Categories of learners in the ICT Classrooms of Mauritian Primary Schools

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Abstract

Some 328 ICT teachers received their training at the Mauritius Institute of Education in 2002 and were subsequently posted in primary schools in January 2003. At that time, most of the ICT classrooms were ill-equipped in terms of ICT resources, teacher's guide and textbooks. This paper is based on part of the findings of a larger study carried out to investigate primary pupils' perceptions, attitudes and motivation with respect to their ICT learning environment. The study has revealed the presence of five categories of learners- silent, dedicated, withdrawn, enthusiast and disturber. These categories emerged as a result of an analysis of descriptive records obtained from observation of pupils' classroom behaviours and conversation with their ICT teachers and pupils. Silent learners were the most common type of learners, thus making the bulk of the class. While the other categories of learners were in smaller numbers, withdrawn learners did not manifest themselves in all the schools. Findings posit that pupils' classroom behaviours are influenced by the features of their learning environments which include the set tasks, peer acceptance and teacher authority. Moreover, more positively perceived classrooms are likely to induce positive classroom behaviours in learners including more on-task behaviours and less disruptive actions. This implies that teachers have the responsibility of creating learning environments that meet the individual needs of all types of learners and that inhibit off-task and disruptive behaviours.

Keywords: ICT, categories of learners, primary classroom, Mauritius

Introduction

Countries around the world have recognized the importance of ICT knowledge and skills as a passport to gaining employment and as an instrument to securing a competitive edge as access to technology and ICT correlates with the economic health of a country (Haddad & Jurich, 2002). This international phenomenon has elected ICT skills as a *sine qua non* requirement for the workforce of the forecasted knowledge-based economy. The Republic of Mauritius has also jumped onto the ICT bandwagon with the strong conviction that ICT will provide another dimension to its economy.

At the turn of the 21st century, the Republic of Mauritius brought about an important reform to its education system by initiating the School IT Project (SITP). The aim of SITP is prepare the Mauritian child to successfully evolve in the cyber-island that Mauritius has envisioned to become. Under SITP, ICT entered into the primary school curriculum as a subject in its own right in January 2003. Around 328 ICT pre-service teachers completed their formal training at the Mauritius Institute of Education (MIE) in 2002 and were posted in around 290 primary schools throughout the Republic of Mauritius (which includes Rodrigues, an outer island of the republic).

When the teaching of ICT started in 2003, the necessary ICT infrastructure in schools, in terms of locale and ICT resources, were inadequate and teacher support materials were almost non-existent. While both parents and ICT teachers had been expressing their dissatisfaction regarding the conditions under which ICT was being taught, no one seemed to have paid enough attention to what pupils had to say about their learning experiences in the ICT classrooms. As pupils are the first ones to be affected by the education reform and the introduction of ICT in the school curriculum, getting their side of the story was considered crucial. Schools and classroom dynamics determine the degree of success of any educational reform (Dalin, 1994, cited in Griffiths, 1998b) and getting the words, meanings and experiences of people close to the educational process was imperative.

Ad-hoc classroom visits prior to this study pointed to the fact that in the absence of an adequately resourced ICT classroom, the teaching of ICT tended to be oriented more towards theory than practicals with very little quality hands-on ICT experiences on computers for pupils. As a consequence, the need for a systematic study of the classroom happenings under such circumstances was felt in an effort to gain in-depth insights into the experiences of pupils, and to understand and offer explanations on how they perceived their ICT classroom, what were their attitudes towards it and how motivated they were to study ICT at school. Thus, a prolonged study was conducted between 2004 and 2010 to investigate the pupils' perceptions of their ICT learning environment, their attitudes towards it and their motivation to follow the ICT class. This paper is based on a part of that bigger study.

The findings revealed the presence of five categories of learners in the ICT classrooms in Mauritius. It should be pointed out that the identification of the learner categories was not one of the research questions. In other words, the research did not set out to identify learner categories. However during fieldwork and the iterative data analysis process, patterns of

classroom behaviours started to emerge to suggest the presence of different categories of learners in the participating schools. Those findings could not be ignored for three main reasons. Firstly, no research had ever been carried out in Mauritius in order to categorise learners according to their classroom behaviours in the primary school landscape. Secondly, the findings were considered to be of value in understanding and in offering explanations of pupils' behaviours in the ICT classrooms in the Mauritian context, the premise of that argument being that each country provides its own context and culture and that

> "culturally-constructed spheres of knowledge must bear some kind of relation to the kinds of brains and minds that human beings have, and the ways that those brains and minds grow and develop in different cultural settings" (Gardner, 2003, p. 11).

Thirdly, it was hoped that the findings could inform the decisions of teachers and policy makers on those elements of the classrooms that were needed so as to meet the individual needs of learners and to reduce their off-task behaviours. Furthermore, the findings were found to be of relevance to teacher education institutions in order to bridge the gap between research, theory and practice and update professional courses provided to in-service and pre-service school teachers.

Literature Review

Traditionally, research in education was more concerned with the teacher as the main causal agent in the classroom and elements such as teacher characteristics, attitudes, expectations, beliefs and teaching styles have been studied to "determine the optimal combination to facilitate learning" (Veldman & Worsham, 1983, p. 204). It was widely acknowledged that teacher-student interpersonal interactions had reciprocal effects so that teacher behaviour shaped students' behaviour and vice versa. Though this reciprocity in behaviour shaping is still valid today, there is considerable emphasis on studying pupils' characteristics and classroom behaviour in an effort to provide individual pupils with learning opportunities that address their individual needs.

