



Divine Word University Education Research Journal

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Contains selected papers from the 2018 Faculty of Education Research Symposium

Articles

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Editorial comment

The Faculty of Education of Divine Word University (DWU) is again honoured in presenting this second edition of a DWU Education Research Journal. It contains a selection of papers from the Faculty's second research symposium, which was held at the Madang campus on the 12th October 2018. Readers can access the articles on the Faculty page of the University's web site, www.dwu.ac.pg. Producing this journal is part of the Faculty's operational plan to encourage academic and students to participate in research, research presentations and publications. The organisation of the annual FEd research symposium and the collation of papers to be published owe a lot to the enthusiasm of current academic staff and students enthusiasm to present and publish research papers with encouragement and support under the leadership of Associate Professor Patricia Paraide, who is the Faculty of Education Research Coordinator. This publication also owes much to Mr David Lloyd for his willing editorial support. It also owes much to Professor Pamela Norman for her tireless willingness of support in terms of content editing, formatting of the journal and her great enthusiasm in supporting the creation of this journal.

For external readers, it needs to be pointed out that most of the DWU Faculty of Education staff and students are located at primary teacher education institutions on campuses in Rabaul, Wewak and Mount Hagen with very few staff and students located on the main university campus in Madang (see those locations on Figure 1). High air travel costs can be a deterrent for potential symposium participants outside of Madang. Despite this challenge, the Faculty of Education was able to hold its second research symposium in 2018 with an increased number of paper presentations. This owed much to the support from the two vice presidents from the Wewak and Rabaul campuses and funding support from other participants' organisations.



Figure: Map of PNG

Of the papers presented in this edition of the journal, one is from the three lecturers who travelled to Madang from the OLSH Kabaleo Campus in Rabaul, one from a past Flexible Learning student who now works for a church organisation and the other five are from students who were on the Madang campus at the time, studying in the one-year full-time Master of Educational Leadership program. The papers cover a range of topics for contemporary educational issues in Papua New Guinea. It is hoped that readers find the range of articles both interesting and informative.

The Education Research Symposium in 2019 is scheduled for Friday 11th October, and in 2020 it will take place on Friday 10th October. If you are interested in attending or participating in a DWU Faculty of Education Research Symposium, please contact Associate Professor Patricia Paraide, email address pparaide@dwu.ac.pg.

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Application of professional learning communities in Papua New Guinea learning institutions

Apelis Benson

Abstract

Professional learning communities (PLC) is a concept that promotes ongoing professional learning amongst teachers to keep them abreast with the latest educational changes both in curriculum and educational pedagogies. This paper is based on a research study taken to explore effective characteristics of professional learning communities (PLC), the strategies used to establish PLC, and the benefits it has on teachers' teaching practices. Creating and implementing professional learning communities in schools plays a key role in improving students' learning. The concept of professional learning communities is also known as professional development. The literature indicates that professional learning communities produce positive outcomes for both staff and students. For staff, being part of a professional learning community reduces teacher isolation, increases commitment to the mission and goals of the school, creates shared responsibility for the total development of students, creates powerful learning that defines good teaching and classroom practice, and enhances understanding of course content and teacher roles. This study found that well-developed PLCs can have a positive impact on both teaching practice and student achievement. Participants' suggestions to strengthen professional learning communities are also presented in this paper.

Keywords: professional learning communities, professional development, teaching practice, student achievement, learning communities

Introduction

Professional learning communities (PLC) is a concept that promotes ongoing professional learning amongst teachers to keep them abreast with the latest educational changes both in curriculum and educational pedagogies. Application of professional learning communities in schools play a key role in improving students' learning. The concept of professional learning communities is also called professional development in other literature. The concept of creating and applying professional learning communities has been discussed in many literature sources. For example, Vescio, Ross, Adams (2008) described this as a new paradigm shift that is gaining momentum with regard to professional development of teachers. Furthermore, Guskey (2003) when analysing different characteristics of effective professional development programs, stated that one of the common reasons for conducting professional development program is for the enhancement of teachers' content and pedagogical knowledge. As a system the need to develop the culture of ongoing learning and reflection is a step forward to promoting quality education. Darling-Hammond and McLaughlin (1995) stated that "The vision of practice that underlies the nation's reform agenda requires most teachers to rethink their own practice, to construct new classroom roles and expectations about student outcomes, and to teach in ways they have never taught before". They further stated that helping teachers rethink practice necessitates professional development that involves teachers in the dual capacities of both teaching and learning and creates new visions of what, when, and how teachers should learn. This most recent model of professional development ultimately requires a fundamental change in the institutional structures that have governed schooling, as it has traditionally existed.

Literature review

Professional learning communities are studied and presented in relevant literature in many different ways. Therefore, at the centre of this finding is the understanding that a professional learning community is an effective approach to developing a "community" of teachers who are willing to improve the current standard of teaching practices. The literature review will discuss the characteristics of PLC's, strategies used in implementing PLC's and the benefits of PLC's on teachers' teaching practice.

Characteristics of effective professional learning community

Professional learning communities, as described in the literature, appear to share four key characteristics: shared values and vision, collective responsibility, reflective professional inquiry and collaboration. Having a shared vision and sense of purpose has been found to be centrally important to PLC (Andrews and Lewis, 2004). In particular, there is "an undeviating focus" on all students' learning (Hord, 1997) because individual autonomy is

seen as potentially reducing teacher efficacy when teachers cannot count on colleagues to reinforce objectives. Newmann and Welhage (1995); Louis, Kruse and Associates (1995) suggest that a shared value base provides a framework for shared, collective, ethical decision making.

There is general agreement in the literature that members of a professional learning community consistently take collective responsibility for student learning (King and Newmann, 2001; Leithwood and Louis, 1998; Kruse et al, 1995). It is assumed that such collective responsibility helps to sustain commitment, puts peer pressure and accountability on those who do not do their fair share, and eases isolation (Newmann and Welhage, 1995). This includes: 'reflective dialogue' (Kruse, Louis, & Bryk 1995), conversations about serious educational issues or problems involving the application of new knowledge in a sustained manner. According to Hord (2004), there should be frequent examining of teachers' practice, through lesson observations and case analysis, joint planning and curriculum development and the seeking of new knowledge. Such knowledge that is constantly converted into shared knowledge through interaction (Fullan, 2001); and applying new ideas and information to problem solving and developing solutions that address pupils' needs (Hord, 2004). Reflective professional inquiry is necessary in the process of developing PLC programs for schools. In my experience, such practice seems a long way off in PNG schools. For many schools where I have worked, such "reflective dialogue" is absent hence support for teachers is minimal and generally not specific to teaching and learning needs.

Strategies used to implement current professional learning communities

Creating and applying professional learning communities depend on working on a number of processes inside and outside schools. These are; focusing on learning processes; making the best of human and social resources; managing structural resources; and interacting with and drawing on external agents. A professional learning community cannot be built solely through providing professional development opportunities for staff. It should be pointed out here that, if the community is to be intellectually vigorous, then members need a solid basis of expert knowledge and skills. Therefore, as Bolam & McMahon (2004) stated, there needs to be a strong emphasis on the development of teachers by increasing content knowledge. This means that the focus of the PLC program must be on teachers' learning of content and skills. Programs developed from reflective and collaborative evaluations should be aimed at promoting ongoing learning amongst teachers and should seek expert support to strengthen the learning not only from inside the school but outside as well.

It is difficult to see how a professional learning community could develop in a school without the active support of leadership at all levels. Leadership is therefore an important resource for professional learning communities, both in terms of head teacher/principal commitment and shared leadership (Mulford & Silins, 2003). Leadership of professional learning communities includes creating among teachers a culture that is conducive to learning; ensuring learning for teachers at all levels; promoting and modelling enquiry; and, throughout this process, paying attention to the human side of change.

Creating and implementing professional learning communities is a human effort and the literature suggests that making effective use of human and social resources is a key dimension. Working together productively in schools depends on positive relationships and collegiality (Kruse, Louis, & Bryk, 1995). However, engaging in learning can be a risky business, especially if working with one's colleagues. Teachers may be reluctant to participate in activities such as classroom observation and feedback, mentoring partnerships, discussion about pedagogical issues, curriculum innovation, unless they are confident that it will be worthwhile and safe to do this.

Schools are bound by structures shaping their capacity to create and implement a professional learning community (Kruse, Louis, & Bryk 1995). Evidence of teachers' talk and exchange about professional issues is a key indicator of a learning community and to facilitate this, the research suggests that the school needs to be organised to allow time for teachers and other staff to meet and talk on a very regular basis (Kruse, Louis, & Bryk 1995). Time allocation to various school programs is also critical for learning. This does not only mean timetabling and being able to cover teachers who attend external training but how schools plan and organise their timetables such that learning can occur within the school, whether it is in classrooms, the staffroom, staff meetings or elsewhere. As discussed, these strategies, when applied well in creating and implementing PLC programs in schools, have the potential to improve teachers' teaching practices.

The benefits of participating in professional learning communities

There are many benefits that teachers can gain from actively engaging in professional learning communities. Hord, (1997) identifies the benefits in engaging in PLC as reducing teacher's isolation, increasing commitment

to the mission and goals of the school, creating shared responsibility for the learning of students, creating powerful learning that will bring about good classroom teaching practice, and enhancing teachers understanding of curriculum content and their roles. This can further enhance the morale of the teachers to improve their teaching practice and will reduce teacher absenteeism. Little (2003) also states that research has come together from different standpoints and claims that a professional learning community is an important contributor to instructional improvement and school reform. Louis & Marks (1998) also found that in schools where there is a genuine sense of community there was an increased sense of work efficacy, which led to increased classroom motivation and work satisfaction, and greater collective responsibility for students' learning.

Methodology

This case study used a mixed methods approach to collect data on how a professional learning community approach could help improve teachers' teaching practices in PNG schools. A questionnaire survey (quantitative) and structured interviews (qualitative) were conducted. The mixed methods approach (questionnaire, interviews,) provided the data that will either confirm or further refine the gaps identified in the literature review. In discussing mixed methods, Creswell (2011) states that there are a range of possible benefits that well-designed mixed methods can have on research.

The case study used purposive sampling to select the participants and research site. A questionnaire survey was given to fifteen teachers to complete whilst a structured interview was conducted with three school leaders (principal, deputy and staff professional development coordinator)

This study was guided by the social constructivism theory which explains that individuals learn through interactions with others in a social context. The social constructivism theory emphasises the notion that social interaction influences cognitive development, and that language plays a major role in cognitive development (Vygotsky, 1962, Piaget, 1976). Vygotsky (1962) and Crotty (1998) are also of the view that people generally construct knowledge and master various skills through social and other interactions, such as during their everyday activities and special occasions. The social constructivist theory supports the standpoint that effective application of PLC requires a collaborative approach to develop an ongoing learning culture in our learning institutions.

Discussion of findings

As discussed by Vescio, Ross and Adams (2008), schools need to understand that professional development is about teachers' learning, learning how to learn, and transforming knowledge into practice for the benefit of their students' growth. Birman, Desimone, Porter and Garet (2011) further state that, although teacher professional learning is a complex process, it requires understanding and willingness of teachers to initiate the learning process. Such learning processes may be taken individually and/or collectively as a community of learners. The findings of this case study are analysed into the three themes; characteristics of PLC, strategies used to implement PLC and benefits of current PLC in the school.

Characteristics of effective professional learning communities (PLC)

In order to understand more about the concept of professional learning community, teachers were asked to agree or disagree whether they were actively seeking new ideas through the school professional development activities, collecting and analysing data from assessments, and using data for teaching and sharing ideas from the PLC programs. The responses were translated into Figure 1 as the characteristics of effective PLC in the school.

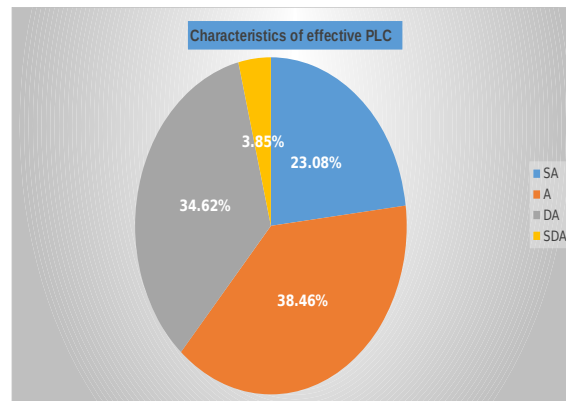


Figure 1: Characteristics of effective PLC

The quantitative data in figure 1 shows the teachers' responses. The data shows that 23% of the teachers strongly agreed (SA) that there was evidence of effective implementation of PLC together with 38% who further agreed (A) that there was evidence of PLC applied in school. To support what teachers meant when asked about the characteristics of effective professional development at school, graphs 2, 3 and 4 further provide the characteristics of effective PLC in the school to highlight that the teachers seek new ideas, use data to inform teaching and share ideas for new teaching strategies.

