about the day. They also received a printed questionnaire. Participants were informed that the study was designed to explore their feelings, opinions, and behaviors as professionals in the education field. They were assured of confidentiality and anonymity. Once participants provided informed consent, they completed the questionnaire at Time 1 (see Appendix A), which took approximately 15 minutes and included the materials described below. There were measures of (a) inclusive education knowledge and practices, (b) use of IT, (c) Use of OERs, and (d) identification with the school they are working for. Demographic variables were also measured. Once participants had completed the survey, they were fully debriefed.

B. INCLUSIVE EDUCATION

Eleven items assessed the current state of Inclusive Education in Mauritius from the teachers' perspectives. The first 2 items measured the ability to define Inclusive Education. The next 9 items measured inclusive education practices.

Defining “Inclusive Education”:

Fifteen percent of the sample did not respond to item 1 “I am able to define inclusive education”. Among the 254 responses, 56 participants felt that they were not able to define Inclusive Education, 133 felt confident about their knowledge of Inclusive Education, while 72 were unsure of their ability to define Inclusive education. In conclusion, **56.5% of educators could not provide a clear definition of the term “Inclusive Education”**.

Furthermore, out of the 244 responses, 184 were correct definitions, 52 were incorrect and 8 definitions were copied from the Internet. Thus, 60.1% of educators defined “Inclusive Education” correctly. It can be highlighted that many educators confused “Inclusive Education” with “Holistic Education”.

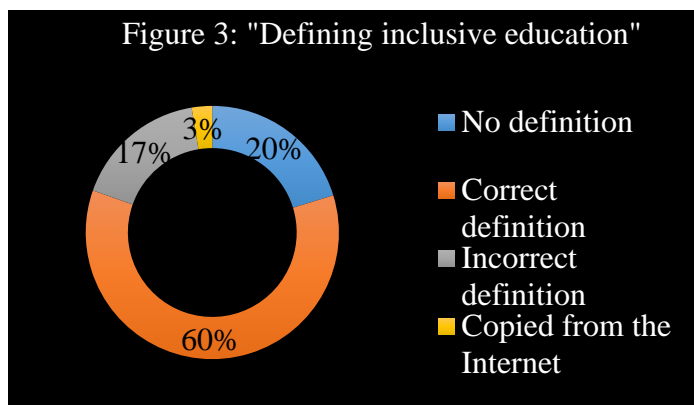


Figure 1.5 Defining inclusive education

Inclusive Education Practices:

Nine items (Cronbach's alpha = 0.79) assessed the attitudes and behaviours of teachers towards inclusion in the classroom. The scale was teachers' self-report of best practices in inclusive education in the 4 key areas of: a) physical space, b) language, c) lesson planning and d) preparation.

The mean was 5.51 with a standard deviation of 1.01. On average, educators reported attitudes and behaviours that are representative of inclusive practices.

Two key findings reveal that the area to be improved was to have schools that have information to celebrate diversity. One area where inclusion works well is that teachers plan their lessons to take into account the academic levels of each pupil.

The table below summarizes inclusive education practices among participants.

+	Teachers plan their lessons to take into account the academic levels of each pupil
	Teachers help pupils gain self-confidence and self-esteem
	Teachers respect the individuality of each child
	Teachers help pupils feel included in the learning community
	The buildings and classrooms are accessible to all pupils
	Teachers use respectful words when talking about all children
	Teachers acknowledge the contribution of each child
	Teachers are aware of the different needs of each child
-	Schools have information displayed to celebrate diversity

Table 1.1 Inclusive education practices among participants

Use of Information Technology

Seven items assessed the use of Information Technology in schools. The mean use of technology was 5.14 with a standard deviation of 1.06 (Scale varied from 1, *Not very much*; to 7 *Very much*).

The first three items measured internal IT affinity¹. Teachers believe that technology is a strong pedagogical tool, which can enhance training and learning: 72.6% of educators feel at ease with the use of technology in the classroom, 94.4% believe that technology supports learning at school and 92.5% of them believe that technology supports teaching at school.

The four last items assessed external factors impacting the use of IT²:

63.1% of educators found that their institution encourage the use of IT in the classroom, 41.5% received IT training from their institution, 46.1% state that their school has enough equipment for the use of IT and 62.4% received training on technology during their teacher education. From these figures, it can be found that the teachers themselves do want to use IT in the classroom but further training and IT facilities should be provided.

Results show that there is a lack of IT equipment in schools and a lack of training to use IT from their institution. This finding is supported by the following table showcasing the current status of ICT in schools in Mauritius (*retrieved from the worldwide web in August 2016*)

¹ Internal use of IT are factors that relate to the individuals' personal affinity to technology

² External use of IT refers to the factors outside the individual's control and the extent to which the immediate surroundings foster the use of IT in the teaching process.

Table 7.1 - ICT ¹ in pre-primary, primary and secondary schools - Republic of Mauritius, 2015

Description	Pre-primary		Primary		Secondary ²	
	Number	%	Number	%	Number	%
Total number of schools	939		320		178	
Schools having computer(s)	439	47	320	100	178	100
Number of computers	965	-	5,407	-	8,078	-
<i>of which: only for pedagogical use</i>	<i>491</i>	<i>-</i>	<i>4,632</i>	<i>-</i>	<i>6,789</i>	<i>-</i>
<i>of which: only for administrative use</i>	<i>225</i>	<i>-</i>	<i>583</i>	<i>-</i>	<i>1,025</i>	<i>-</i>
<i>of which: for both purposes</i>	<i>249</i>	<i>-</i>	<i>192</i>	<i>-</i>	<i>264</i>	<i>-</i>
Schools having access to the internet	194	21	301	94	176	99
Schools having internet access for students	92	10	131	41	176	99
Schools having a web site	52	6	36	11	93	52
Schools with a computer used for educational purposes	358	38	308	96	177	99
Schools with a radio used for educational purposes	809	86	297	93	157	88
Schools with a television used for educational purposes	582	62	291	91	158	89
Schools having ICT-assisted instruction ³	809	86	316	99	166	93
Schools having ICT support services	169	18	298	93	165	93

Figure 1.6 ICT in Mauritian schools

Use of Open Educational Resources

OERs are any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them (UNESCO, 2015).