This shift in emphasis from the teacher to the pupils has led to the development of models of learners and learning styles and categories of learners based on their classroom behaviour. Thelen (1967) analysed teachers' descriptions of their students to classify them into four

distinct groups which he labelled as “good”, “indifferent”, “bad”, and “lost souls”. This classification is based on students’ overt behaviours in the classroom as perceived by the teachers. The good is someone with whom the teacher can work. According to the teachers, the good are in the class to learn and they exhibit considerable on-task behaviours. Indifferent learners are less participative and show little interest in the class. The bad type is often seen to engage in unruly behaviours in the classroom. Lost souls are “quiet types, fearful, withdrawn, and unhappy… They have little self-esteem” (p. 68). Others have also had an attempt at learner classification based student behaviours as perceived by teachers. Examples are those of Jackson, Silberman, and Wolfson (1969) and Silbernan (1969) with groups defined as attachment, indifference, concern, and rejection.

Based on an analysis of data obtained from the observation of the junior high school students’ classroom behaviours, Veldman and Worsham (1983) categorised learners according to following four groups: good students, outgoing, rebellious and withdrawns. Some behaviours of good students included motivation to achieve, self-confidence, physically appealing and ability to work in groups. Behaviours of outgoing students included extrovert, self-confident and physically appealing. On the other hand, the rebellious students did not like their teachers, were disobedient and did not like to work in groups. The withdrawns showed hesitance. They also got little attention from the teachers, were introvert and had little physical appeal. It can be noted that some characteristics of these categories bear considerable similarities with the categories defined by Thelen (1967) and by Jackson, Silberman, and Wolfson (1969) and Silbernan (1969). This suggests that students display certain behaviours that are common across different contexts.

In 1983, Howard Gardner proposed the multiple intelligences theory to understand the kind of intelligences that learners possess. Intelligence is understood as the ways that people solve problems or develop products that are valued in one or more cultural settings (Gardner & Hatch, 1989). The theory documents the extent to which students possess different kinds of minds and therefore learn, remember, perform, and understand in different ways. As such, humans have a set of relatively autonomous intelligences (Gardner, 2003). The exact combination of intelligences varies from person to person (Gardner, 1983). In other words, we possess all these intelligences but to varying degrees depending on our genetic predisposition and experiences and as “individuals differ in their intellectual profiles, it makes sense to take this fact into account in devising an educational system” (p. 5) and in

finding ways of "how the intelligences can best be mobilized to achieve specific pedagogical goals" (p. 11). His theory does not aim to classify learners as belonging to one type of intelligence than another. Rather, it purports that people can have a combination of the following intelligences that vary in their degree of dominance:

- Logical-Mathematical Intelligence which is often associated with scientific and mathematical thinking.
- Linguistic Intelligence which is linked to the mastery of language
- Spatial Intelligence which gives one the ability to manipulate and create mental images in order to solve problems
- Musical Intelligence which deals with the ability of a person to recognize and compose musical pitches and tones
- Bodily-Kinaesthetic Intelligence which is the ability to use one's mental abilities to coordinate one's own bodily movements
- Interpersonal intelligence which involves feelings and intentions of others
- Intrapersonal intelligence which is the ability to understand one's own feelings and motivations
- Naturalist Intelligence which involves the full range of knowing that occurs in and through our interaction with the world around us including our recognition, appreciation, and understanding of the natural environment

The implication of Gardner's (1983) multiple intelligence theory to education is that of acknowledging differences in the ways in which children and adolescents are smart and a one-size-fits-all instruction strategy may not do justice to them as they do not move along the same track towards the set goals. Learners should be offered the opportunity to learn in a learning environment that suits the kind of intelligences that they possess in abundance (Eisner, 2004).

Other classifications of learners include (1) those based on David Kolb's (1984) experiential learning theory with learners being classified as convergers, divergers, assimilators, and

accommodators, (2) Honey and Mumford's (2006) learning styles of activists, reflectors, theorists and pragmatists, (3) Fleming's (1995) VARK model with learner's classified according to learning styles such as visual, aural, read/write and kinaesthetic. There have also been attempts by others to use their understanding of learner types, learning styles and ways of knowing to design courses (Drago-Severson et al., 2001; Sprenger, n.d.), adaptive hypermedia systems (Brusilovsky, 2003; Castellano, Fanelli, & Roselli, 2001; Kardan & Einavypour, 2008; Lo & Shu, 2005) and to understand the performance of students in particular settings (DeAntonio, Lee, & Peterson, 2009; Liu & H., 2007).

In Mauritius however, only a handful of research on the primary learning environments has been conducted so far, such as those by Griffiths (1998a), Tengur, Naugah, Bissessur and Gooriah (2003) and Busawon (2002). The tertiary learning environment has also been given very little attention despite a few attempts such as the ones by Bessoondyal and Fisher (2003), Jhurree, Bessoondyal and Dindyal (2004) and Jhurree, Bessoondyal and Fisher (2005). On the other hand, secondary classrooms have received much more research attention during the past decades than either primary or tertiary classrooms. The main reason is that those researchers are secondary school trainee teachers who have to complete their research thesis as part of the professional courses that they are following at the MIE, University of Technology, Mauritius (UTM), or University of Mauritius.

The array of literature on learner classification over the years and in various contexts suggests that increased attention has been given in many countries to the idea that learners differ and learn in a variety of ways and that one approach to teaching does not work for every learner (Hawk & Shah, 2007). However the Mauritian context has not received such attention at any level of education contrary to other parts of the world. Given that behaviour is influenced by culture and context (Matsumoto, 2007), it is hoped that the findings reported in this paper can contribute to one's knowledge about the categories of learners in primary ICT classrooms in Mauritius and subsequetly inform the practices of educators and offer guidance to decision makers.