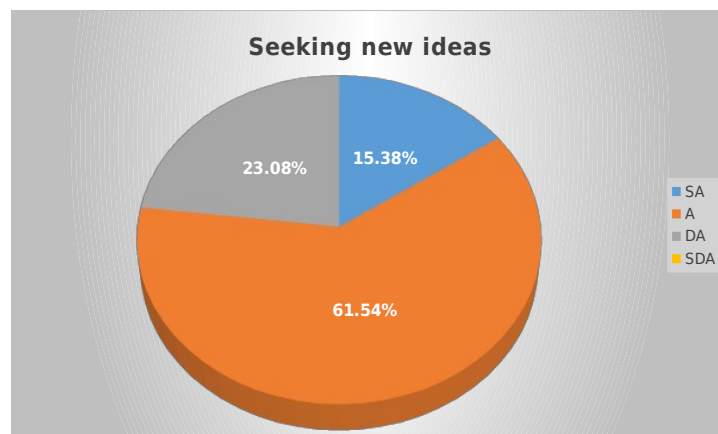


Figure 2: seeking new ideas through PLC

Figure 2 shows that 62% of teachers agreed that one of the characteristics of an effective PLC program is that it provided an opportunity for teachers to seek new ideas from others. As teachers interacted with each other, learning took place. This finding supports the social constructivism theory that emphasises the notion that social interaction influences cognitive development, and that language plays a major role in cognitive development (Vygotsky, 1962, Piaget, 1976). The findings also support Vygotsky (1962) and Crotty (1998) when they said that people generally construct knowledge and master various skills through social and other interactions, such as during their everyday activities and special occasions. The social constructivist theory supports the standpoint that effective application of PLC requires a collaborative approach to develop an ongoing learning culture in our learning institutions. A further 15% of the teachers supported this claim.

According to Buysse, Sparkman, & Wesley, (2003) it is assumed that knowledge is situated in the day-to-day lived experiences of teachers and best understood through critical reflection with others who share the same experience. This implies that when teachers engage in an ongoing culture of learning, teachers learn from each other and thus improve their teaching practices. As teachers reflect on their teaching practices and share their experiences with others, they develop a strong professional community, which will have a great impact in developing a sense of collective responsibility for the students' learning. (Buysse, Sparkman, & Wesley, 2003). As stated by one of the teachers;

Teacher 3

To be a good school we need to have termly in-services or have a sectoral in-service fortnightly. It will make us want to learn and give us confidence in teaching our children.

The remark indicates that teachers see that PLC is a positive step to building new knowledge through collegiality in learning. This finding supports Louis and Marks (1995), who state that through attendance of PLC teachers are able to apply new knowledge in a sustained manner and applying new ideas and information to problem solving and developing solutions that address pupils' needs. It is concluded from the data that teachers gained new ideas through PLC attendance hence applied that in their teaching practices. The teachers also agreed that PLC also provided the opportunity to share different and new teaching strategies

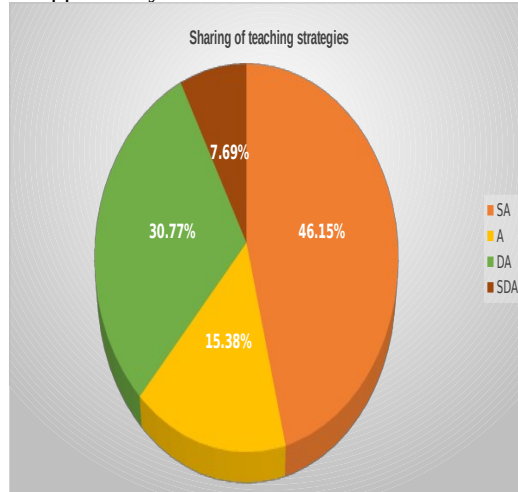


Figure 3: Sharing new teaching strategies

As the data in figure 3 shows, 46% of the teachers strongly agreed that PLC also provided an opportunity for teachers to share and learn new teaching strategies from each other. A further 15% of the teachers supported the claim that PLC allowed them to learn and share new teaching strategies from others. Increasing research evidence shows that professional teachers will become more effective in supporting their students' learning when working collaboratively with their colleagues to improve their practices (Louis, Marks 1998). As shown in the data teachers' value the ongoing learning approach through PLC as it provides them the platform to improve their teaching practices and become competent in their teaching career.

The data also shows that teachers are using data on students learning to inform their planning of teaching programs. This is shown in graph 4.

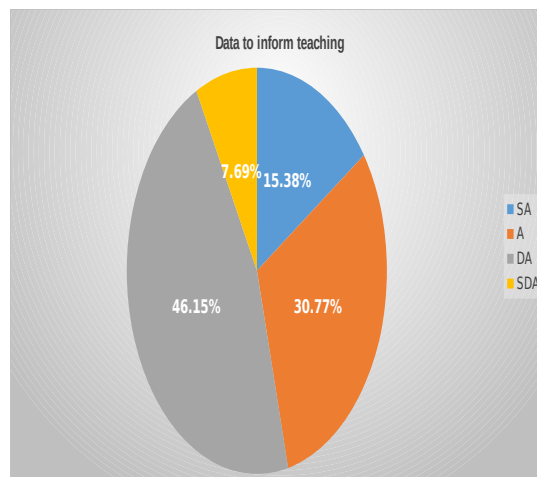


Figure 4: Data to inform teaching

The data in figure 4 shows that 15% of the teachers strongly agree, and a further 31% agree that through effective PLC teachers were able to apply data about students learning in their teaching and learning programs. This finding supports Louis and Marks (1995), stating that through attendance of PLC, teachers are able to apply new knowledge in a sustained manner. This sustained manner of PLC application in school promotes an ongoing learning culture that will further improve teachers' teaching practices. This ongoing learning culture is well supported through shared leadership. According to Mulford & Silins, (2003) leadership is therefore an important resource for professional learning communities for effectively application in schools. For schools to develop an "ongoing" learning culture. Mulford and Silins (2003) emphasised that head teacher/principal must have commitment and shared leadership. Shared leadership and commitment will ensure PLC provides an

avenue for teachers to seek new ideas, learn how to gather and interpret data and share new learnt skills and knowledge that will contribute to improved teaching practices.

Effective strategies used to implement PLC

In order to understand more about the application of PLC at school, teachers were asked to either agree or disagree if there were effective strategies used in PLC and what were these strategies. The responses shown in graph 5 indicates the level of agreement and disagreement to application of effective strategies used to implement PLC.

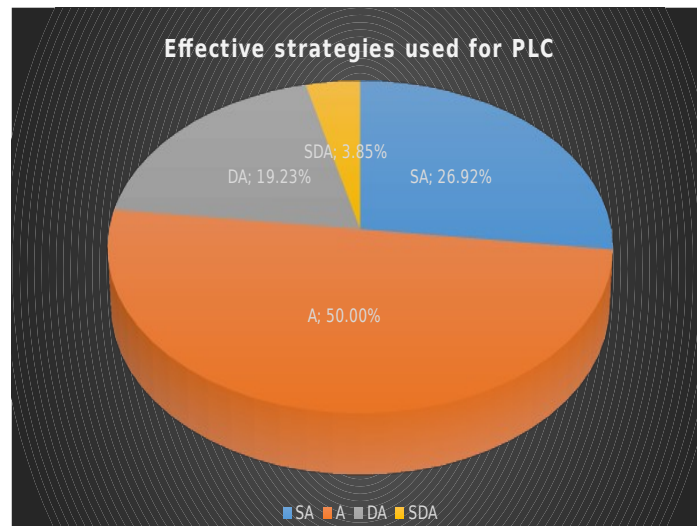


Figure 5: Responses to application of effective strategies used to implement PLC

The quantitative data in figure 5 shows that 27% strongly agree and a further 50% agreed that there were effective strategies used in PLC programs at the school. These teachers indicated that they were supported with needed resources and school leaders communicated information regarding professional development on a regular basis.

However, 23% of teachers either disagreed or strongly disagreed that there were effective strategies used to implement PLC at school. This could suggest there are certain clusters that have not fully benefited from teaching resources or attended organised PLC sessions at school. This excerpt shares some light to that;

Teacher 2

Not very much is done due to the current financial situation the country is facing

Teacher 3

Some ways that the school can support PLC is through regular supply of teaching resources, photocopy of test examinations, worksheets and typing of test papers,also having regular meetings and reminders to teachers about teaching and learning.

Although 23% of the teachers disagreed that there were effective strategies applied in the implementation of PLC at school, Figures 6 and 7 show otherwise.

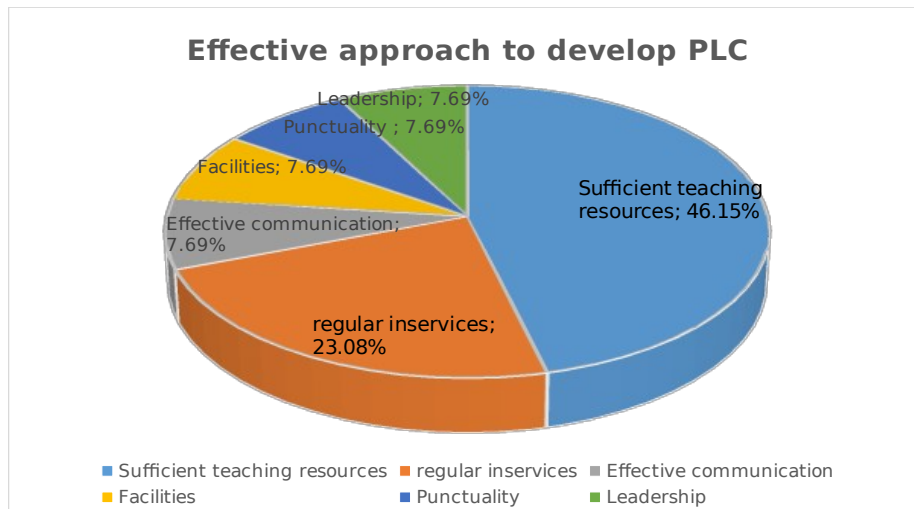


Figure 6: Effective PLC approaches

The data shows that 46% of the teachers said that were sufficient teaching resources to implement PLC effectively at school through regular in-services conducted. The data further shows that regular in-services (23%) were a strategy teachers identified as an effective approach to have an effective PLC at school. Teachers also highlighted communication as vital for the school leaders to communicate in-services programs regularly to them and that punctuality and leadership as equally important. Lewis et al (1995) also found that in schools where there is a genuine sense of community there was an increased sense of work efficacy, which led to increased classroom motivation and work satisfaction, and greater collective responsibility for students' learning. Some teachers even suggested that weekly cluster meeting be held to discuss their teaching plans and grievances. The excerpts below show that teachers' reactions to effective approaches to effective PLC programs.

Teacher 1

Our supervisors aren't providing us feedback on our teaching plans,,it must be done weekly or in a fortnight.

Teacher 5

We are sometimes shocked to hear there will be an in-service conducted by CDD (Curriculum Development Division). No prior information was given, we are always told on the spot

Berry, Johnson, & Montgomery (2005) stated that teachers in one learning community searched for outside ideas to help them solve their teaching dilemmas. This may be one strategy that could help the planning process for PLC at the school whereby the school partners with other training providers to offer relevant training programs for teachers.

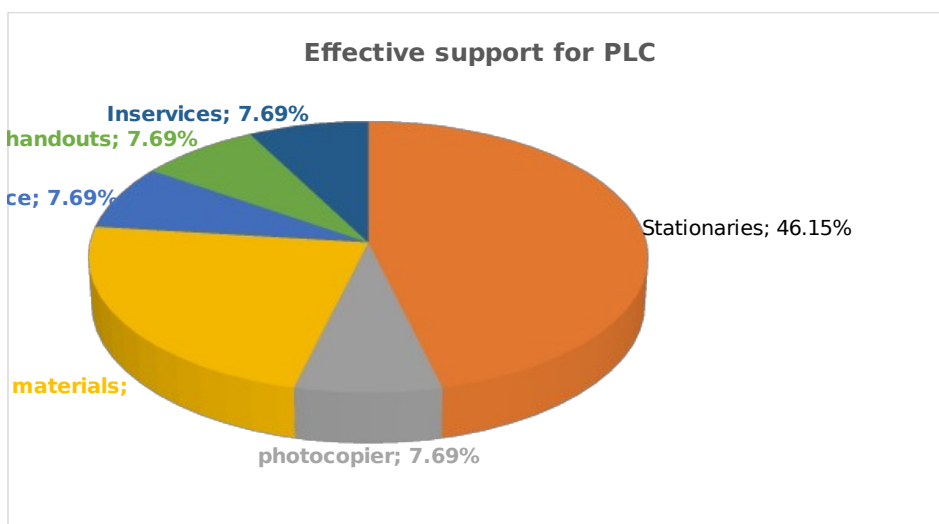


Figure 7: Effective support for PLC

The qualitative data in figure 7 further shows that 46% of the teachers noted that more supply of school stationary was an effective strategy to implement PLC and to motivate them to learn more.