Seven items ($\alpha = 0.73$; reliable scale) investigated whether educators know what OERs are and whether they use or intend to use them in their lessons.

The mean was 5.21 (SD = 1.12).

Out of the 306 participants, 66% said that they knew what OERs were, 20.6% were unaware of what are OERs, and 11.8% were unsure.

In 2016, 49.6% of educators used OERs and 42.1% thought that their institutions supported the use of OERs. Moreover, 72.5% of the participants intended to use OERs to plan their lessons and 89.2% of them will use it in the future if they were encouraged to do so. It is also important to know that 83% of teachers think that they will benefit from the use of OERs and 85.3% of them believe that the students will also benefit from the use of OERs while used for planning lessons.

Group Identification

Five items assessed whether educators feel included in their institutions (Cronbach's $\alpha = 0.83$). Teachers expressed how strongly they identify with their school, how important is the school to their sense of self, and whether they would stand up for their school if it were criticized. Possible answers ranged from 1 (*not very much*) to 7 (*very much*).

The mean was 6.11 (SD=0.83).

Educators do have a favourable impression of their schools and they have a strong sense of belongingness with their school and colleagues. Moreover, it was found that the proportion of those who do not feel included at all in their school ranged between 1.9-7.8%.

Variables predicting Inclusive Education Practices

In order to know whether demographics, use of IT and OERs and group identification impact Inclusive Teaching, a regression was conducted. The dependent variable was average inclusive education practices and the predictor variables were Group Identification, use of IT, use of OERs and Demographics.

Teachers with less teaching experience reported being more inclusive than experienced teachers, $\beta = -.148$, $t(253) = -2.35$, $p = .02$

Teachers in private schools reported being more inclusive than teachers in public schools, $\beta = -.147$, $t(253) = -2.33$, $p = .02$

Teachers reported being more inclusive when they used IT, $\beta = .263$, $t(253) = 4.53$, $p = .008$

Teachers reported being more inclusive when they, themselves, felt like they belonged to their school, $\beta = .396$, $t(253) = 7.14$, $p < .001$

Variables predicting Inclusive Education Practices

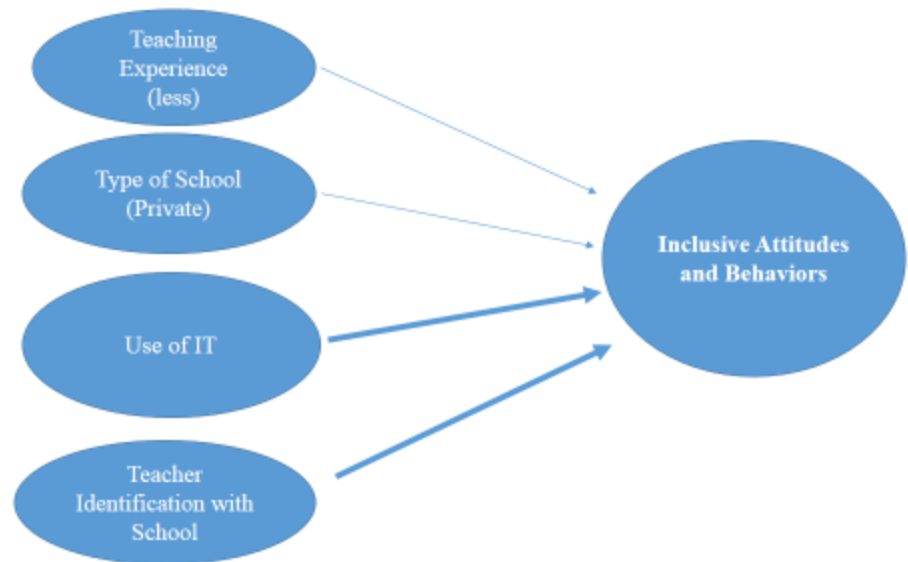


Figure 1.6 **Variables predicting inclusive education practices**

Phases 3, 4, 5

Phase 3. Action Cue.

Four weeks and six weeks after the training in Phase 2, reminders were sent to teachers via email. Teachers were prompt to use the toolkit and to join an online community of good practitioners in inclusive education (Dropbox, Facebook group, email listserv). All workshop materials and useful information were shared online. Using Facebook and email correspondence, teachers and educators were encouraged to use the TESSA toolkit and to reflect on the importance of inclusive education.

Phase 4. Post - Assessment

Six months after Phase 2, participants were invited to answer a survey. The following were assessed using an online questionnaire.

- Use of the TESSA toolkit (frequency, satisfaction, ease of use, usefulness, and intentions to recommend it to colleagues)
- Learning (defining inclusive education, implementation of best practices)
- Post attitudes and intentions concerning the use of OERs in education
- Availability of IT resources and infrastructures in school

Phase 5. Case Study and Data Analysis

- After Phase 4, six participating schools were randomly selected for a school visit. Three researchers conducted interviews with the school leaders and observations to evaluate inclusive education in action/ in practice. The main focus was to collect feedback from the participative schools to gain a better understanding of the current state of inclusive education, the use of IT, the use of OERs, and the effectiveness of online teacher training. Furthermore, data was collected to analyze the best practices in inclusive education.
- This phase also consisted of a second in-person workshop. All teachers and educators were invited for a day of learning and sharing. First, research findings were disseminated. A formal presentation followed by a group discussion examined the current state of inclusive education in Mauritius and the possibility of using OERs as a training tool. Finally, additional workshops on inclusive education, and current trends in education were proposed.

PARTICIPANTS

The total number of participants in the online questionnaire was 69 educators from primary and secondary schools.

Gender

The sample size consisted of 12 males, 49 females and 8 who did not want to disclose their gender.

Age

The mean age was 36 years (SD = 8.1) with a minimum age of 25 years and a maximum of 59 years. The detailed repartition by age group can be seen below. The largest proportion of teachers (37.9%) is aged 31 to 40 (representative of the age classification of educators in Mauritius, according to Mauritius Statistics Bureau 2015)

Teaching Experience

On average, participants had 12.8 (SD=8.1) years of teaching experience, varying from a minimum of 2 years to a maximum of 40 years. Approximately 39 % of participants had less than 10 years' teaching experience.