Methodology

Pupils tend to engage in an array of classroom behaviours. They interact with each other and their learning environment in complex ways. Therefore, an in-depth classroom understanding

of such an environment is best grasped by using a qualitative approach and by using a human instrument rather than an inanimate one such as a questionnaire. The research described in this paper used a qualitative case study method as it was considered appropriate when one was asking "how" or "why" questions, when the researcher had little or no control over events and when the focus was on a contemporary phenomenon within a real-life context (Yin, 2009).

As an empirical inquiry, the qualitative case study has the strength of uncovering processes that have not been rigorously examined yet (Denzin & Lincoln, 2000). Multiple sources of data, such as classroom observation, conversation with pupils and interview of ICT teachers have been used to enhance the validity and trustworthiness of findings (Guba & Lincoln, 1989). As such, a case study can also be referred to as a triangulated research strategy (Tellis, 1997). A prolonged fieldwork of approximately four school terms was conducted so as to gain an understanding of pupils' behaviours and actions in the classrooms. This was necessary because the interpretation of the meanings constructed by others is a prolonged, repetitive, labour-intensive and slow process (Spindler, 1982, cited in Walsh, Tobin, & Graue, 1993).

Purposeful sampling with maximum variation was used as the sampling strategy in this study (Guba & Lincoln, 1989) with the intent of getting a set of information-rich cases for in-depth study (Patton, 1990). The objective was to identify and seek out those cases which "represent the widest possible range of the characteristics of interest to the study" (Merriam, 1998, p. 63). In this case, the size of the sample cases was of less significance than their information-richness (McMillan & Schumacher, 2001). The choice of purposeful sampling with maximum variation was also based on the premise that "different classes have different characteristics arising from the ways in which individuals interact with each other, with the teacher, and with their environments" (Newby, 1998, p. 12). Thus four schools were selected based on the following criteria:

- Performance of the schools at the national Certificate of Primary Education (CPE) level for the past five years.
- Number of PCs at the disposal of the ICT class
- Rural versus urban location of the school

- Socio-economic background of pupils

The following four schools were selected:

- Arsenal Bravehearts Primary School- This was a low performing school found in a rural region in Mauritius. Most pupils were from low income families. Also, the single PC that the teacher had at his or her disposal was located in a converted room which was a normal classroom that had been converted for the teaching and learning of ICT.

- Royal Sunshine Primary School- This was a low performing school found in a sub-urban region. Its neighbourhood was popular for drugs and prostitution problems. Most pupils were from low income families. Also, it had a computer laboratory with 17 PCs and air-conditioning.

- Hiltonside Primary School- This was an average performing school found in a rural region. Most pupils had modest family backgrounds. Also, the two PCs that the teacher had at his or her disposal were located in a converted room.

- Sugar Valley River Primary School- This was a high performing school, also referred to as a Star school, found in an urban area. Most of its pupils came from high income families with high social status. There was a single PC which had to be moved from one classroom to the other for teaching purposes.

The challenge of handling of voluminous amounts of text-based and non-text-based data was partly resolved by the use of a computer. The device helped in the storage and management of raw and processed data. Furthermore, concept maps (Novak & Cañas, 2006) were used in data analysis and later on in making the process of data analysis transparent (Daley, 2004). Making this process transparent enables the reader to judge the credibility and trustworthiness of data analysis process so that the findings from qualitative studies do not become suspect (Lincoln & Guba, 1985).

Results

Pupils were distinguished along attributes such as their degree of class participation, degree of on-task behaviours and disruptive behaviours, and facial expression and along affective behaviours such as responsibility, self-management and interest in the class. These attributes have also been linked to pupils' attainment or performance on ICT tasks and peer acceptance, the latter referring to being generally well-liked by their peers (Lindser, 2002). The process of data analysis revealed the presence of five categories of learners in the ICT class at primary school level in Mauritius. These five categories are (1) the silent learner, (2) the dedicated learner, (3) the enthusiast, (4) the disturber, and (5) the withdrawn learner. They bear certain similarities with the categories formulated by other authors who have based their categorisation on overt classroom behaviours such as Veldman and Worsham(1983), McNabb (1997), Davis (2002) and Volpe, DiPerna, Hintze and Shapiro (2005).

These five categories of learners emerged as a result of an analysis of descriptive records obtained from classroom observations and interviews. The boundaries of each category gradually took shape through a continuous process of cycling through and massaging the data during and after the fieldwork period. Tentative categories were cross-checked and refined during classroom visits for stability. The ICT teachers were also consulted to ensure the validity of my interpretations. Even after the fieldwork was over, the emerging categories were still being polished with the help of a few of my colleagues. Only when the boundaries exhibited stability that it was concluded that there were five categories of learners in the ICT classrooms in Mauritius. The remaining of this section describes each category.

The silent learner

Silent learners have been identified in all the four schools. They are usually shy and prefer to remain silent in the class. They do not usually participate in class discussion or in answering questions. They rarely take the initiative to participate but do it only upon the teacher's request. At other times, they silently work on set tasks with occasional engagement in other learning activities after completing the set tasks. They are commonly found in all classes and they constitute the bulk of the class. They are a common occurrence in all the participating schools and they form the main population in a particular class. They are content with sitting silently during most part of the lesson though on rare moments they can spring up into action

to contribute to class discussion or to answer questions. They rarely initiate for any interaction with their peers or the teacher unless requested by the latter. However, they can be seen to interact with their friends when they have finished their class work. Such interactions may include chatting, making jokes and quarrelling. As such, they get along with others in the class but mostly with other silent learners. They seem to relate better with learners having similar characteristics as themselves.