Teacher 1

We want to learn more but the school is not supporting us with funding for resources.....we are told by the government that we'll receive TFF but it's not coming on time. Our in-service programs are not working because no money.

Teacher 2

Not very much is done due to the current financial situation the country is facing

Teacher 3

Some ways that the school can support PLC is through regular supply of teaching resources, photocopy of test examinations, worksheets and typing of test papers,also having regular meetings and reminders to teachers about teaching and learning.

It can be added that through regular supplies of teaching and learning resources together with regular in-services teachers will develop new perspectives of their teaching practices. Powell and Kalina (2009) state that communicative tools and thinking strategies helps teachers to develop individual learning methods such as discovery learning and social interactive activities to develop peer collaboration. This statement supports the idea of that for PLC to be fully effective and learning becomes a culture, teachers needs time and space for nurturing thinking skills, learning methods and other pedagogies relevant to teaching and learning The data also shows that 23% of the teachers agreed that having sufficient materials is an effective strategy to implement PLC. Teachers agreed that sufficient resources helps them to implement what they learn during PLC sessions and make their teaching effective.

Implementing an effective PLC program at school requires a range of approaches and strategies that will develop and sustain the “ongoing” learning culture at the school. These approaches and strategies when applied to a “community of learning” must be well acknowledged and considered so it does not become a hindrance to effective planning and implementing of professional learning communities in schools (Phillips, 2003). As evident in the responses, teachers agreed (46%) that there were effective strategies applied but not consistently. Challenges such as funding, sufficient teaching and learning resources and communication were identified as areas that came together with the strategies for effective PLC application in school.

Benefits of participating in PLC programs

In order to understand more about how professional learning community help improve teaching practices, the teachers were also asked about the benefits of attending PLC at their school. The information is presented in the graphs below. The data in graph 8 shows how teachers responded when asked whether they benefited from PLC programs and figure 9 shows how what benefits teachers receive attending current PLC programs.

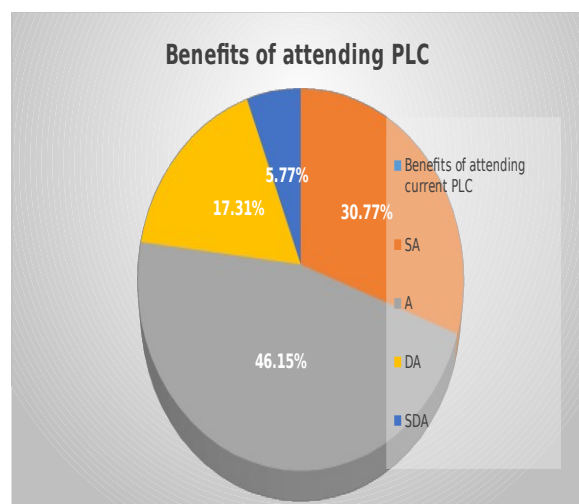


Figure 8: Benefits of attending PLC

The quantitative data in graph 8 above shows that 77% of the teachers strongly agree (SA) and agree (A) that there are noted benefits for teachers after attending PLC at school. Teachers commented that they (teachers) were able to share ideas together either in grade groups or in cluster groups (lower and upper primary). Some teachers even proudly commented that PLC provided them the opportunity to speak in public and to learn from each other new knowledge.

Teacher

Having cluster groups within the school allowed me to learn what is relevant to my students, implement new strategies in teaching

Teacher

I enjoyed teaching the children and learning for myself as well.

Teacher

Sharing ideas, contributing ideas in staff meetings gave me confidence to speak to larger groups

School leader

Some of those teachers who are always shy to talk, after giving them opportunity to lead in-services are coming out now.....am pleased with some of our young teachers.

It is clear from the reactions from teachers that regular well-planned PLC program is beneficial to teachers. Although this study did not explore how effective their teaching is, it can be agreed that PLC is an approach that can improve teachers' teaching practices. As stated by Bolam et al (2005) a PLC approach is a means of promoting school and system-wide capacity building for sustainable improvement and student learning. If PLC is well applied, teachers can see changes in the way they view teaching and learning in schools as show in figure 9.

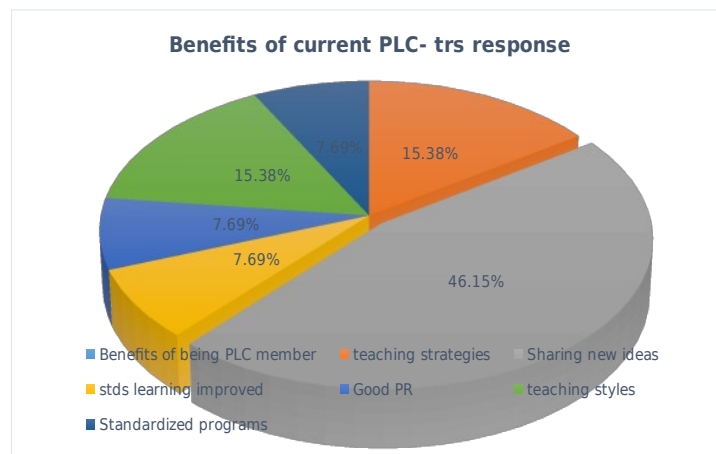


Figure 9: Benefits of current PLC

The qualitative data in figure 9 confirms that idea that PLC is beneficial to teaching practices. As shown in figure 9, 46% of the teachers responded that sharing of new ideas was a common benefit of PLC. The data also shows that learning new strategies, improved teaching practices resulting in students learning improved and developing good public relations (PR) were amongst some of the benefits of attending current PLC at school. Application of PLC at school requires clear understanding of PLC characteristics, the strategies to make PLC effective and a sense of appreciation of the benefits it will have on teachers and their teaching practices. As highlighted in this study, teachers are confident that PLC has a greater potential to improve their teaching practices and their content knowledge of the subjects they are teaching. It will be interesting to explore further what types of strategies and new ideas teachers have benefited from attending current PLC at their school. This could be an area for further study.

Conclusion

PLC has been widely implemented in the United States of America, Australia, Canada, Ireland and the Netherlands (Vescio, Ross and Adams, 2008). The outcome of effective professional learning community approach on teachers' teaching practice and students' learning is encouraging. Schools in Papua New Guinea

may benefit from such programs, as the literature strongly suggest the impact of PLC on teachers and students learning. Similarly, the literature reviewed infers that professional learning can create team spirit among teachers which can enable them to work towards achieving common school goals, as has been reported in other countries. PLC is worth considering for implementation in our school system.

The findings of this study suggested that although teachers agreed that there were effective strategies applied to implement PLC, there were issues of consistency in the supply of teaching resources, stationary and funding. These issues contributed to inconsistencies in the responses to efficiency of PLC application at school. One notable issue is the having a shared vision and leadership as highlighted in the literature review as one of the characteristics of a strong PLC program. There was little mentioned about the shared vision and the researcher assumes that it may be an area that needs focus as well. Teachers were also confident that the strategies and approaches applied to implement PLC at the school were effective. School stationary supplies and teaching materials and regular in-services were among the top strategies and approaches suggested however, it was also noted that there were mixed reactions to those approaches. These mixed reactions ranged from lack of regular in-services although planned, feedback, consistency in the supply of teaching resources and developing a culture of ongoing regular meetings.

On the other hand, teachers strongly agreed that professional learning communities in school have many benefits. These benefits can increase teachers' performances and eventually increase students' learning. Although PLC approach is new in our PNG schools, from the literature cited, creating and implementing professional learning communities in schools is worth pursuing as a means of promoting school and system-wide capacity building for sustainable improvement and students' learning (Bolam et al, 2005). With clear understanding of its benefits and the impact on students' learning, it can be a model to explore and adopt into our schools in PNG. As a way forward for this study a more qualitative study can be taken to document changes in teacher's perceptions of professional learning culture of the school, and also an in-depth case study of changes in teaching practice and student achievement from sample teachers working in PLCs.

References

- Andrews, D., & Lewis, M. (2002). The experience of a professional community: Teachers developing a new image of themselves and their workplace. *Educational Research*, 44(3), 237–254.
- Berry, B., Johnson, D., & Montgomery, D. (2005). The power of teacher leadership [electronic version]. *Educational Leadership*, 62(5), 56.
- Birman, B. F., Desimone, L., Porter, A. C., & Garet, M. S. (2000). Designing professional development that works. *Educational leadership*, 57(8), 28-33.
- Bolam, R., McMahon, A., Stoll, L., Thomas, S., & Wallace, M. (2005). *Creating and sustaining effective professional learning communities*. London, England: General Teaching Council for England, Department for Education and Skills.
- Buyse, V., Sparkman, K. L., & Wesley, P. W. (2003). Communities of practice: connecting what we know with what we do. *Exceptional Children*, 69(3), 263–277. <https://doi.org/10.1177/001440290306900301>
- Creswell, J. W. (2003). *Research design: qualitative, quantitative, and mixed method approaches* (2nd ed). Thousand Oaks, Calif: Sage Publications.
- Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process*. London; Thousand Oaks, Calif: Sage Publications.
- Darling-Hammond, L., & McLaughlin, M. W. (1995b). Policies that support professional development in an era of reform. *Phi Delta Kappan*, 76(8), 597–604.
- Fullan, M. (2001). *The new meaning of educational change* (3rd ed). New York: Teachers College Press.
- Guskey, T. R. (1997). Research needs to link professional development and student learning. *Journal of Staff Development*, 18(2).
- Hord, S. M. (1997). *Professional Learning Communities: Communities of Continuous Inquiry and Improvement*. Austin, Texas: Southwest Educational Development Laboratory.
- King, M. B., & Newmann, F. M. (2001). Building school capacity through professional development: Conceptual and empirical considerations. *International Journal of Educational Management*, 15(2), 86–93.
- Kruse, S. D., Louis, K. S., & Bryk, A. (1995). An emerging framework for analysing school-based professional community. In K. S. Louis, & S. D. Kruse (Eds.), *Professionalism and community: Perspectives on reforming urban schools* (pp. 23–44). Thousand Oaks, CA: Corwin Press.

- Seashore, K. R., & Leithwood, K. (1998). Organizational learning in schools: An introduction. In K. Leithwood, & K. S. Louis (Eds.), *Organizational learning in schools* (pp. 1-16). Lisse, Netherlands: Swets and Zeitlinger.
- Little, J. W. (2003). Inside teacher community: representations of classroom practice. *Teachers College Record*, 105(6), 913–945. <https://doi.org/10.1111/1467-9620.00273>
- Louis, K. S., & Marks, H. M. (1998). Does professional community affect the classroom? Teachers' work and student experiences in restructuring schools. *American Journal of Education*, 106(4), 532-575. <https://doi.org/10.1086/444197>
- Mulford, B., & Silins, H. (2003). Leadership for organizational learning and improved student outcomes – what do we know? *Cambridge Journal of Education*, 33(2), 175–195.
- Newmann, F. M., & Wehlage, G. G. (1995). *Successful school restructuring*. Madison, Wisconsin: Center on Organization and Restructuring of Schools.
- Newmann, F. M., & Associates. (1996). *Authentic achievement: Restructuring schools for intellectual quality*. San Francisco: Jossey-Bass Publishers.
- Phillips, J. (2003). Powerful learning: Creating learning communities in urban school reform. *Journal of Curriculum and Supervision*, 18(3), 240–258.
- Piaget, J. (1976). Piaget's Theory. In B. Inhelder, H. H. Chipman, & C. Zwingmann. (Eds.), *Piaget and his school*. Berlin, Heidelberg: Springer.
- Powell, K. C., & Kalina, C. J. (2009). Cognitive and social constructivism: Developing tools for an effective classroom. *Project Innovation*, 130(2), 241–251.
- Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education*, 24(1), 80–91. <https://doi.org/10.1016/j.tate.2007.01.004>
- Vygotsky, L. (1962). *Thought and language*. (E. Hanfmann & G. Vakar, Eds.). Cambridge: MIT Press. <https://doi.org/10.1037/11193-000>

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Low enrolment of girls at secondary schools in Papua New Guinea

Alex Puki

Abstract

Research shows that girls' enrolment in secondary schools has been persistently low in some areas in Papua New Guinea (PNG). This is especially the case in the Highlands provinces. This paper presents some findings on why girls generally do not enrol in secondary schools in the Highlands region. Mixed methods was used in this study and therefore two questionnaires for students and teachers and a parents' interview was employed to collect data for this research. The purposive sampling was used to select the research site and the research participants which included teachers, students and parents. Twelve teachers and forty students and parents participated in this case study. It was found that both school and out of factors contributed to low enrolment of girls in the research site. Some of the out of school factors that contributed to low enrolment of girls in secondary school are early marriage, families' financial constraints, as many families were subsistence farmers, and security issues as repercussions from tribal fights. The in-school factors were that due to already low enrolment of girls in primary schools, fewer girls were selected from this group to advance to secondary school. Limited female dormitories in boarding schools, poor boarding facilities, overcrowding in classrooms and weak school security systems were other factors. The paper also presents recommendations to address the low enrolment of girls in secondary school.