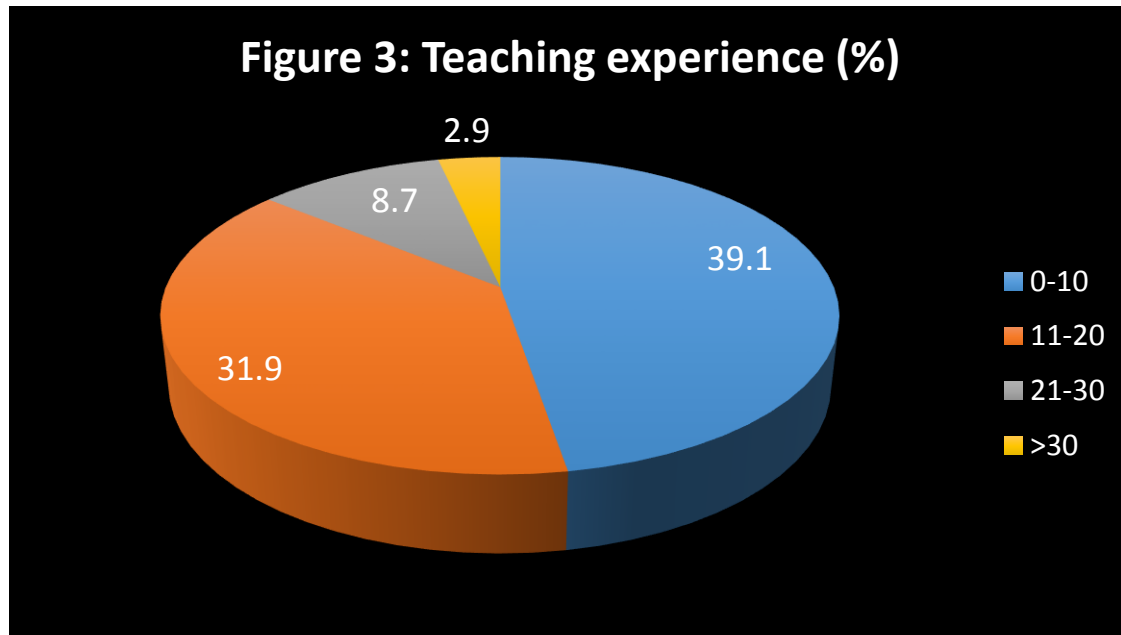


Figure 1.7 Participants' teaching experience

Educational Zones

In this sample, 17.4% of participants were from Zone 1, 24.6% from Zone 2, 15.9% from Zone 3 and 21.7 % from Zone 4, constituting a fair spread according to the 4 educational zones.

Types of schools

The maximum of responses came from public schools irrespective of the zones. It is also interesting to note that 36.2% of respondents were from the primary schools while 50.7% were from secondary schools. Furthermore, participants were from private (24.6%), public (53.6%) and other (5.8%) types of schools.

In phase 2, a greater response was recorded from public schools as opposed to phase 1. However, this can be attributed to the fact that the questionnaire issued during phase 2 gave a clearer definition of private school (as fee paying school) as when compared to phase 1 where the classification corresponds to the educators' personal thoughts.

Procedure

Participants were invited to participate in an online survey at Time 2. Invitations were sent by email and the link to the questionnaire was also shared via social media and the Facebook group.

Participants were informed that the study was designed to follow up on the first survey and to collect their opinions and feedback as working professionals in primary and secondary schools in Mauritius. They were assured of confidentiality and anonymity. Once participants provided informed consent, they completed the questionnaire at Time 2 (see Appendix B), which took approximately 20 minutes and included the materials described below. There were measures of (a) inclusive education knowledge and practices, (b) use of IT, (c) Use of OERs, and (d) perception of change. Demographic variables were also measured. Once participants had completed the survey, they were fully debriefed.

INCLUSIVE EDUCATION

Thirteen items assessed whether there was a change in the state of Inclusive Education in Mauritius from the seminar that took place on the 21st of July 2016. The first 2 items measured the ability to define Inclusive Education and the next 11 items measured inclusive education practices.

Defining “Inclusive Education”:

11.6% of the sample did not respond to item 1 “I am able to define inclusive education”. Among the 69 responses, 5 participants felt that they were not able to define Inclusive Education, 43 felt confident about their knowledge of Inclusive Education, while 13 were unsure of their ability to define Inclusive education. This can be represented in the graph below:

Furthermore, out of the 60 responses, 46 were correct definitions, 14 were incorrect and 9 did not attempt the question at all. Thus, 66.67% of educators defined “Inclusive Education” correctly.

Inclusive Education Practices:

Eleven items assessed the attitudes and behaviours of teachers towards inclusion in the classroom. The scale was teachers’ self-report of best practices in inclusive education in the 4 key areas of physical space, language, lesson planning and preparation (Cronbach’s alpha = 0.880).

The mean was 5.99 with a standard deviation of 0.77. On average, educators reported attitudes and behaviours that are representative of inclusive practices.

It was found that one area where inclusion works well is that they respect the individuality ($M = 6.34$) and the different needs of each child and one area that has to be improved is still to have schools that have information displayed to celebrate diversity ($M = 6.31$).

USE OF INFORMATION TECHNOLOGY

Seven items assessed the use of Information Technology in schools (Cronbach’s alpha = 0.720). 95.1% of teachers feel at ease with the use of technology in the classroom while 4.9 are not very much at ease using it ($M = 6.24$ and $SD = 0.84$).

There are 85.5% of teachers who believe that technology supports learning at school, 9.7% who are neutral about it while 4.8% who do not believe in this technological way of learning. On the other hand, 90.4% of the teachers have the opinion that technology do support teaching at school while 9.7% are unsure of whether it is a good practice to use at school.