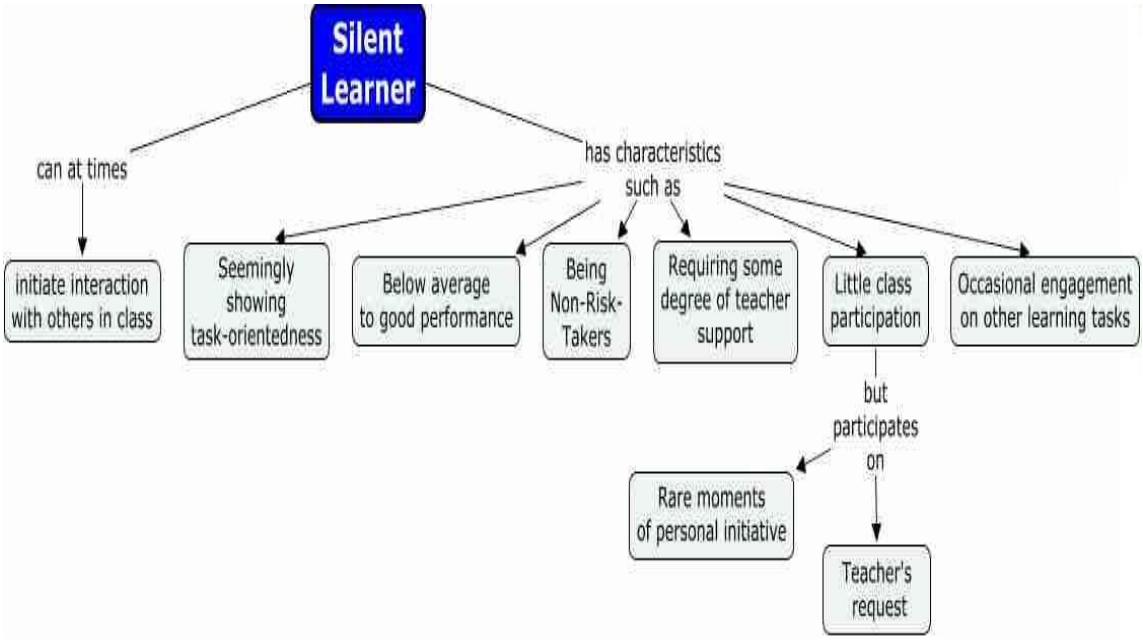

Figure I: The silent learner

Silent learners tend to speak softly but somewhat confidently. Their performances in set tasks range from below average to good. Those who do not perform well tend to rely on the teacher for support. Their timid nature makes them non-risk takers as they refrain from volunteering in class discussion or in showing their work to the teacher unless requested. Those who lack sound ICT knowledge are less participative than their more able peers. Moreover, while many among them tend to work towards task completion, there are some who also seem to fake their engagement giving the impression that they are working attentively on class activities when they are not. Furthermore, they imitate the enthusiasm of their friends by behaving in the same manner. For instance, when they see their friends waving their hands frantically to answer a question, they tend to do the same even if they do not know the answer. While not all silent learners behave in similar fashion, they share one common characteristics, that of being among the least participative in the class. They vary on their

degree of task-orientation, performance, and motivation to learn. This type of learner represents the majority in a class. Figure I graphically highlight the characteristics of a silent learner.