Keywords: low enrolment, gender disparity, secondary school, highlands region and Papua New Guinea

Introduction

In a world of information and fast advancing into technological era, education is a powerful catalyst which helps a person to cope with and enlightening all faculties to realize one's full potential. Thus, education is not negotiable. According to UNESCO, (2010), the index of a country is her human resources. Human resources are essential to developing countries. In the 2050 vision for Papua New Guinea, the foremost pillar stipulates the essence of developing the human resource of which gender equality is a major component to this pillar. The EFA (Education for All) goal for basic education also sets the target that all children, boys and girls, should acquire basic education without any form of discrimination, may it be gender, language, location, socio-economic status or any other forms of discrimination (UNESCO, 2000). It is also in line with the MDG (Millennium Development Goals) targets of achieving universal basic education and eliminating gender inequality in education by 2015.

Low enrolment of girls at secondary school appears to be a common issue in most developing countries. A study in Tanzania found that 'gender disparity, while not significant at primary level is still wide at secondary level' (Mbelle and Katabaro, 2003, p.10). Similar research (Lloyd, Mensch and Mensch, 2008), further revealed that early pregnancy and early marriage was a growing cause of concern that affected their girls' education. Societies in PNG appear to have accepted this as a norm and schools (primary and secondary) continue to have a gender gap in enrolments.

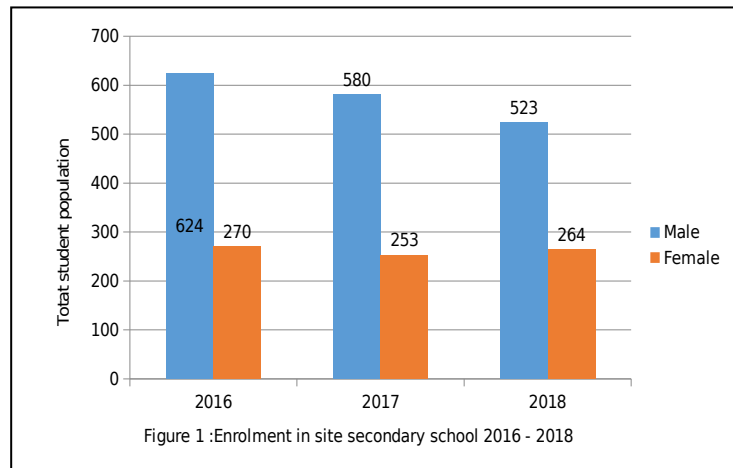
Some developing countries have aggressively addressed this issue. For example, Lloyd, Mensch and Mensch, (2008), stress that although gender disparity in enrolment became an issue of concern in Tanzania, policymakers and the media frequently warned the public that marriage and pregnancy were reasons for premature school-leaving in Tanzania. They found that 'leaving school prematurely was often claimed to be among the most negative consequences of early marriage and pregnancy for girls in less developed countries' (Lloyd, Mensch and Mensch, 2008, p.3)

When education was first introduced in Papua New Guinea (PNG), only the boys were encouraged to participate in formal schooling by the e

Enrolment in site secondary school

 dded in formal education but their studies were focused on cooking and sewing. These subjects were considered best for homemakers and only appropriate for girls. Boys were taught subjects that would lead them to higher professions. Research carried out by Palmer (1978) in 1967 found that there were more boys enrolled in primary and secondary level in the highlands region. She found that one of the highlands province's total enrolments for boys was 411 while there were only 43 girls in high school. Ten years later, the province's total enrolment for

girls was only 621 whilst boys' enrolment mushroomed to 2,834. The figure presents the 2016 to 2018 enrolment for Ali Secondary School in the highlands region, sourced from the school's enrolment data at the school site.



Ever since the last study (Palmer, 1978) in 1967, the gender gap remained consistent for 57 years. Figure 1 clearly shows the disparity gap for 3 preceding years at the school research site.

Relevant literatures that informed this study

Girls' education is equally important as that of boys. There is a considerable amount of literatures on low enrolment of girls in schools in developing countries. Cultures and traditions are deeply rooted into the fabrics of these societies that continue to influence decisions and practices. According to Suleman et al, (2015), culture and tradition negatively affected girls' education up to secondary school. Most girls in the rural areas of Pakistan were married when they entered adolescence, before completing secondary level. According to Suleman's findings, most Pashtun people believed that there were no jobs for women so education was meaningless and unnecessary for girls. Therefore, girls' education to Pashtun people was viewed not worthy and as a waste of time. In Guinea, one of the poorest nations in Africa, according to their culture, girls' are not equal with boys and girls were best helping their mothers looking after younger children and gardening. Boys were encouraged to be educated for future economic benefits. According to Shahidul, and Karim, (2015), obstacles to female education stemmed from cultural factors such as parents considering that their daughters had reached a marriageable age.

However, studies have shown that many successful countries have gone through similar experiences of low enrolment of girls in their primary and secondary schools but have aggressively addressed it. For example; Guinea in Africa, introduced a subsidy called 'childcare subsidies' in 1993. After a year, Glick & Sahn, (2000), found that Guinea's enrolment ratio of female to male was 44% in 1993 for girls but in 1995, it decreased to 25%.

Similarly, Malawi in southern Africa also experienced a great increase in girls' enrolment after adopting a policy called 'Free Primary Education' (FPE) since 1994. Chisanya, DeJaeghere, Kendall, & Khan, (2012), reported that as a result, there were more girls than boys, and there were signs of boys being placed at a disadvantage. In 2005 to 2007, another similar case study was done in Bangladesh. UNICEF (2010) reported that an average primary net enrolment rate increased to 87% and 91% for girls from 82% for boys and 74% for girls. Over all, these countries had remarkable success stories of how they shifted girls from minority to majority position in a short span of time.

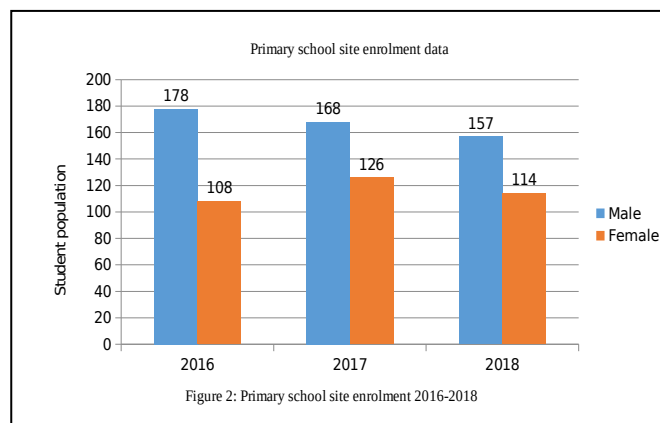
There are more success stories of such that PNG could emulate. Having introduced the Tuition Fee Free policy in 2012, funds appear to have evaporated into the thin air but it is understood to have been achieving quantity at the expense of quality. A similar scenario was in Guinea as revealed by Glick & Sahn, (2000). In PNG, responsible stakeholders seemed to have been complacent though the gender gap prevailed for decades that appear to have no solution.

Methodology

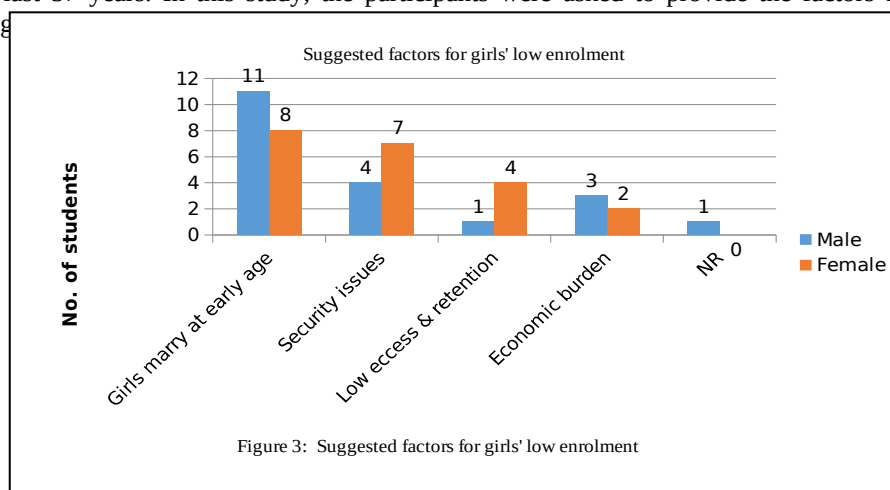
The theoretical perspective that guided this research was social constructivist and feminist theory. The comparative and exploratory case study was adopted for the study. As Cohen, Manion, & Morrison (2002) claimed, ‘social constructivism is generated by the fact that people actively seek out, select and construct their own views of the world around them and their interaction with others, although it is argued that external objects impress and influence them’ (p. 16). Mixed methods were used to collect data for the research with two questionnaires for students and teachers and an interview schedule for parents. The study used a mixed methods approach because as Johnson, Onwuegbuzie, & Turner, (2007) stated mixed methods are the class of research where the researcher combines qualitative and quantitative research techniques, and approaches into a single study forming the desired triangulation. The comparative and exploratory case study was adopted for the study. The purposive sampling was used to select the research site and the research participants which included teachers, students and parents. Twelve teachers and forty students and parents participated in this case study. Questionnaires were limited to 8 closed-handed questions to assess the influencing probability of the issue while 3 extended questionnaires were used to assess their understanding of the research topic. Prior ethical approval was granted for the research and ensured all participants’ privacy was respected. Data presented were analyzed, coded and interpreted.

Discussion

In order to provide some background on the low enrolment of girls in secondary in the school research site, data was collected on students’ enrolment for 2016, 2017 and 2018. Figure 2 shows the enrolment during this period. Figure 2 presents the 2016 to 2018 enrolment data for the primary school that feeds into the secondary school research site for 2016 to 2018 sourced from school’s enrolment data.

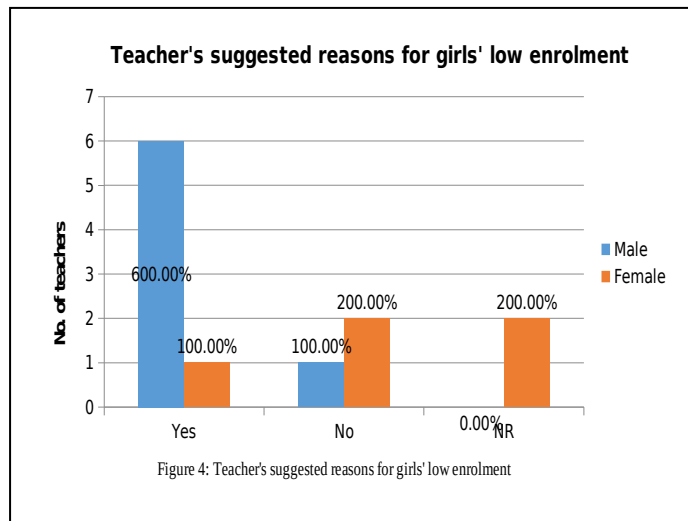


The information in Figures 1 and 2 indicates that the girls’ enrolments in these schools have been consistently low in the last three years. This research supports Palmer’s (1967) findings which showed that there was low enrolment of girls in secondary schools in the highlands region, and has been consistently lower than that of boys for the last 57 years. In this study, the participants were asked to provide the factors influencing low enrolment of girls.



The data in Figure 3 suggests that the chief contributing factor to low enrolment of girls in secondary school is marriage at an early age. This is followed by security issues, low access and retention from primary into school.