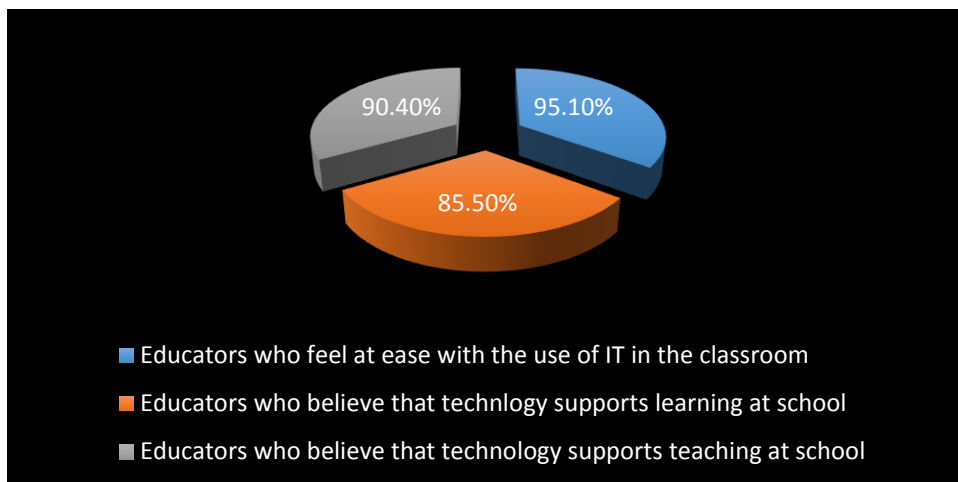


Figure 1.8 Opinions about the use of technology in the school

The last three questions are mostly about the teacher's opinions on IT and how they used it in their classroom. Some believe that IT is beneficial in the sense that it helps students to do further research to enhance their knowledge and it is an active learning process since it is attractive and interesting while some believe that the drawbacks are that the children will lack the practice of writing. The teachers use IT for their Health classes, Art, Science, History and Geography, etc... The students' reactions were quite positive; they were more focussed on the topic and were more attentive in the class and most of the teachers are for the continuity of using IT in the classroom.

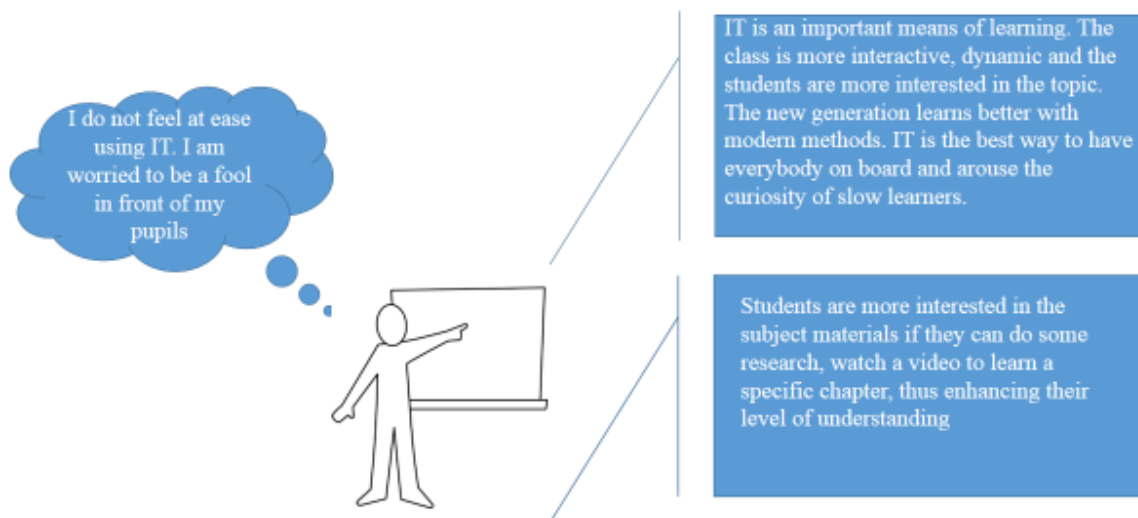


Figure 1.10 Comments about the use of technology in schools

USE OF OPEN EDUCATIONAL RESOURCES

Cronbach's alpha (α) was 0.936, which shows that the scale is reliable. For this variable, the mean was 4.61 (SD= 1.85).

It is important to know whether educators know what OERs are. Out of the 69 participants, 66% said that they know what OERs are, 16.3% was unaware of what OERs are and 8.2% were unsure of their knowledge about OERs.

Currently, 52.5% of educators make use of OERs, 36.1% do not make use of it while the remaining 11.5% are neutral about their use of OERs in their classroom. While 53.2% of the educators feel that they benefit from the use of OERs in their classroom, 38.7% of them believe the contrary and 8.1% are unsure about the benefit in the classroom. Moreover, 51.6% of the participants believe that students do benefit from the use of OERs in the classroom and 40.3% of them don't.