4.2.1 The dedicated learner

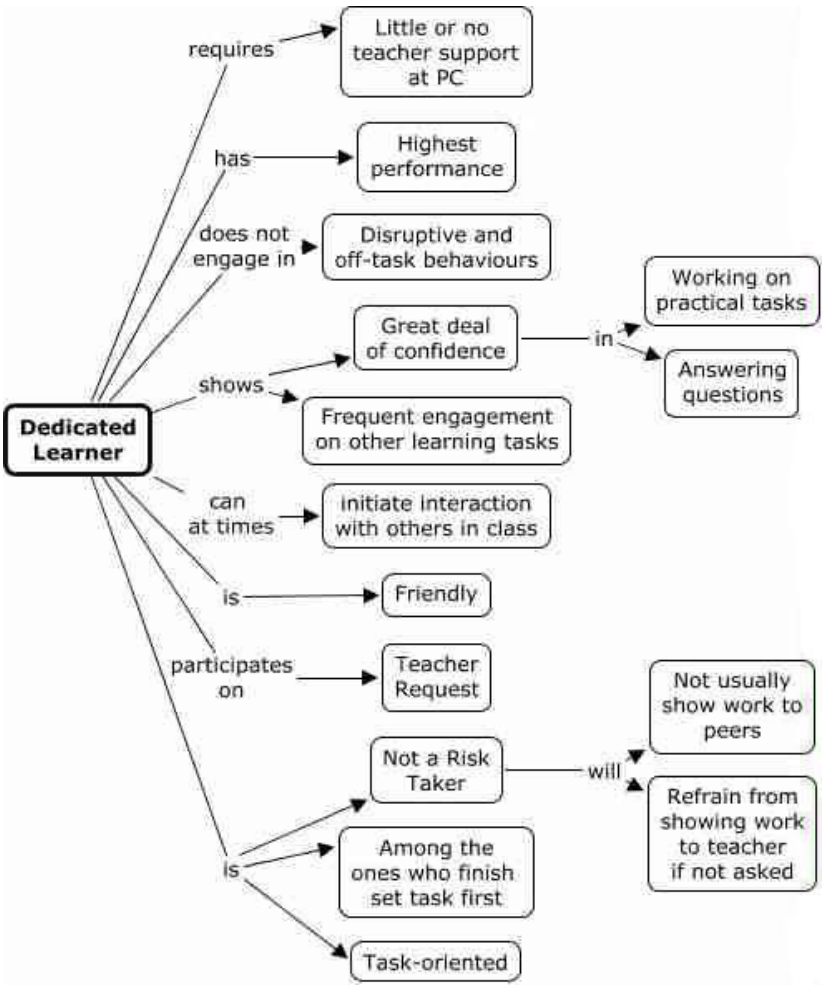

Figure II: The dedicated learner

Dedicated learners have been identified in the high performing school, Sugar Valley River Primary School. Figure II gives a graphical representation of the characteristics for this category of learners. These learners show more dedication and commitment than any other pupils towards learning ICT in the class. When tasks are set, they start immediately and do not stop until they are done. They display high task-orientedness both in theory and practicals. They are highly motivated pupils who seem to give a lot of importance to excellence. Excellence is reflected in the quality of their work and in the marks they score in

exams. They are actually the highest performing pupils with the highest marks in the class. They require very little support from the teacher and gradually become more autonomous as they gain confidence. They tend to display a high level of self-confidence in answering theory and practicals questions. However, they do not like to take risks in volunteering to answer questions or showing their work unless this is followed by something they desire such as working at the PC. Also, they are usually among the first ones to finish set tasks.

Dedicated learners behave well in the class and do not usually engage in any kind of misbehaviour though they can be seen at times to talk and joke with their friends. They are friendly with most pupils and are easily befriended. They rarely initiate interactions with their teachers during class discussion, explanation or correction of exercises unless requested by the teacher. They are not necessarily timid but they prefer to keep silent in the class. They also keep to themselves and refrain from showing their work to their peers or teacher unless requested. However in the school with limited computers, they have been observed to rush to the teacher with their copybooks for correction if they are allowed to work at the PC while the teacher corrects. If there are no practicals, they prefer to keep their work to themselves and not to show it to anyone unless the teacher asks for it. Furthermore, these pupils usually engage in other learning tasks when they have finished with the class work set by the teacher. They rarely remain idle. They rather use the remaining time to study either ICT or other subjects. Dedicated learners are somewhat participative in class but they are highly task-oriented and well-behaved pupils with the highest performance.

4.2.2 The withdrawn learner

As shown in Figure III, withdrawn learners prefer to sit aloof, isolated from the others with no apparent desire to sit next to someone. They are in fact the least participative in the class and they do not show much motivation towards learning. They take little or no initiative to engage in any kind of interaction with the teacher or their peers. They are rarely task-oriented and never seem to engage in any additional learning tasks. They do attempt, though timidly, to participate in class discussion when requested by the teacher. They often wear a gloomy and dejected face and at times show no emotion. They usually speak softly and in low voice. However, they can also display short episodes of joy but this is usually done through a brief and timid smile. They seem to enjoy working at the PC. This can be explained by the ease

with which they can perform practical tasks as opposed to theory tasks and by the fact that the PC does not show contempt for them.

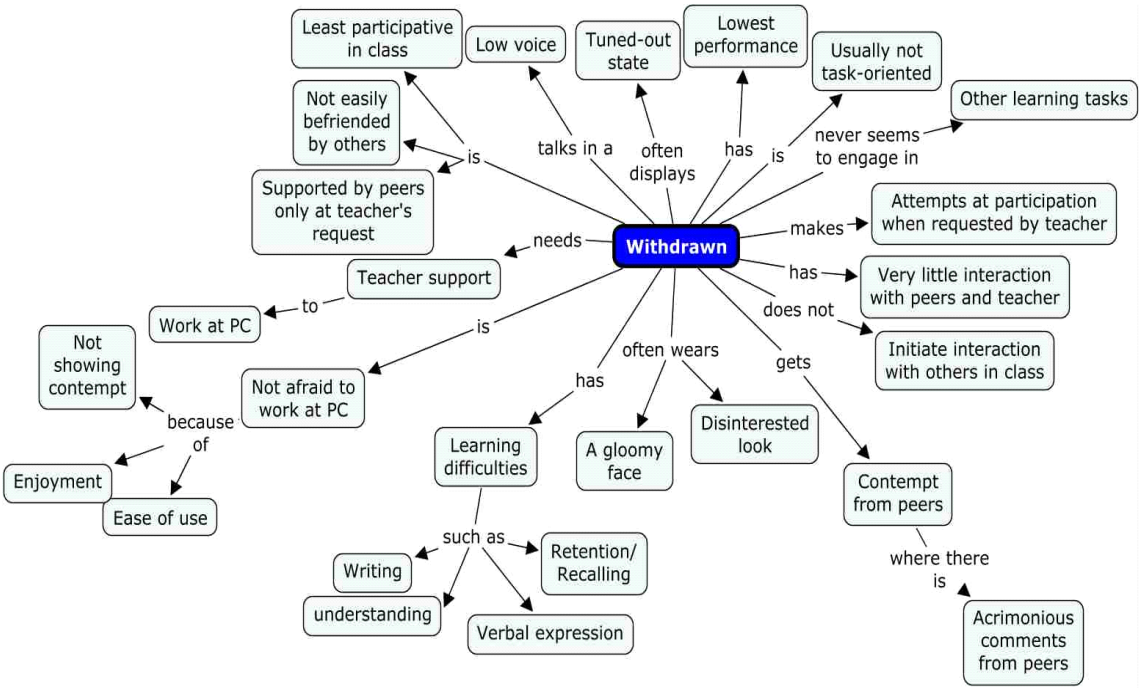

Figure III: The withdrawn learner

The withdrawn learners have short attention span and can be often seen to oscillate between the states of being tuned-in and tuned out while staying mostly in the latter state. Their performance in class tasks is poor as are their results in exams. They are usually of low ability and may even find themselves among the lowest performing pupils. They tend to display low self-confidence. They have learning difficulties in reading and writing, in expressing themselves, and in recalling and understanding the subject. As such, they require much teacher support in both theory and practicals. They tend to show a preference for practicals and are able to work at the PC with support from the teacher.