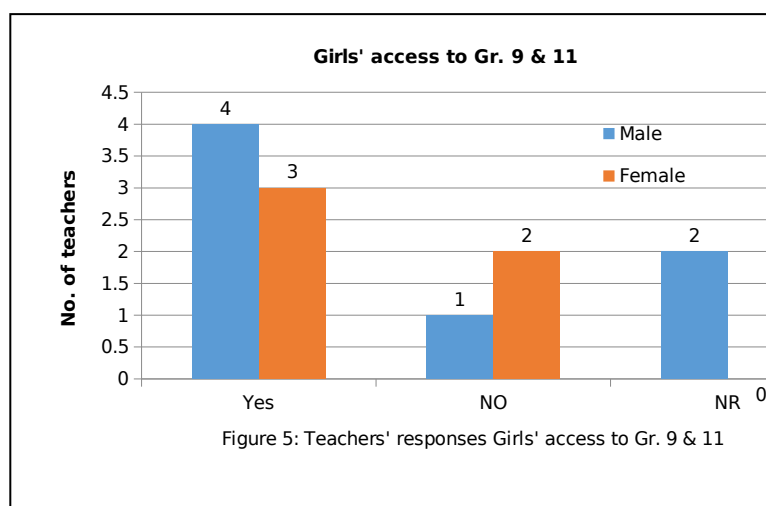
and economic reasons. Whilst more (55%) males agreed that early marriage was the main factor of low enrolment of girls at the secondary school, 40% the female participants agreed. This implied that girls' chance of continuity in education is affected largely by early marriage as well as security issues as clearly depicted above. Security issues both within and outside of the school campus and girls' low access and retention were also strong influential factors causing girls low enrolment. In order to have a balanced view, the teacher participants were asked whether marriage was the causes of girls' low enrolment in secondary school. Their responses are presented in Figure 4.



Data in figure 4 shows that majority of the male participants (85%) strongly agreed with the proposition that more girls get married at an early age and when they reach secondary school level. This supports the data in Figure 3 that suggests that marrying at an early age was the leading factor to girls not enrolling in secondary schools. Whilst there were only 20% of female participants who supported girls marrying at an early age as a cause of low enrolment, female participants presented other reasons such as security issues and low access and retention of girls in school. Early marriage is a traditional practice in many places in PNG, and girls in some provinces are still expected to marry at an early age. In the highlands region, when girls started to experience menstruation, they became women in the eyes of the community. Hence, marriage was therefore the next step towards giving a girl her status as a wife and mother. This is further affirmed by a study done by Frontiers (2012), one of PNG's main suppliers of medical and psychological assistance to survivors of family and sexual violence based in Port Moresby which found that sexual violence against young girls, and the shame and stigma that follows, was forcing many girls out of school and others into early marriage. The head of the Non-Government Organization (NGO) of Family Sexual Violence Action Centre (FSVAC) said, 'it is really a sad fact young girls are already disadvantaged when it comes to education, and the threat of rape and sexual abuse aggravates these inequalities. As it is, parents generally hesitate in sending their daughters to school because they view their daughters to be of weak reasoning skill who may be lured easily to promises of a better life by men. This view was supported by the qualitative data on girls being easily lured to men with the help of technological devices such as mobile phones. Hence, girls' enrolment statistics tend to consistently remain low in primary schools and even lower at the secondary schools in PNG.

Low access and retention

The teacher participants were asked whether girls' missing out on Grade 9 and 11 selections was another factor of girls' low enrolment in secondary schools. Their responses are presented in Figure 5



The data in Figure 5 shows that the teachers (male 57% & female 60%) are of the view that the selection process also contributed to fewer girls being selected to advanced grade 9 and grade 11. This may suggest that girls may not have attained the eligibility academic grades to advance to those grades for various reasons. As shown in Figure 1 & 2, the enrolment of girls in primary school is already low compared to that of boys, therefore, it can be suggested that when girls do not meet the required entry level at the end of grades 8 and 10, even fewer girls progress to grades 9 and 11.

Figures 1 and 2 provides may suggest that the low enrolment of girls in the school research site could also be the case in some primary and secondary schools in the highlands region. The data shows that the gender gaps in this secondary school enrolment ratios were also wider than that for primary enrolment ratios. This may imply that a greater proportion of girls than boys discontinued their education after primary education. This situation is similar to findings by Upendranath (1995), which showed that Indian education had been plagued with high incidence of dropout and low retention at middle level (6th to 8th classes) and this was more for girls than boys. This suggest that countries like India share similar experiences in terms of girls' enrolment in school. The literature may suggest that the country also encounter similar challenges with more girls than boys dropping out of school as is the case in some highlands provinces. This has resulted in a widening of the gender gap in school enrolment between primary and secondary and between secondary and tertiary levels of education.

In addition, the girls' low motivation to enrol in school and financial conditions of families also played a significant role in girls' accessibility and retention in school. Among the factors related to causes of low retention, security issues and economic factors were also prominent. This was revealed through interviews with parents. The qualitative data also show that lack of girls' interest in studies and involvement of girls in household tasks were partly responsible for high rates of girls' dropout from primary levels in Grade.6, Grade 8 and lower secondary in Grade 10.

Furthermore, the qualitative data suggested that education of girls' brought no returns because as viewed by parents and the community, the girls' future roles was mainly being the mother of children, domestic duties and perhaps agricultural labour that required no formal education. This view is influenced by the highlands culture that expects that when a girl is married to a man, she now becomes a member of the groom's family hence she is believed to be of no help to her biological parents and her community. Therefore, in the highlands region, most illiterate parents still believe that it is better to educate a boy than a girl for future economic benefits. In complimentary to this view, as more and more boys are engaged in education, there is a growing reliance on girls for labour. Other factors presented as the cause of low enrolment of girls in secondary schools were lack of proper school facilities and no parental support which hindered the girls' interest to pursue secondary education so they turned to early marriage which was their next option. Hence, girl's chances of continuity in education and retention still remains a challenge for girls in some areas of this country.

Support system

Teacher participants were asked whether there was any support system in place in the secondary schools to help improve girls' enrolment. The original texts from the interviewees are presented below.

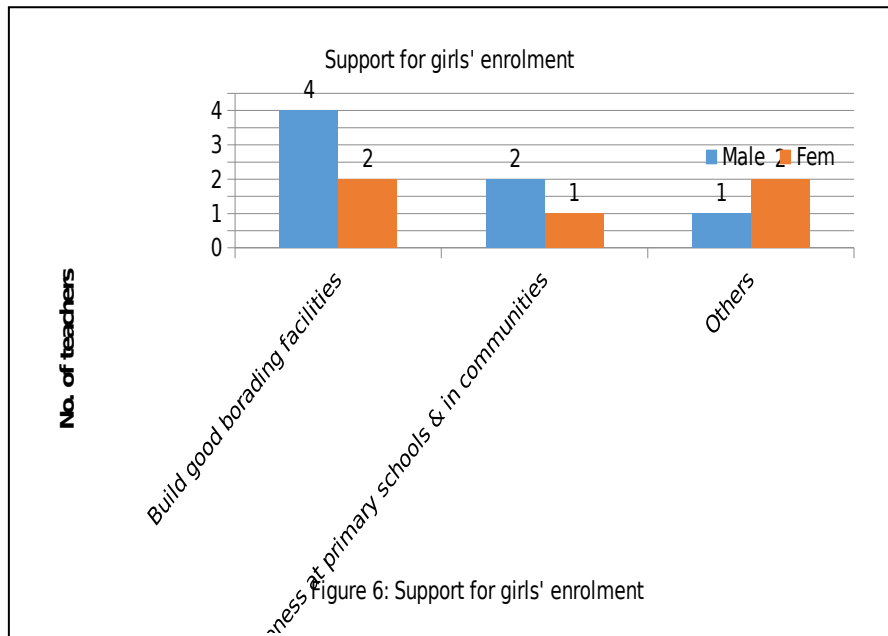
Teacher A: I think there is no good answer to this question. The reason why I am saying this is because there is no school providing any support to the girls to increase girl's enrolment in our school and too I have not seen a school doing that.

Teacher B: In this school we are not providing any support system for our girls but, there are some Catholic secondary schools who are encouraging the girls by engaging them to work around their sisters/brothers' houses or in the farm so the school would settle their fees and buy girls' necessities. Apart from this, there is no form of any support system we have in here. It would be good idea to help our girls but there (sic) are not doing this anymore.

The texts above explicitly revealed that there was no form of any support system provided in the secondary schools to help improve girls' enrolment. It also implies that this notion of providing a support system was a new concept. It implies that school leaders, teachers and other stake holders have accepted it as a norm and were complacent about it. However, according to the second interviewee, there was a form of support system in place

in the Catholic secondary schools in which girls were requested to work for their fees during their vacations. However, the interviewee was uncertain whether it continued or not.

In order to have a balanced view, student participants were given extended questionnaires to respond whether there was any support system in place in the secondary schools to improve girls' enrolment. There was no response which implied that there was no form of any support system in place at the secondary school level. However, data shown in figure 6 are few of the recurring recommendations to help increase girls' enrolment in the secondary schools.



Data presented in Figure 6 shows that a high percentage of (male 57% & female 40%) respondents recommended that there should be more and better boarding facilities to close the gender gap. Inadequate school facilities, especially girls' halls of residences, affected their education. Qualitative data highly complimented this recommendation. Improving boarding facilities appear to be a universal concern as UNICEF (2010) also observed that lack of basic boarding facility and sanitation was a cause in decreasing enrolment of girls in secondary schools. The other most recurring recommendation as indicated in Figure 6 is community awareness and educating girls at the primary level. This is followed by other recommendations represented by others (male 14% & female 40%) presented by the participants were as follow.

Secondary schools should;

- introduce counselling services so that girls could be counselled and could complete their studies
- improve and provide better security so girls would feel secure and parents are assured of their safety
- increase the number of female teachers so that girls feel motivated and comforted by their same gender as teachers promote
- gender equality in all the school activities enrol more girls from the reserve list to recompense low access and retention. Furthermore, the secondary schools should
- invite successful women during big events like graduation to motivate more girls
- discourage girls to use mobile phones because girls were distracted from their studies resulting in poor performance and making phone arrangements for early marriages
- terminate boys who are involved in cult and school fights that incites fear in girls
- lower the entry requirement for girls into Gr. 9/11 so that girls have more chances of entering secondary level
- promote and teach subjects that motivate girls like cooking, sewing and ICT
- the school boards should reduce the fee charged for girls who proceed to secondary schools
- the government should build more single gendered secondary schools

Presented were mere recommendations from participants. Although the government of PNG in its best wisdom captured Human Resource Development and Gender equality as number one priority in the 7 pillars of 2050 vision, however, there appears to be no specific policy and or support system targeting the gender difference in

the secondary schools. The study concludes that policy makers and school leaders have been complacent about the problem of girls' enrolment in schools for the last 57 years. A failure in imposing stringent policies to close this gender gap that remained in our secondary schools means we may pay the price according to Dollar & Gatti's (1999) in terms of slow economic growth. While scanning through those recommendations, just 17% (2 out of 12) of them requires assistance from higher authorities whilst all others 83% (10/12) could be achieved at the school level with minimum support from the government. Reflecting on the data presented in the figure 6, it indicates that building more boarding facilities took a commanding lead (57% & 40%) followed by doing awareness. It was highly recommended that doing awareness at primary schools and in different communities apart from building more boarding facilities could help narrow the gender gap as well. It is understood that although the government of PNG captured Integral Human Development as a priority in the 7 pillars of Vision 2050, there was no check and balance system and under-resourcing the implementation sector. Although, as presented by a participant (*teacher B text*), that only a few Catholic secondary schools made attempts to provide some form of support but seem to have ceased. Hence, there is a dire need for a support system to close this disparity gap that persisted for almost three scores.

Conclusion

Studies show that girls' low enrolment is a common issue in most developing countries of the world. A study in PNG also revealed that gender disparity existed even before independence. This research further affirms that the girls' enrolment was consistently low for almost 60 years now. The main objective of this study was to investigate the influencing factors that caused low enrolment of girls at secondary level. Among the many factors that influenced low enrolment, girls' the most prominent factor was, girls marrying at an early age followed by security issues, low access and retention and economical constrains. Furthermore, the study also investigated whether there was any support system in place to help remedy girls' low enrolment at secondary schools. The study found that girls were not given any special treatment nor supported in any way. Boarding facilities were inadequate and un-welcoming which disadvantaged girls even more. Since, this case study research used a small sample; it is strongly recommended that further research be done on the same issue inclusive of primary schools.