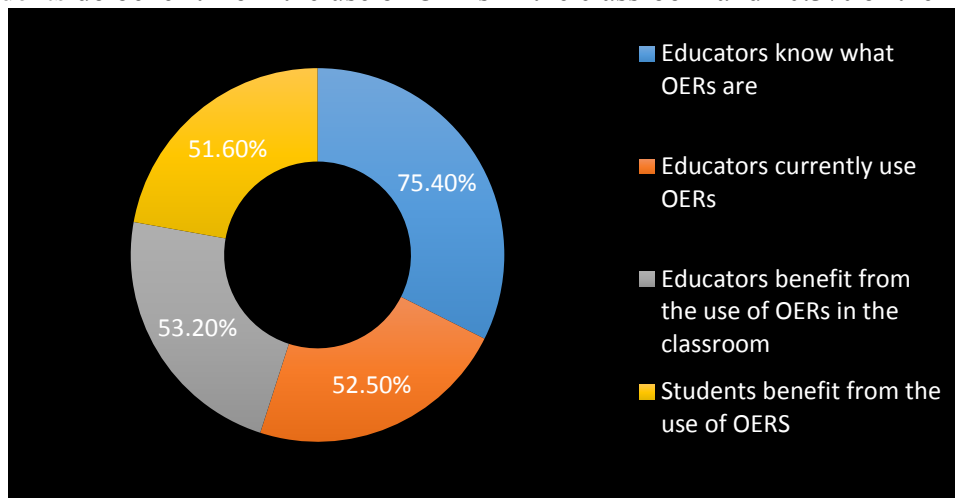


Figure 1.10 Knowledge of OERs

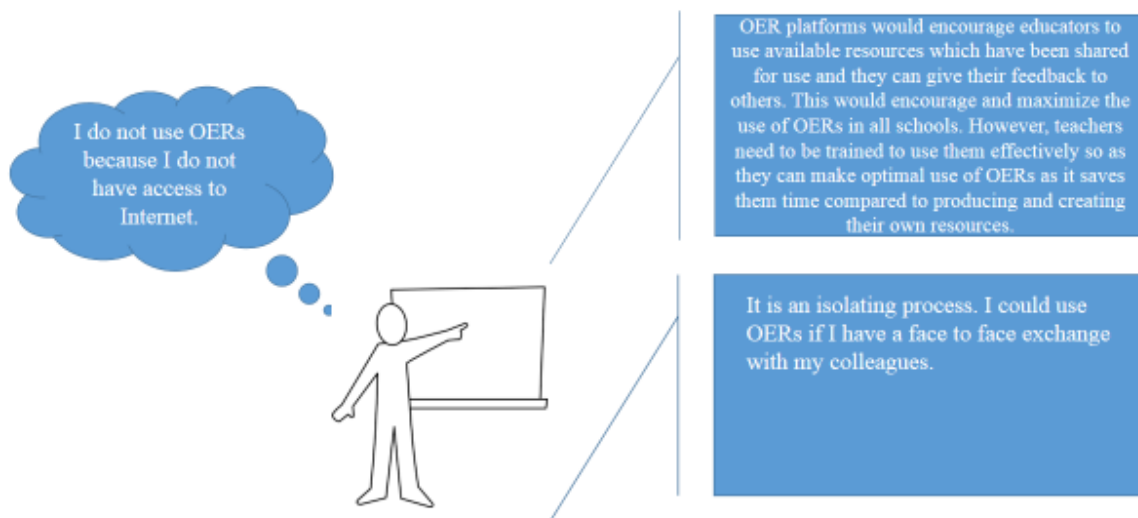


Figure 1.11 Comments on the use of OERs

At the end of the questionnaire, four items ($\alpha = 0.917$) assessed the change in the behaviour of the teachers since the first workshop. The mean was 4.60 (SD = 1.37).

Out of the 69 participants, 51.7% found that they were changed teachers. 61.3% of teachers have modified curricular content when working with their students to ensure learning for all, ensuring that inclusive education practices are in the classroom. Moreover, there were 33 participants who have adapted regular resources when working with students to ensure learning for all. Adapting the pace of work to ensure education for all was done by 67.3% of the educators.

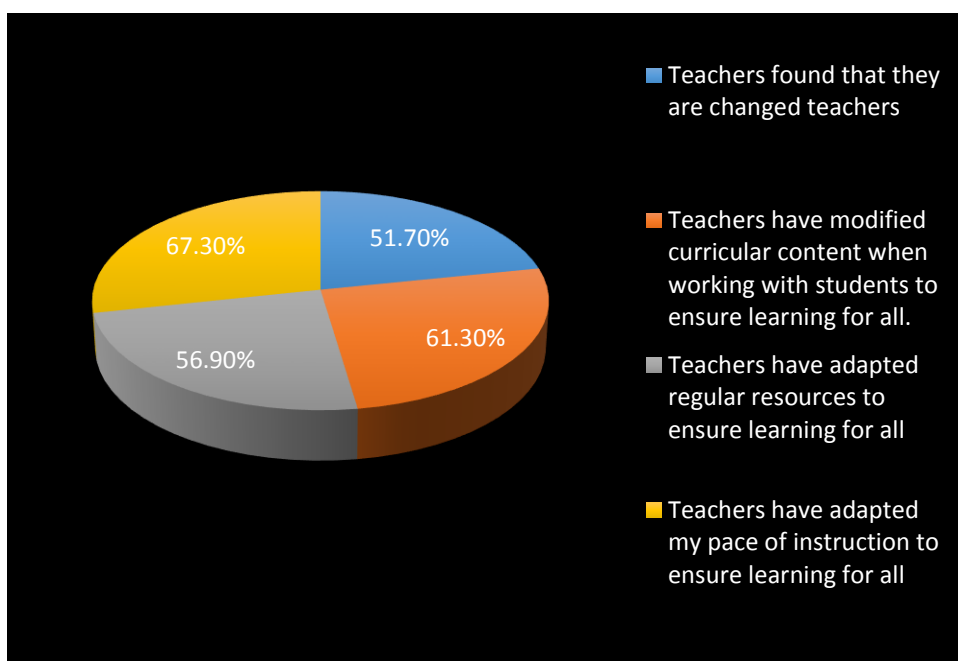


Figure 1.12 **Reported perceived changes in teachers from the first workshop**

Additional comments from the educators were collected at the end of the questionnaire. The requests consisted of: having more briefing sessions and workshops to keep teachers updated, better internet connection and IT resources to be made available at school. Finally, teachers mentioned that a lack of time was a significant barrier for the use of OERs and IT, as the focus was on the completion of the curriculum.

Use of Information Technology

92.5% vs 80% (T2)	Teachers believe that technology supports teaching at school
94.4% vs 82% (T2)	Teachers believe that technology supports learning at school
72% vs 82% (T2)	Teachers feel at ease with IT
62.4%	Teachers received training on technology during their teacher education
63%	Teachers think that their institutions encourage the use of IT
46%	Teachers believe that the school has enough equipment for the use of IT
41.5%	Teachers have received training on IT from their institution (vs 92% that wish to receive training on IT at T2)

Table 1.3 **Use of IT in schools at Time 1 and Time 2**

Use of Open Educational Resources

66% vs 66% (T2)	Teachers know what OERs are
21%	Teachers do not know what OERs are
12%	Teachers are uncertain of the definition of OERs
50%	Teachers use OERs
42%	Teachers think that their institution support the use of OERs
73% vs 45% (T2)	Teachers intend to use OERs
83% vs 46% (T2)	Teachers think that they/ and students will benefit from OERs
37%	Teachers are familiar with the TESSA Network
13%	Teachers use the TESSA toolkit

Table 1.4 Use of OERs by teachers at Time 1 and Time 2

Conclusion

The link between inclusive education and quality education is well established. An inclusive pedagogy promotes teaching and learning for ALL, taking into consideration individual and group differences. It is a process celebrating diversity. When educational resources are tailored to each pupil, it ensures that each learner is engaged in their learning, which in turn enables academic success. In Mauritius, Inclusive Education has been at the forefront of the educational agenda but little is known about the application of this pedagogy in schools.