Moreover, pupils do not particularly like withdrawn learners and they prefer to stay away from such learners and refrain from socialising with them. However, when interaction occurs between them, it is accompanied by derision and mockery towards the withdrawns. The latter attract contempt from their peers who do not hesitate to pass acrimonious and belittling comments. They are outcasts in their own class and thus they prefer staying aloof. However, upon teacher's requests, pupils do provide the withdrawns with support in their learning.

Factors such as lack of interaction, participation, low self-confidence and poor performance combine together in complex ways to reinforce their withdrawal from the rest of the class.

4.2.3 The enthusiast

As shown in Figure IV, enthusiasts are the most participative in the class and are usually not afraid to express themselves. They are very expressive as they readily contribute to class discussion or oral explanations even when not requested by the teacher. They make suggestions by saying what can be done with a particular type of software, by suggesting ideas to the teacher during practicals, by repeating explanations along with the teacher, or by being the first to participate before others. It is common to see them addressing the teacher on ICT-specific issues without first raising their hands as is the rule in the class. They do not hesitate to ask for clarifications on certain tasks or to answer questions even if the answers are not correct. Moreover, they are among the first ones to volunteer to show their work to their teacher, thus qualifying them as risk-takers. They also initiate interaction with others in class and increase the degree of class participation.

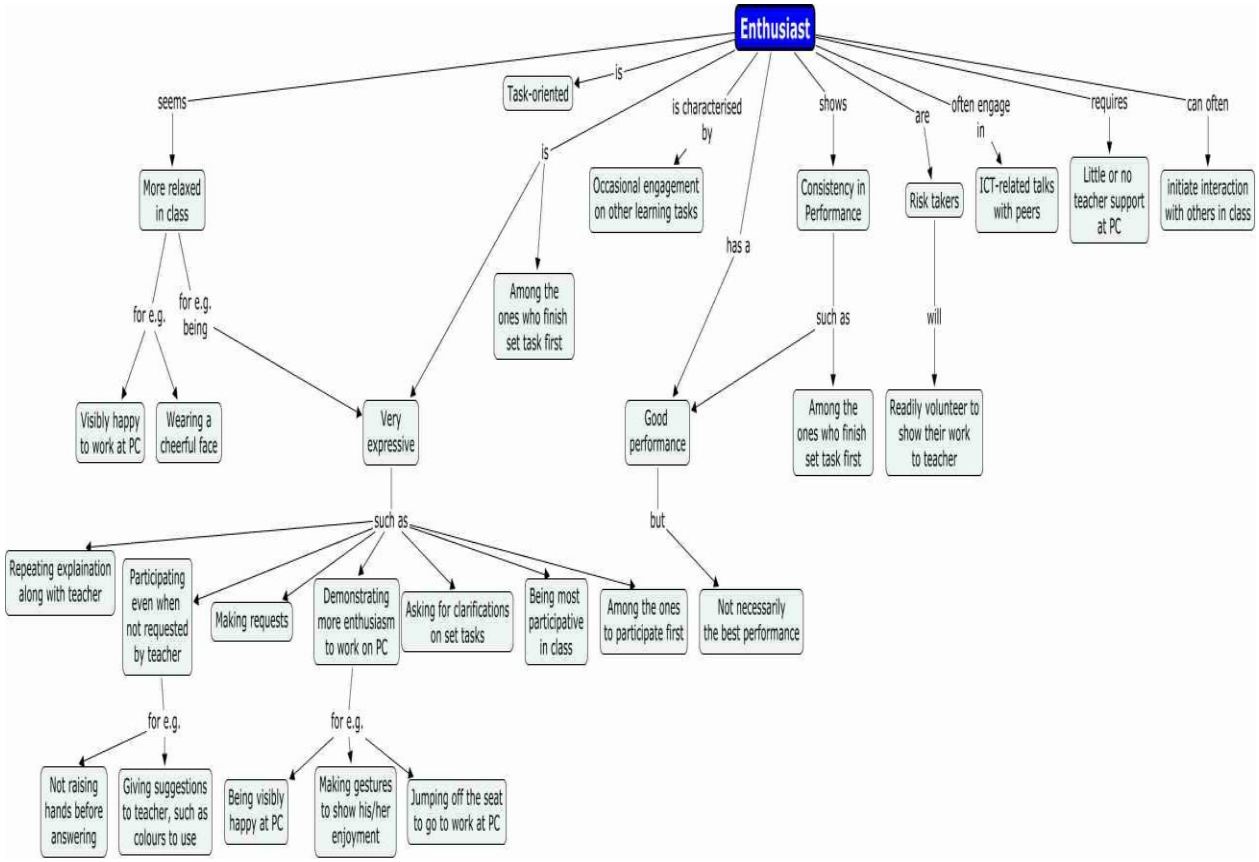

Figure IV: The enthusiast

Enthusiasts are visibly very pleased to be in the class as shown by their happy and smiling faces when working on class activities. They also look very relaxed. Furthermore, they display high levels of on-task behaviours and are seen to work diligently on set tasks. They work at the PC with little or no support from the teacher. They are thus classified as being task-oriented and are among the first ones to finish any class work. They get along well with most pupils and they can interact with anyone in the class. They tend to perform well in most tasks and score good marks, not necessarily the highest marks in the class. Their performance is consistent, as they always tend to perform well in ICT tasks and assessment.