References

- Chisamya, G., DeJaeghere, J., Kendall, N., & Khan, M. A. (2012). Gender and Education for All: Progress and problems in achieving gender equity. *International Journal of Educational Development*, 32(6), 743–755. <https://doi.org/10.1016/j.ijedudev.2011.10.004>
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed). London; New York: Routledge.
- Dollar, D., & Gatti, R. (1999b). *Gender inequality, income, and growth: Are good times good for women?* (No. 1). Washington DC: The World Bank. Retrieved from <http://siteresources.worldbank.org/INTGENDER/Resources/wp1.pdf>
- Esi Sutherland-Addy, (2002) *Impact Assessment study of the girls' Education Program in Ghana*, For UNICEF – Ghana Retrieved from https://www.unicef.org/french/evaldatabase/files/GHA_2002_022.pdf
- Glick, P., & Sahn, D. E. (2000). Schooling of girls and boys in a West African country: the effects of parental education, income, and household structure. *Economics of Education Review*, 19(1), 63–87. [https://doi.org/10.1016/S0272-7757\(99\)00029-1](https://doi.org/10.1016/S0272-7757(99)00029-1)
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112–133. <https://doi.org/10.1177/1558689806298224>
- Khanom, K., & Laskar, B. I. (2015b). Causes and consequences of child marriage – A study of Milannagar Shantipur Village in Goalpara District. *International Journal of Interdisciplinary Research in Science Society and Culture (IJIRSSC)*, 1(2), 100–109.
- Lewin, K., & Caillods, F. (2001). *Financing secondary education in developing countries: Strategies for sustainable growth*. UNESCO, International Institute for Educational Planning.
- Lloyd, Cynthia B. & Mensch, Barbara S. (2008), Marriage and childbirth as factors in dropping out from school: an analysis of DHS data from sub-Saharan Africa *Population Studies*, 62 (1), 1-13: retrieved from <https://www.jstor.org/stable/27643442>, Accessed: 27-08-2018
- Mbelle, Amon & Katararo Joviter, (2003), *School Enrolment, Performance and Access to Education in Tanzania*, Research Report No. 03.1 (University of Dar es Salaam) Dar es Salaam, Mkukina Nyota Publishers Ltd, Retrieved from [https://www.africaportal.org/documents/8178/03.1-Mbelle_Katararo1 .pdf](https://www.africaportal.org/documents/8178/03.1-Mbelle_Katararo1.pdf)
- Médecins Sans Frontières. (2012). *International activity report 2012*. Retrieved from https://www.msf.org/sites/msf.org/files/msf_activity_report_2012_interactive_final.pdf

- Miles, S., & Singal, N. (2010). The Education for All and inclusive education debate: conflict, contradiction or opportunity? *International Journal of Inclusive Education*, 14(1), 1–15. <https://doi.org/10.1080/13603110802265125>
- Pal, S. P., & Pant, D. K. (1995). Strategies to improve school enrolment rate in India. *Journal of Educational Planning and Administration*, 9(2), 159–167.
- Palmer, P. (1978). *Girls in high school in PNG; Problems of the past, present and future* (No. 22). Port Moresby: Educational Research Unit, UPNG.
- Shahidul, S. M., & Zehadul Karim, A. H. M. (2015). Factors contributing to school dropout among the girls: A review of literature. *European Journal of Research and Reflection in Educational Sciences*, 3(2), 25–36.
- Suleman, Q., Aslam, H. D., Habib, M. B., Yasmeen, K., Jalalian, M., Akhtar, Z., & Akhtar, B. (2015). Exploring factors affecting girls' education at secondary level: A case of Karak District, Pakistan. *Journal of Education and Practice*, 6(19), 95–109.
- Sutherland-Addy, E. (2002). *Impact assessment study of the girls' education program in Ghana*. UNICEF-Ghana. Retrieved from https://www.unicef.org/evaldatabase/files/GHA_2002_022.pdf
- Thornton, A., Axinn, W. G., & Teachman, J. D. (1995). The influence of school enrollment and accumulation on cohabitation and marriage in early adulthood. *American Sociological Review*, 60(5), 762–774. <https://doi.org/10.2307/2096321>
- UNICEF. (2010). *Progress for children: Achieving the MDGs with equity* (No. 9). Retrieved from https://www.unicef.org/publications/files/Progress_for_Children-No.9_EN_081710.pdf.
- Upendranath, C. (1995). Education of girls in India: The daunting task ahead. *Journal of Educational Planning and Administration*, 9, 81-92.

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Importance of teachers' mastery of first aid knowledge and skills

Freddy Pennington

Abstract

This paper investigates the importance of teachers' competency in first aid knowledge and skills. A literature review suggested that most teachers do not have the required knowledge and skills in first aid that can equip them to assist students who may require emergency treatments for injuries and unexpected illnesses while at school. As well as adverse medical outcomes for the students, this can have severe repercussion on the school and the teachers if a student dies from complications while under the care of teachers. Therefore, the objective of the research was to establish the significance of teachers' first aid knowledge and skills and their competency in delivering that service. A cross-sectional study was conducted among 53 students and 18 teachers and data was collected using self-administered questionnaires and interview sessions. The study found that most of the secondary teachers in the research site had not received adequate training on first aid during teacher training. Most were reluctant to provide first aid treatment to students because of such lack of training. It was also found that teachers can be effectively trained at the school level if they missed out on first aid at teacher training institutions. Teachers expressed the need for professional development in first aid skills and knowledge to equip them to better provide basic medical support while awaiting professional medical support.

Key words: first aid procedures, teachers' first aid knowledge and skills, accidents and emergencies support

Introduction

Teachers' minimal first aid knowledge and skills can result in severe health consequences when dealing with students in times of emergencies and unexpected illnesses. Teachers do not only teach students; they also have to care for the students to ensure that their welfare is maintained at all times. In cases of accidents and emergencies in schools, they are the first people who step in to assist those in need and therefore they need to have sound knowledge and skills in order to properly provide first aid support. However, as the literature shows, most teachers do not have the required knowledge and skills on first aid that will support them to assist students who may require emergency treatment for injuries or unexpected illnesses (Başer, Çoban, Taşci, Sungur & Bayat, 2007). This can have severe repercussion on the school and teachers if students die from complications while in the care of the teachers. Therefore, it was necessary for this subject to be researched further and in depth in order to understand and explore ways of addressing this issue.

Literature review

Factors that contribute to teachers' minimal first aid knowledge and skills

There are many reasons why teachers are not competent in giving first aid care to students in schools. According to Başer et al., (2007), most teachers do not possess first aid knowledge and attitude to provide the support that students need, especially in times of sudden illnesses, accidents or emergencies. They also added that this results because there are no courses about first aid offered in teacher training colleges to equip teachers before teachers graduate. To support this claim, Mobarak, Afifi, and Qulali (2015), recommend that first aid training should be integrated in the teacher training programs. Moreover, Zayapragassarazan (2016, p. 91), states that "first aid and CPR training should be made compulsory as part of teacher training..." This literature shows that some teacher training institutions in other countries do not provide first aid training for teachers. However, in Papua New Guinea (PNG) many teacher training institutions do provide some form of training in first aid. According to the website of the University of Goroka, first aid is taught in-depth in courses like Diploma in Health education, Diploma in Health teaching, Diploma in Teaching Physical Education and Diploma in Sports Recreation & Management. However, for the other courses offered, first aid is not covered in-depth and less time is allocated. On the contrary, there are other studies that show that some teachers do undergo first aid training at colleges. Research done by Karande et al. (2012), at Pune city in India proves that there are many teachers who acquire first aid training at teacher-training colleges but most of them do not utilize that skill at the actual workplace. Deekshitha, Dhivya, Pravallika, Lavanya, and Kesini (2018) also state that many people are not ready to provide first aid support because they fear making mistakes, even though they undergo training.

Views on teachers' competency level of first aid

For any teacher to provide the required first aid support to students, a teacher must be well equipped with the required knowledge and skills. According to Ganfure, Ameya, Tamirat, Lencha, & Bikila (2018, p.3), "Majority of public school teachers were deficient in both training and knowledge of emergency care." They further state that those teachers who serve in private kindergarten schools are sixty times more knowledge on first aid than those who serve in government kindergarten. This indicates that there is still a need for teachers to be well-trained on first aid procedures.

Teachers' support to master first aid knowledge and skills

First aid knowledge and skills are very important for teachers. This, according to Mobarak et al. (2015, p.1368), is because "Life-threatening emergencies can occur in any school, at any time." Karande et al., (2012, p.876), clarifies this by saying, "Since school teachers are likely to be in contact with the child soon after the injury, their knowledge of emergency procedure is critical to ensure a better prognosis of the clinical treatment". Furthermore, Mobarak et al. (2015) reiterated that schools do not employ nurses and that places teachers in charge of first aid procedures, before the arrival of expert medical help. Joseph et al. (2015) support that teachers should be trained since there are no trained nurses at all schools. Young, Wong, & Cheung (2012), also added that teachers and parents are around adolescents and children at all times, thus they need first-aid knowledge to help as soon as possible when a student needs help.

Purpose of study

The purpose of this research was to discover why many teachers lack the first aid knowledge and skills in PNG and how this could be best addressed. Additionally, this study also serves to emphasize the importance of teachers having first aid knowledge and skills in schools and how they can be supported.

Methodology

The research method chosen for this study was mixed methods. Since the theoretical perspective that guided this research was the social constructionism, it was understood that more rich and quality information would be collected using the mixed method to help this study to analyse and interpret findings and construct meaning. The exploratory case study was used. There were two rationales for this selection. Firstly, the research aimed to discover the importance of teachers' competency in first aid knowledge and skills and that, in itself, was exploratory in nature. Secondly, the theoretical perspective guiding this research (i.e. the social constructionist theory) paved way for this case study approach as there were no defined objectives to be reached at the end of the research and the research was in a social context.

The purposive sampling was used to select the participants and research site. This allowed the researcher to select a research site that has a similar school environment as other secondary schools in PNG. Time and funding constraints also influenced the decision to use the purposive sampling for this research. This research focused in addressing the following research questions:

- *Why is first aid knowledge and skills important to teachers in Papua New Guinea?*
- *How can teachers be supported to master first aid knowledge and skills?*
- *What are the factors that contribute to minimal first aid knowledge and skills among teachers?*
- *What is your view on the level of the teachers' first aid knowledge and skills in this school?*

Discussion

Factors that contribute to teachers' minimal first aid support

The respondents in the school research site were asked to respond to three statements by stating *Yes* or *No* purposely to establish the possible reasons that may have contributed to teachers' minimal first aid knowledge and skills. The responses they gave are displayed in figure 1.

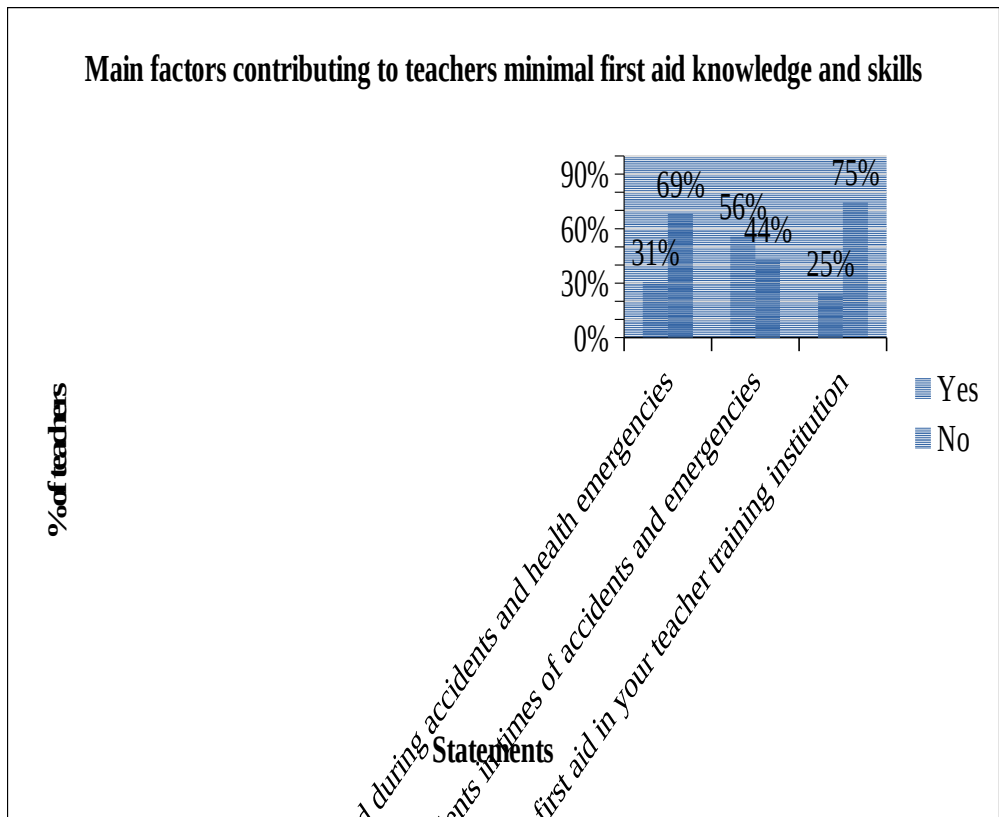


Figure 1: Factors contributing to minimal first aid knowledge and skills of teachers

The data shows that 75% of the participants were not taught first aid skills and knowledge in their teacher training institution. The data also shows that 69% of the participants are not trained to administer first aid. However, 56% of the participants indicated that they are confident in providing first aid support. This, according to the qualitative data, does not mean that teachers effectively execute first aid procedures. Teachers simply turn up for their duty to report on what is happening and how the patient could be brought to hospital. An excerpt from the interview elaborates more here:

Teacher 2

From my observation as an administrator on the ground here, I observe that most of the teachers they do not have the first aid knowledge and skills so when it comes to emergency situation or when it comes to accident it is observant that most of our duty officers attend to students by organizing and reporting to the administration for the sick or injured to be brought to the clinic or hospital. They don't necessarily give the first aid service because they don't know.