The main objective of this research project was to gain a better understanding of the current state of inclusive education in Mauritius. Inclusive education was examined from the perspective of Mauritian teachers, their attitudes, behaviors and best practices. Additional objectives consisted of: determining whether Open Educational Resources can be used as an effective tool for teacher training and promoting Inclusive Education, as well as uncover further research avenues in the field of inclusive education.

A thorough overview of the findings was presented in previous sections. The research revealed that most teachers in the study knew how to define inclusive education and had the desire to put in place inclusive education practices in their classrooms. Participants were open to

using technology to support inclusive teaching and were willing to use OERs to help them in this task. Teachers were of the opinion that IT and OERs were useful tools which could support them. Some predictors of inclusive teaching practices were also uncovered. They included for example: the number of years of teaching experience, the types of schools taught in, the use of IT in schools and teacher identification with the school. The latter point was a very pertinent finding in this study. It showed that beyond external factors, the way in which teachers themselves feel included into the school plays a key role in determining how inclusive they are in their practices. This is an area which could be further researched.

The findings also indicated that participants to both workshops were more aware of OERs and the Tessa toolkit after the workshops. However, one key finding is that the uptake of the TESSA toolkit by participants was not the most successful. It is thought that such a finding could be explained by the lack of engagement and follow up after workshop 1.

The TESSA toolkit is also one of the many OERs which teachers can use and teachers may feel at ease using other OERs promoted within their networks or which they are more familiar with. Another very pertinent finding was that most of the respondents reported changes in their attitudes, behaviors and practices following the workshop. These findings highlight the importance of teacher training and the significant differences they can make. A detailed report on “best practices for inclusive education” is currently being finalized, to ensure dissemination of innovative ideas.

Despite these advantages, some limitations have been noted. One of the major limitations of this research concerns the attrition rate of participants over time. As a result of the chosen methodological approach (pre and post test), a lower attendance was recorded at Time 2. The one year time lag between the two workshops may have resulted in a lack of enthusiasm and interest for Survey 2. After 12 months the impetus would have dried out and the study might have been perceived as being redundant. Moreover, the timing of the second workshop clashed with another event and was scheduled at a time where teachers were not fully available. This led to significant differences in sample size at T1 and T2.

A second limitation was the fact that we did not consider the teachers’ voice when deciding to base the study on the TESSA toolkit. It would have been worth getting to know our audience better particularly in terms of which resources they already use for example and why. It might have been worth letting teachers use their own resources and determining whether this approach could also bring positive change.

Despite the limitations inherent to the study, it is undeniable that the workshop had a positive impact on the participants and their teaching practices. Participants in both workshops were enthusiastic and motivated and welcome opportunities to network and learn more. Participants reported that they received many tools through the workshop which they believe could improve their everyday teaching and which contributed to their willingness to implement inclusive teaching practices. There was also significant awareness about inclusive education created amongst teachers, and a range of education stakeholders. The public was also informed using the press and social media platforms. This increased awareness of inclusive practices and knowledge may lead to the emergence of a new mindset and new practices which, in turn, will bring about positive change in communities, schools, and the public at large. It is also expected to impact educational policies.

In order to do so, the findings from the current research project titled “Open Educational Resources – an appropriate tool for teachers to address the challenge of Inclusive Education in Mauritius?” will be further disseminated through an active toolkit. The objective is to apply the basic research results into best practices that can be used by teachers, educators, parents, learning communities, organizations and government.

This project recognizes the need to work towards “schools for all”, institutions which include everybody (teachers, pupils, staff, the community), celebrate differences, support learning for all (teachers, pupils, and staff), and respond to individual needs. Also acknowledged is the importance of empowering and trusting teachers. There is a strong motivation from teachers for training and to have access to additional resources. There is the will to learn and to have the freedom to choose their professional development. Online training could play a role in this tailored learning experience. At the same time, teachers would have to take the initiative and be provided with incentives for self and professional development. Furthermore, it is important to continue this conversation on the importance of inclusive education, and to take action at all levels (individual, school, institutional, national) and across disciplines to bring about change.

We would like to thank the Mauritius Research Council and Mrs P Veer Ramjeawon in particular for their continuing support.

References

Auckloo, P. (2014). Harnessing Classroom Practices with Flexible Use of Open Educational Resources: The case of Mauritius with the TESSA Experience. Conference Proceedings, Ireland International Conference on Education (IICE-2014). October 27-29, Dublin, Ireland

European Union. Council of the European Union 2010. Retrieved December, 2015 from the World Wide Web: <http://europa.eu>

Jones, T. G. and Fuller, M. L. (2003) *Teaching Hispanic children*. Boston: Allyn and Bacon

Lancaster, J. and Bain, A. (2007) The Design of Inclusive Education Courses and The Self-Efficacy of Preservice Teacher Education Students. *International Journal of Disability, Development and Education*, 54 (2), 245-256

Mauritius Institute of Education. Training Programmes. Retrieved December, 2015 from the World Wide Web: www.mie.ac.mu/

Ministry of Education and Human Resources. IOREN International Conference Speech 2015. Retrieved December, 2015 from the World Wide Web: <http://ministry-education.govmu.org>

Ministry of Education and Human Resources. Education and Human Resources Strategy Plan 2008-2020. Retrieved December, 2015 from the World Wide Web: <http://ministry-education.govmu.org>

Ministry of Education and Human Resources. Ministry of Education and Human Resources Card 2013. Retrieved December, 2015 from the World Wide Web: <http://ministry-education.govmu.org>

Moon, B. (2007). School based teacher development in Sub-Saharan Africa: Building a new research agenda. *Curriculum Journal*, 18, 355-371

OECD (2010) *Educating Teachers for Diversity. Meeting the Challenge*. Paris: OECD CERI, http://www.oecd.org/document/38/0,3343,en_2649_35845581_44572006_1_1_1_1,00.html Retrieved December 2015

Teacher Education for Sub-Saharan Africa. TESSA reports and resources. Retrieved December, 2015 from the World Wide Web: <http://www.tessaafrica.net>

United Nations Educational, Scientific, and Cultural Organization. UNESCO Report 2008. Retrieved December, 2015 from the World Wide Web: <http://www.en.unesco.org>

Wolfenden, F. (2008). The TESSA OER Experience: Building sustainable models of production and user implementation. *Journal of Interactive Media in Education*, <http://jime.open.ac.uk/2008/03/>

World Bank Group. World Bank Group Report 2015. Retrieved December, 2015 from the World Wide Web: <http://www.worldbank.org/en/>

Project Title: Open Educational Resources – an appropriate response to the challenge of Inclusive Education in Mauritius?