Enthusiasts are usually very passionate about what they say and do in the class and they display their enthusiasm through their actions and engagement on tasks. Similar to dedicated learners, they study other subjects within the ICT period especially when they have finished their class work. Additionally they tend to engage in ICT-related talks with their peers. These learners are usually small in their numbers in a class but have been found in all the four schools.

4.2.4 The disturber

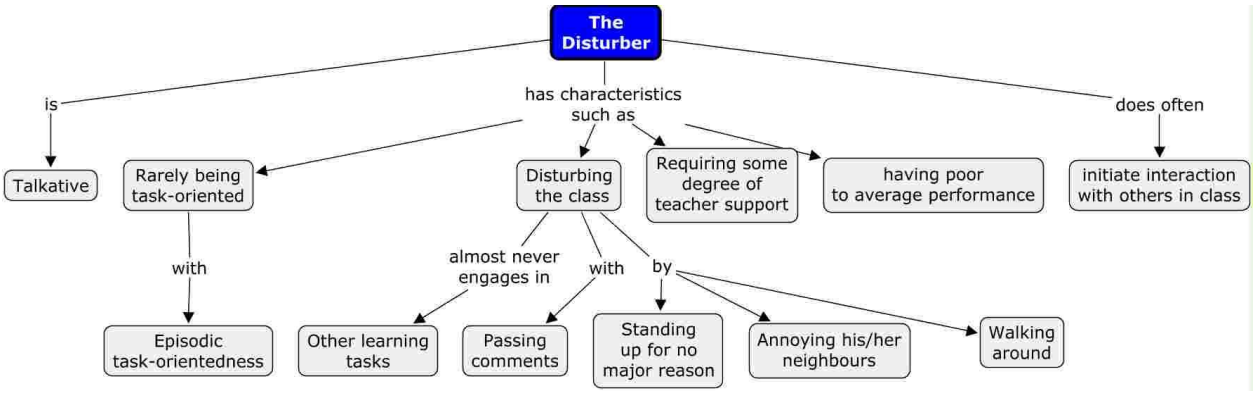

Figure V: The disturber

Disturbers have been identified in two schools, at the low performing Arsenal Bravehearts Primary School and at the high performing Sugar Valley River Primary School. Figure V is a graphical representation of this category of learner. Disturbers have the desire to make their presence felt and they do so through misbehaviour. They have the urge to disturb the normal running of the class by engaging in a number of off-task and disruptive behaviours such as making comments about something their peers are doing, or standing up for no particular

reason, walking around the class aimlessly, and annoying mostly those classmates who are sitting in close neighbourhood. They usually prefer performing tasks other than those set by the teacher or those related to learning the school subject. They can also be found to hit their classmates and to be talkative. Oftentimes, their disruptive monologue has no relation to the subject being studied. Moreover, they may talk to anyone without necessarily being listened to. They talk for the sake of talking even if no one is listening. In effect, they break all class rules and they behave in ways that please them.

Disturbers are more oriented towards off-task behaviours but on rare occasions they can be seen to be task-oriented and to be silently working towards task completion. These rare moments of task-orientation are not enough to improve their performance which fluctuates between low and average most of the time. However, they can show great desire to work at the PC. There, they can be seen to show task engagement while they perform the practicals tasks. They like practicals similar to other categories of pupils.

Disturbers tend to rely on teacher support to complete class activities, be it theory or practicals and their peers rarely help them. Pupils do not like to help them or interact with them and the latter rarely initiates any purposeful interaction with them or the teacher, albeit disturbing them. Disturbers do not share a good relationship with their peers. They do not have many friends, as few pupils want to befriend them. They are considered a disturbance by their peers who oftentimes report their misbehaviours to the teacher.

Discussion

The five types of learners exist in the class in different proportions with the silent learners outnumbering the rest and withdrawns being the minority. While the enthusiasts, dedicated learners and the disturbers may exist in any proportion, withdrawns are usually the least in numbers. Moreover, a class need not contain all five categories. For example a class may not contain any withdrawns or dedicated learners at all. However, silent learners are common to all classes. All the classes observed in this study have silent learners but not all of them have withdrawns, disturbers, or dedicated learners. Therefore, a class contains silent learners along with a combination of learners from the remaining four categories.

Although certain pupils may choose to adopt specific roles and classroom behaviours according to their perceptions of their teachers (Davis, 1972), pupils' behaviours tend to show a degree of stability because pupils in each category behave in more or less similar fashion over time and in the presence of the ICT teachers in the classrooms. However, in other subject areas, the teachers are quick to discourage and reprimand to a considerable extent any undesirable classroom behaviours and pupils are compelled to disengage from misbehaviours. As such, it can be said that pupils' roles and behaviours are categories as these are stable over time and subject area (Veldman & Worsham, 1983) even though in the latter case teachers with good classroom authority will manage to maintain disciple and discourage off-tasks behaviours whereas classrooms with shaky teacher authority will allow more opportunities to pupils to adopt their most preferred roles.