This data indicates that most teachers were not properly taught first aid procedures in their teacher training institutions. Besides, the data shows that teachers at the school site only provide other support like logistics and reporting when students are involved in emergencies or an accident, and do not necessarily provide the first aid procedures. The respondents were also asked to give their reasons as to why they do not provide the first aid support required of them when there is a need; and the responses they provided are displayed in figure 2.

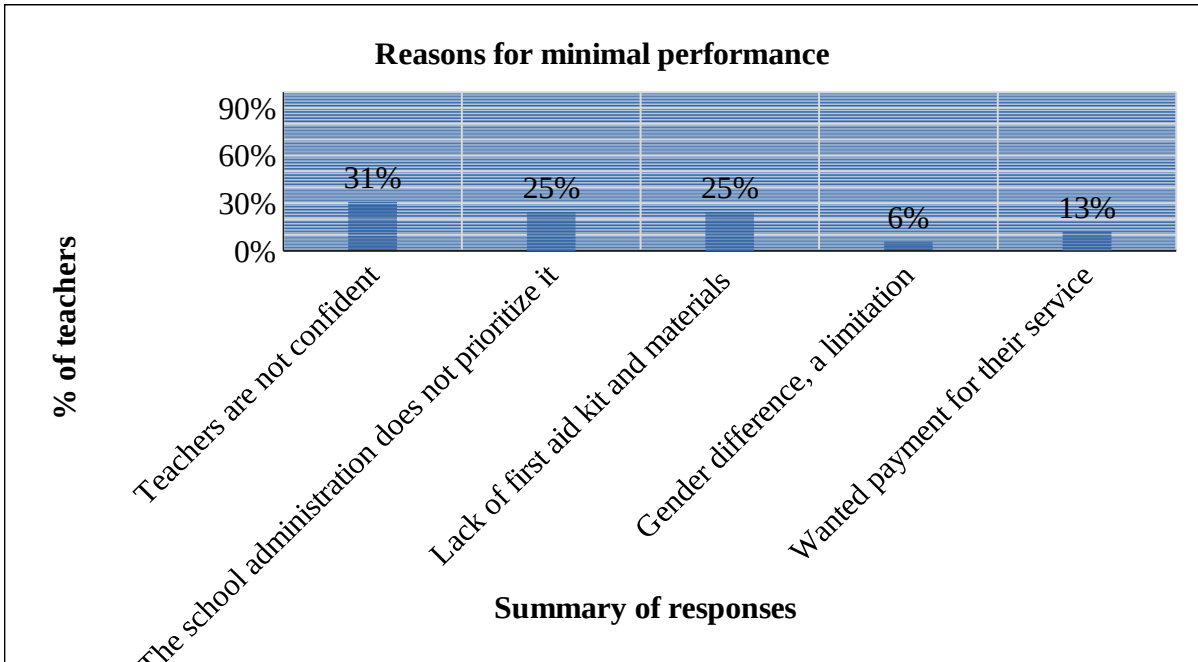


Figure 2: Teachers responses on why their performances is minimal

The data shows that, among other reasons, lack of teachers' confidence (31%), lack of administration support (25%) and lack of first aid kits and materials (25%) are the main reasons why teachers do not provide the first aid support at school. Students were also asked to give their views about why they think teachers are not providing the first aid support as and when they should. The responses they gave are presented in figure 3.

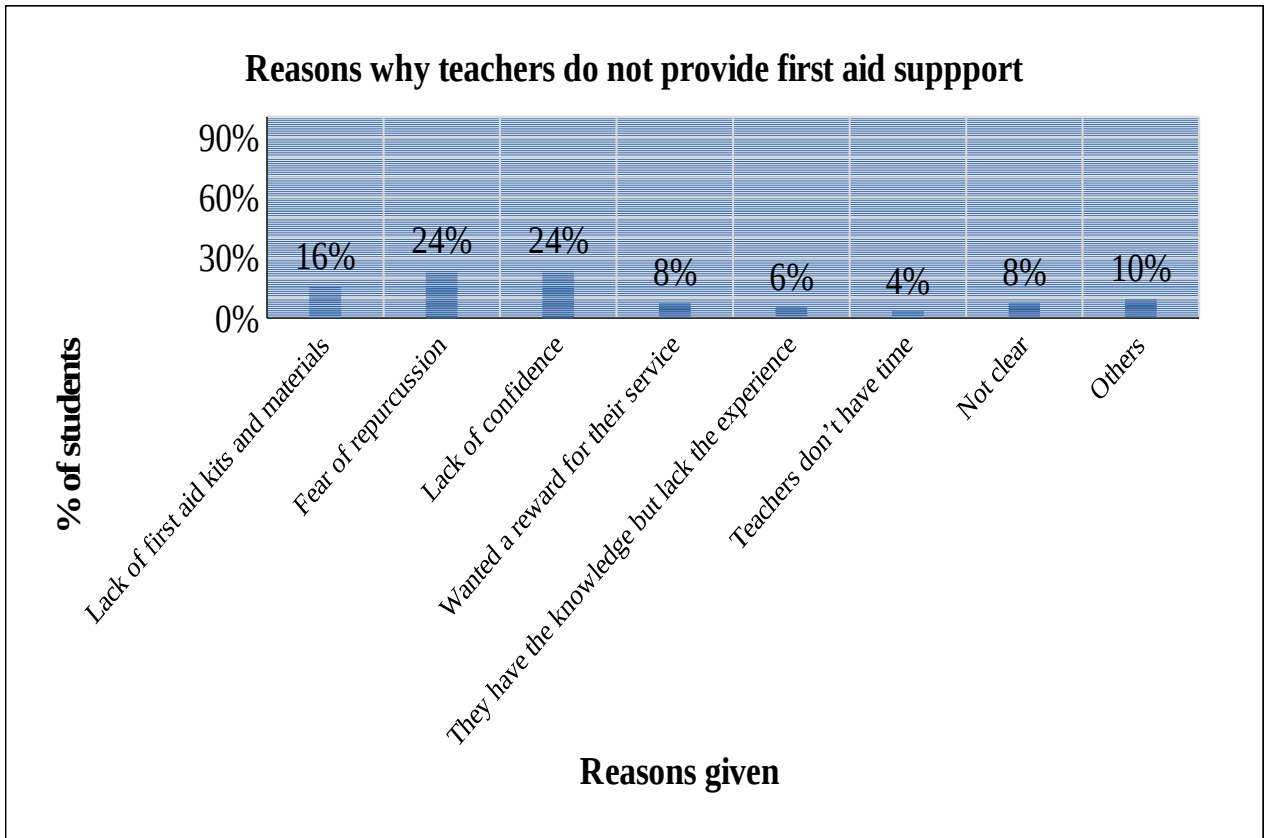


Figure 3: Possible reasons why teachers do not provide the first aid support

The data shows that 16% of the respondents suggest the lack of first aid kits and materials in school as a contributing factor to minimal first aid support. They further suggest fear of repercussion and the lack of confidence from the teachers are the main reasons why teachers are reluctant to carry out the first aid support services. Eight percent of the respondents also thought that the teachers wanted a form of reward for their service. This data reinforces the teachers' responses as to the reasons why teachers are reluctant to provide the first aid support are lack of confidence and the fear of repercussion. The data also indicates that the lack of first aid kits and other materials at the school and the expectation of payment for service may have been other reasons.

Views on teachers' level of first aid knowledge and skills at the school

The teachers were asked about their views on the teachers' level of competency in first aid knowledge and skills and the responses they provided is displayed in figures 4. The teachers were asked to give a Yes or No response to three statements.

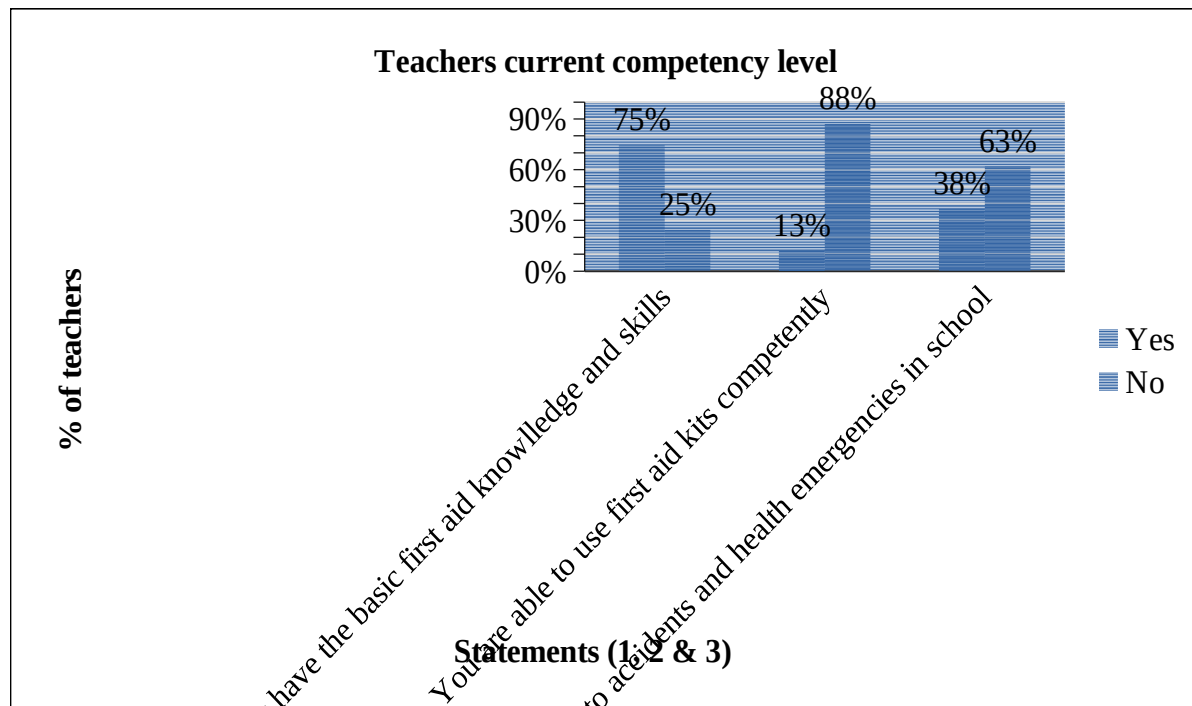


Figure 4: Respondents' responses to teacher competency level

The data shows that 75% of the respondents agreed that they already possess some basic first aid knowledge and skills. This infers that there is some form of training carried out for teachers at the teacher training institutions. For statement two, 88% of the respondents responded that they are unable to use the first aid kits. This indicates that teachers are not given practical lessons on how to use first aid kits. This could also mean that the participants misunderstood the question and thought that competency in first aid to mean the ability to organize evacuation to the first aid centre. It can also infer that the school does not have any first aid kits available for teachers to use. The data collected for the third statement shows that 62% of the respondents cannot respond effectively to accidents and health emergencies. This infers that teachers training on first aid is not preparing teachers well to carry out first aid services. The qualitative data in the following excerpts from the teachers' interview record supports this set of data.

Teacher 1

They are not competent and they are not confident in helping the students. They don't want to take the risk, because they are not competent.... They do not possess this first aid skills and knowledge... they don't want to take the risk... they are confirming their incompetency when they do not attend to emergency

Teacher 2

I don't think so because no one is giving the first aid when students are faced with accident or situation like that...

This data shows that the majority of teachers are not able to competently use the first aid kits and even respond effectively to accidents and health emergencies, though many claimed to have the basic first aid knowledge and skills. The students were also asked about their views on the teachers' level of competency in first aid knowledge and skills. The responses are displayed in figures 5.