APPENDIX A: Interviews of School Leaders

Author: Pritee Auckloo

Findings from Thematic analysis:

The following is a thematic representation emanating from the different interviews as reported by three interviewers. Five participants/interviewees from four schools accepted to be interviewed in the context of this research (see table below)

In a view to maintain confidentiality the names of schools have been termed as follows, School A, B, C, D. These are represented in table 1.

School	Person interviewed	Current name	Type
A	Deputy/Assistant Head : DH	School A Sub Urban	Pre primary and primary
B	Head Teacher : HT 1	<i>School B: Head teacher (HT1): Head teacher of a private Secondary School with a relatively small student mixed school</i>	TBA
C	Head Teacher : HT2	<i>School C: Head teacher 2 (HT2): Head teacher of a large public boy school</i>	TBA
D	Head Teacher and Administrator Participant 1 and 2	<i>Two persons were interviewed from the school based in the north They are named as Participant 1 and 2 from school D: mixed school</i>	Secondary

Table 1: Profile of interviewees and schools

The findings from these interviews are later represented under themes and sub themes as indicated under the broad themes of inclusive education, Use of ICT, OERs.

On Inclusive Education:

In school A - in the light of the responses obtained by mail from the Assistant Head of School, the following statements and observations can be made:

As a person involved in the leadership of the school, the DH from school A **responded that half of the 30 members based in the school could relate to inclusive education (IE)**. The latter also acknowledged that IE is an important aspect as it takes

- “Everybody on board ... assistant teachers are attached to classes to cater for slow learners”. However the latter did not respond further with regards to how it is actually activated to cater for learners with special needs or even the broader aspects of culture, diversity, learning communities etc.

However, examples given of how these were evidenced in the context of teaching and learning at Orchards Kids School **include lesson plans that cater for learners who are slow learners or low achievers:**

- “Lesson plan start from scratch with slow achievers”.

The DH also acknowledged that some teachers and school leaders **follow procedures to ensure that all children are included in the learning community, but others do not**. Unfortunately no example was given to illustrate this response but generally it was considered important at classroom level mainly.

School B and C

In the case of school B and C, when asked about whether the level of awareness of inclusive education in their schools, the head teachers interviewed indicated **that they could not be sure that all members of their teaching teams were aware of what inclusive education means and of inclusive education practices**.

Both head teachers did not to provide specific examples of inclusive education practices in classrooms. **They did however describe general strategies applied within the whole school which were used to ensure that every child is included**. They also agreed that inclusive education was important.

As noted by HT2 in school B,

- “I think it is something more discussed in the primary sector as opposed to the secondary sector where it is not really discussed. But schools need to make sure no one is left behind in the school and in class when the learning process takes place. No child should be left behind in the school activities too.”

Inclusive education practices such as streaming, partnership with parents and statements such as ‘no child should be left behind’ were given as examples of practices or philosophies which encourage inclusion. In one school (Isabelle to please confirm which school?), the head teacher gave examples of students with **physical and learning difficulties who had successfully completed their studies thanks to inclusive education strategies put in place by the school**. In the other school, **parent/teacher meetings, during which much was done to understand the learner’s background**, were given as an example of inclusive practices within the school.

- HT2... we meet all teachers to try and put all students at the same level together so teachers can assess levels and adapt to students. We also look at what tools and approaches can be used for each level... We are aware that we have fliers and some who need more attention.”
- Yes, we do take into consideration the social background of each child through the section leaders. We also meet the participants regularly

One of schools (Isabelle to confirm which one please) **was smaller and catered for students with various learning difficulties. The head teacher from this particular school explained that often, in their case, the challenge of inclusion was more about ‘gifted and talented’.** These learners were not challenged enough in her eyes, “sometimes the ‘better’ students were lagging behind”. Although the school did receive training from MIE still the challenge was felt:

- HT1: At the start in this school we gave a lot of attention to the weakest. We took on children with 15 ‘unite’ and encouraged them to succeed at A levels. But sometimes the ‘better’ students were lagging behind. So lessons planning had to take this into consideration. I always tell my teachers about the way we feed our children milk. We give them what they need not the same amount to everyone and leave some hungry. We share a lot what can work in the classrooms.”

Training was cited by HT1 as well as HT2 as one of the pre-requisites to make inclusive education a reality although they do their best to practice differentiation and assessment. For HT1,

- We can also differentiate test papers so that there is a section which is simpler and then one which is a little but harder and then one which requires more thinking and deeper skills.
- The biggest challenge is the lack of training to teach mixed abilities and the follow up is important.

HT2 referred to a partnership with an Australian University which helped them to address the above but with regards to training, both head teachers felt more practical ones were needed as compared to theoretical ones.

School D:

With regards to School D, both participants **acknowledged they knew about inclusive education before the workshop and even practice it.** Participant 1 reports the workshop at CIT helped them to consolidate on strategies to work with trainees:

- “nous a permis de consolider les notions que nous avons”. We were able to learn new strategies to work with different students. We have a diverse body of student at school D.

Participant 2 from the same school reported that inclusive education to her means a philosophy of acceptance regardless of life stories, background and age. Participant 1 also insisted that this approach allows them to dedicate personal attention may be required as per the needs of the child:

- We included all children, regardless of their life stories, background, age...