Teacher authority has been found to be an important element in the learning environment that influences the manifestation of disruptive behaviours. The ICT teachers at Sugar Valley River Primary School have been unsuccessful in maintaining order and discipline, as well as in establishing their authority from the outset, and they have allowed their pupils to become disruptive and noisy because they have been inconsistent in their effort to discourage such behaviours. During classroom observations, they have been seen to give up and ignore disruptive behaviours on many occasions as no one is bothered to listen and pay attention to them. Their shaky teacher authority has led the pupils to behave as they please. However, the General Purpose teachers, that is those who teach subjects other than ICT, who are in charge of these classes reported that they use a stick to administer a light tap as a form of admonishment for misbehaviours, something that the ICT teachers refrain from doing because they feel that corporal punishment is not authorised.

On the other hand, ICT teachers in other schools reported practising the same form of punishment as the GP teachers do in Sugar Valley Primary School. They also admonish pupils for any off-task or disruptive behaviours in a consistent manner and refrain from ignoring such behaviours. They do not shout at the pupils but rather they use a stern voice which conveys strictness and authority. They stated that such behaviours on their part discourage pupils from being disruptive and off-task. During classroom visits, their classes have been found to be less noisy and more disciplined than in Sugar Valley River Primary School. These teachers are firmly in charge of their class and display more confidence in their ability to lead the pupils.

The relevance of ICT tasks as perceived by the pupils is another crucial factor that influences their classroom behaviour. Tasks that are perceived as boring or difficult are not attractive to the pupils. For example, they can write teacher-set questions onto their copybook without necessarily attempting them. They write the answers to those questions that they can solve while pretending to work on the other questions that they cannot solve. When the teacher passes by, they give the impression that they are working hard but once he or she leaves, they stop working. When faking their task engagement, they bend their heads almost reaching their copybook giving the impression that they are about to write something. At other times, their heads are up and they are either looking around or talking to their neighbours in very low voice. Therefore, pupils fake their engagement in tasks they do not like or are difficult for them to answer. In other words, while most pupils are seemingly oriented towards task completion, some of them may be actually faking such orientedness. In such situations, there is a low degree of task orientation on the part of pupils and more opportunities for them to indulge in off-task and disruptive behaviours. This can degenerate into a noisy class and remain so in the absence of adequate teacher authority. Teacher authority becomes very important in maintaining discipline and getting pupils back on task. Faked engagement is prevalent among the silent learners. Enthusiasts and dedicated learners very rarely indulge in such behaviours and the withdrawn learners seldom fake, as their lack of orientedness is regularly visible.

The nature of the ICT tasks acts as a catalyst in the manifestation of behaviours relevant to each category of learners. It seems that these behaviours are amenable to changes depending on the qualities of the learning environment so that ICT tasks which are perceived as being personally relevant to the learners, enjoyable and of manageable content difficulty are likely to inhibit off-task behaviour and encourage on-task ones. Therefore teachers are called upon to rethink the tasks that they set for learners. Tasks that are perceived in a positive light as being relevance, enjoyable and as procuring satisfaction are more likely to instil positive learner behaviours. Moreover, a positive teacher image and peer support may help in promoting on-task behaviours and class participation.

As expected, students displayed behaviours that are common across different contexts. There are considerable similarities in the behaviours of Mauritian pupils and of those in other countries (Thelen, 1967; Volpe, DiPerna, Hintze, & Shapiro, 2005). However, the contextual difference that is present in the study being reported lies in the fact that pupils' behaviours

within ill-resourced as well as adequately resourced ICT classrooms have been the focus involving schools which have experienced the entry of a totally new subject and novice ICT teachers. The fact that pupils' behaviours are likely to be somewhat different depending on the subject matter being learnt, the degree of relevance that pupils perceive of the subject and enjoyment that they get in engaging in ICT tasks, their performance in the ICT tasks, and the variation of strength of teacher authority, this study packages its own punch which renders it different from other studies.

Conclusion

A study of the ICT learning environment in Mauritius has identified five categories of learners- silent, dedicated, withdrawn, enthusiast and disturber. The silent learners seem to make bulk of the classroom while withdrawns are in minority and they can even totally absent from a classroom. In general, most pupils like and behave well towards each other except with disturbers and withdrawn learners. Most of them do not misbehave with their friends. On the contrary, they help and are helped by others. When they do not understand something being taught in the class, they ask their friends. Moreover, they tend to give more help to those with whom they have a closer tie.

Pupils tend to show more task-orientednes and on-task behaviours when they see an incentive value in performing a task. Genuine task-orientation is more likely to occur when there is a high probability for pupils to achieve an outcome that they desire within a specified period of time. Tasks with low incentive value or of high difficulty are more likely to attract fake task engagement and in the absence of effective teacher authority, this may engender indiscipline and off-task behaviours on the part of pupils.

The implications of the findings of this study are manifold. Firstly teachers should strive to maintain a firm authority in the classroom and be consistent in this role. Moreover, teachers should implement a classroom environment that addresses the affective and cognitive needs of each category of learners. Furthermore, teachers are recommended to establish mechanisms that effectively suppress misbehaviour and off-task behaviours while encouraging on-task behaviours. Decision makers may use these findings to design appropriate professional courses for teachers as well as developing instructional materials and teachers' guides tailored for the needs of individual learners. More research can be carried

out in Mauritius at all levels of education and across subject areas to investigate the presence of these categories of learners and the identification of other categories. Such research will contribute towards increasing our understanding of the Mauritian child and modelling learning environments that will help him or her in their learning.

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