Participants from this school were also very **particular about the profiles of learners they work with and** emphasized the importance laid on making sure every individual reaches her/his maximum and at the same time stating it can be very difficult:

- We have students from many social backgrounds, with physical challenges, and different age groups at the same academic level. Our main strategy is to focus on each students, “et leur accorder une attention personnelle”. We have to teach the same content for students of different ages and maturity which is not always easy

Participants elaborated on **some strategies they use such as multi grade teaching, mixed ability grouping, peer mentoring and individual attention:**

- It means that a student that is 12 years old can be taught reading with a student aged 16 years. Classes are per academic level (at the beginning of the semester each student meets with a teacher to be assessed). We make sure that the difference in maturity does not impact the learning. We pay close attention to each student. We also have peer mentoring. And volunteers work in the school to provide extra support to each child...Although we use of lesson plan for all, we have a close follow-up with each student and we use peer mentoring very successfully.

Participant 2 also related to approaches towards inclusion that **promote intercultural values:**

- I can also mention 2 other things. First, we work closely with Lion’s Quest where we talk about moral values. Each child is taught about “l’ecoute de son prochain, de bonnes valeurs morales, le respect, l’ecoute de soi...”). We also organize outings, “des visites et sorties pedagogiques pour que chaque enfant connaisse Maurice, les differences, la culture mauricienne”.

On the use of technology at school

In School A

The DH in school A revealed important aspects with regards to use of Technology at school. The school is well equipped for at school level teachers and learners use Computers and Internet, and they also have a multimedia room. **The DH responded most of the teachers are familiar with computers and do their best. At managerial level, the school is aware of the turn and importance of ICT in the National Curriculum framework and supports it illustrating how teachers are using same include:**

- The whole atmosphere changes – pupils’ attention were riveted to the lesson when working with computers...

These excerpts illustrate that the DH and the fee paying private school are involved in engaging the teaching staff in both ICT and OERs as illustrated by the next section for this school.

Technology in School B and C

There was strong agreement that there was ‘no escaping IT and technology’ in schools. It was associated with words such as ‘their world’ ‘what they do’ which showed that both head teachers

felt that learners were using technology more and more in their daily lives. They thought schools needed to catch up with the reality of its learners and stakeholders needed to create environments which are more familiar to learners: (HT2) 'meet them where they live or are'. HT2 was keen to sustain the schools' investment in technology and stated how stated that teachers in both schools use YouTube, the school website, PC based in the staffroom and libraries, connect to Wi-Fi. The use of mobile phones by learners was seen both as a potential and a distraction too:

- HT1: At the same time we see many young people with lots of technology in their hands and they don't always know how to use it. Mobile can be a terrible distraction in classes. The use in schools is not allowed because of this. ..They get punished if they are caught with their phones on school premises.

Challenges relating to the financial implications of technology were also stated.

- HT1: "[Technology] is not always easy to manage. We need to manage students, finances etc. It is not normal that we don't have Wi-Fi and not many new devices. Children have their own laptops and devices. Technology changes and requires investment and maintenance which is difficult."

The relationship between the staff and technology was also discussed. Both schools B and C explained how for new teachers it was very much natural to reach out to technology when planning lessons or when trying find resources.

- Yes our staff is younger and age has an impact on the decision. Plus I think it is a matter of choosing to use it.

However both HT1 and HT2 admitted that the teachers had not received much training about how to use technology in education. **They were very much learning on the job.** They were supportive of the use of technology to improve teaching and learning in their schools.

- Ideally it would be perfect if all classes could be equipped with tablets, WIFI etc. There would be constant interaction between students and teachers. The attitude in classrooms would change and we would be closer to their world and their daily habits. And this is why we invest so much in IT.

School D

School D is equipped with 21 computers, 1 computer in the school library and 5 in the prevocational sector. The school management invests also in the use of ICT and considers it an important asset to the school.

- We also use "scratch", a program for creative design and programming. It is a mix of mathematics and programming to learn logic steps.

Although participants from this school did not elaborate on further views with regards ICT, they did name a number of tools currently being used such as Wifi, tablets, Bring your own device, smartphones, smartboard, computers, laptops, intranet, SNS. Participants also stated they the school invests in the purchase and use of ICT devices and also conduct a training at least once per year. However all staff do not attend.

USE of OERS at school level

School A

As DH involved at managerial level the latter **had little understanding of OERs in detail but was fully aware of the workshop which involved the teachers from the school** and expressed satisfaction based on the learning derived by the teachers. The DH also expressed that some of the teachers in the school do use online educational materials such as :

- “some teachers learn from youtube, experiences, lesson plans, and notes are planned from the internet, and others school Resources (OERS are used)”

The latter also expressed the need for more in service courses that would help keep educators abreast of the changes that would be required in the teaching profession.

School B and C

The two head teachers **from School B and C had no awareness of OERs at all**. They had never heard of them or been aware that they or their staff had used or were using OERS.

School D:

When it came to OERs both participants revealed **they know about OERs**. Participant 1 came to know about it from the workshop organized by CTI and acknowledged they were using online resources. **Participants could not really give examples of OERS but later acknowledged some familiarity with TESSA, pinterest which they associated with OERS**. Participant 2 however also informed that given the context of new educational reform the teachers had to go online to look for information:

- “La nouvelle reforme educative”. Teachers went online to find syllabus and learning materials.
- We really came across OERs during the workshop at CTI. We always used online resources but did not know it was a “thing”.

Later participants also added that they needed more information with regards to OERS and that these would motivate and help them further.

- We would like to learn more and have additional references

Some teachers have used OERs especially with “la nouvelle reforme educative”. Teachers went online to find syllabus and learning materials.

- Yes, we use online resources. For example Pinterest for classes in creativity, wood working...

General Comments: Main findings

1. Schools knew about IE but in one case, the workshop consolidated their notions of IE.
2. Strategies for IE were varied and although few gave concrete examples, Peer tutoring, multi-grade and differentiation was stated in one school
3. Few participants knew about OERS- some were familiar – 2 schools did not know at all
4. They need more information and training both on ICT , IE and OERS
5. They all acknowledged the importance and use of ICT. Some challenges they mention relate to cost, internet and training for elder staff.
6. Participants also mentioned that staff do go online to look for resources