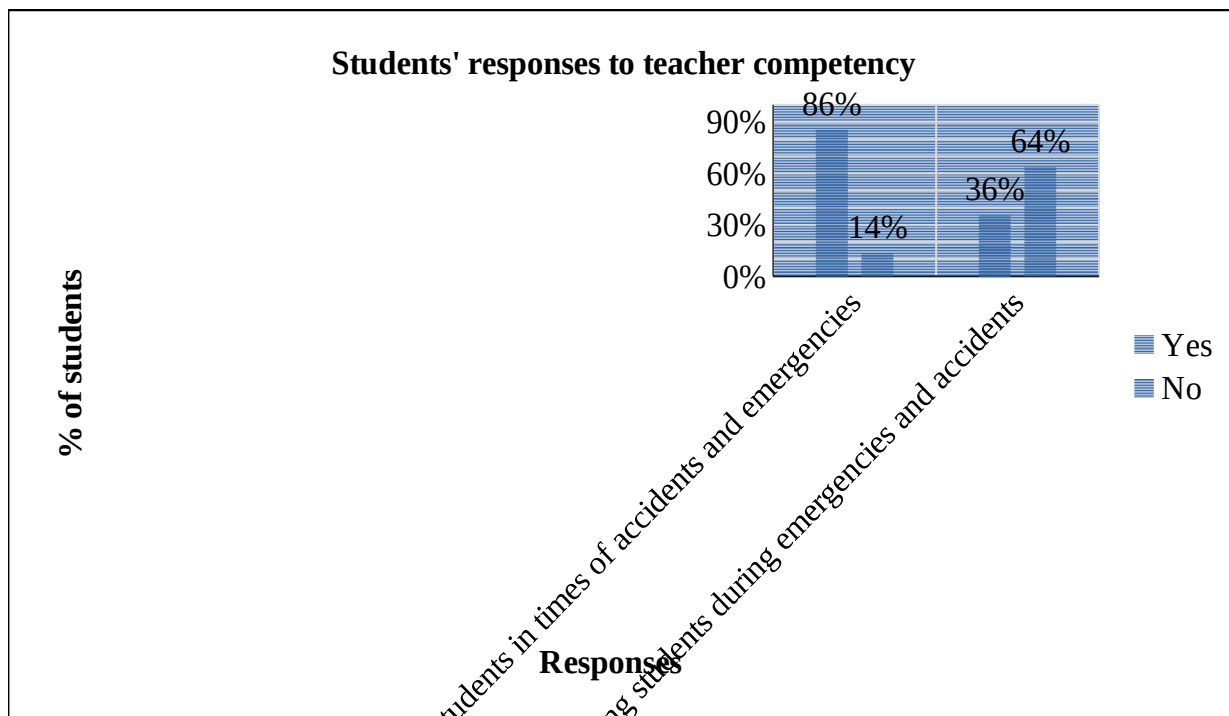


Figure 5: Students' views on teacher competency level

The data shows that 86% of the respondents agreed that teachers provide first aid assistance to students in times of accidents and emergencies. Similarly, over 60% of the respondents indicated that teachers do not have any difficulty in helping students during emergencies and accidents. This infers that teachers do provide some form of support in reporting and organizing transport for the patients to be brought to the hospital for medical support, but not necessarily providing first aid, as indicated by the excerpt from the students' interview.

Student 1

Duty teachers are always around to organize transport to bring the sick and injured to the hospital...

Student 2

Teachers help in communicating with the administration to bring students to clinic and hospital when there is emergency.

The data collected from the respondents indicated that teachers do provide some form of assistance for students, especially in reporting, organizing and transporting students to the hospital, and not necessarily administering first aid on site.

Teachers' support to master first aid knowledge and skills

The teachers were asked how they could be supported to master the first aid skills and knowledge by answering Yes or No to three statements. The data of their responses is displayed in figure 6.

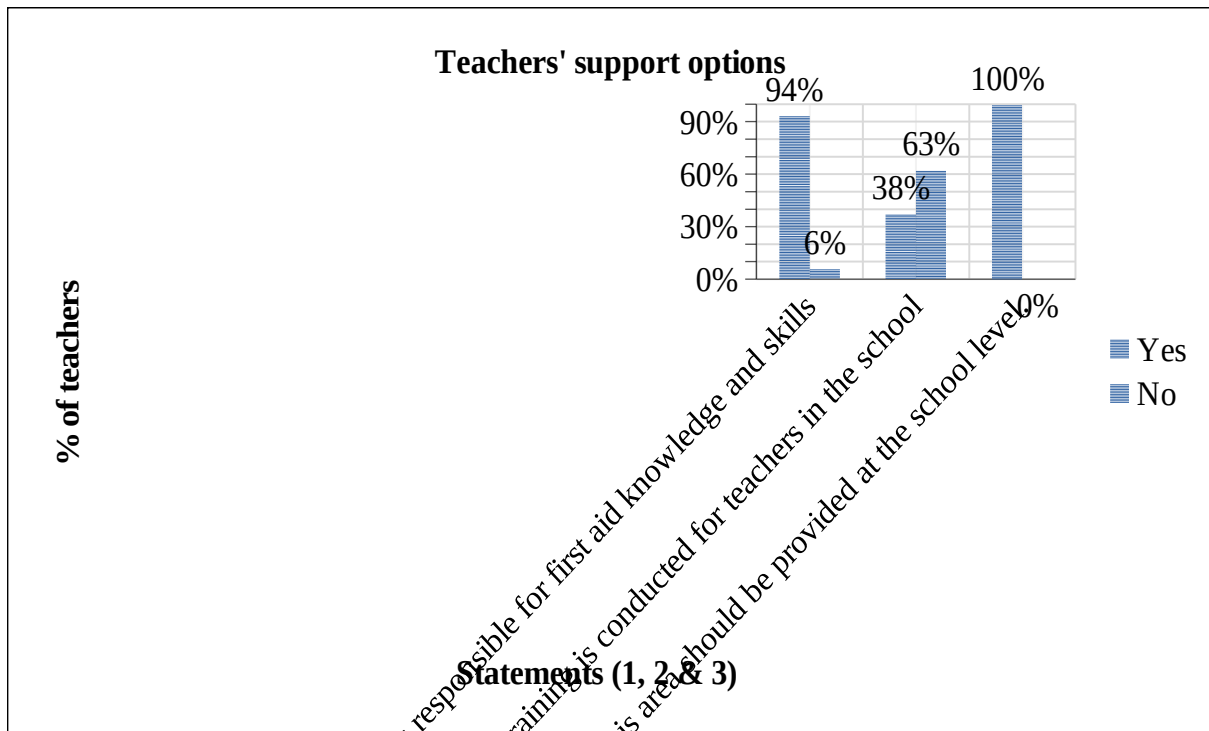


Figure 6: Teachers' support to master first aid skills and knowledge

The data shows that 94% of the participants agreed with the statement that the school is responsible for providing first aid knowledge and skills for teachers. The data also shows that 63% of them agreed with the statement that no first aid training is conducted for teachers in school. All the participants agreed with the statement that first aid knowledge and skills are important and thus, the school should provide the training for teachers on this.

The qualitative data from the respondents supports the quantitative data in figure 1. A selection from the interview responses is presented below.

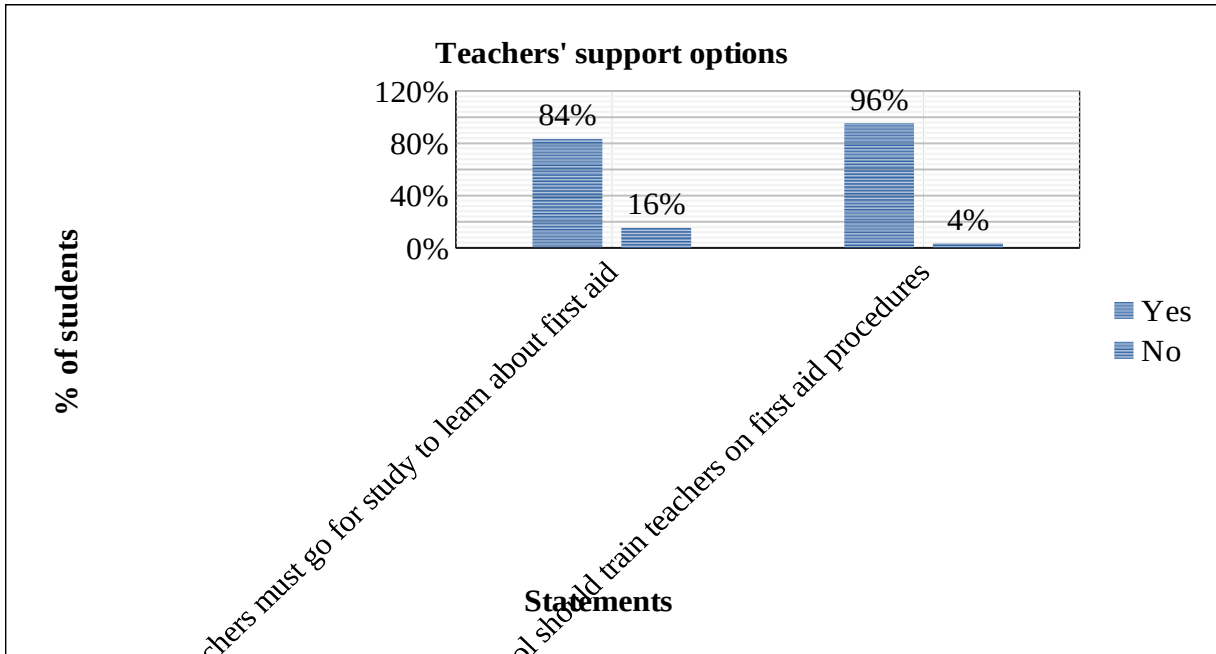
Teacher 1

That it would be good if the schools are getting specialists from outside like medical doctors or nurses... or safety officers or people specialized in safety... they need to come out to schools and conduct in-services or workshop for teachers...

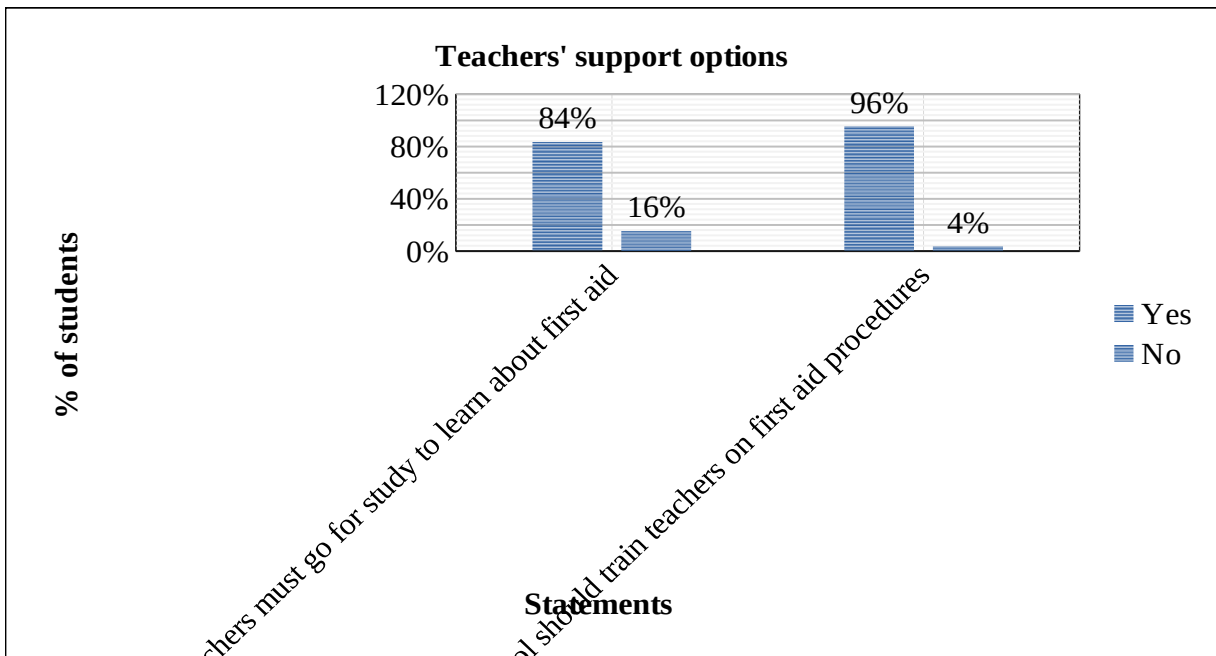
Teacher 2

If there is any training going on in first aid organized outside of the school, the administration can also send some of the teachers to attend...

The data shows that most of the respondents know the significance of first aid knowledge and skills at the workplace, and thus, emphasize that the school should take the responsibility to initiate training for teachers.



The students were asked how they thought teachers could be supported to master first aid skills and knowledge.
 Figure 7: Students views on how teachers can be supported to master first aid skills



There were two statements of option given to students to tick whether they agree with the statements or not. The information is presented in Figure

Figure 8: Students views teachers' professional support

The data shows that 84% of the respondents responded that teachers must go for study. This indicates that the respondents are aware of the teachers' minimal first aid knowledge and skills and thought teachers should educate themselves. For the second statement, the data shows that 96% of the respondents agreed that the school should train teachers on first aid. This infers that the respondents saw teachers as part of the school and the school should fund their training. To support this quantitative data, there were similar responses given by the students interviewed. An excerpt of the interview record of each interviewee is given below.

Student 1

...they can get the information from the hospital or the health workers they can go to... health Centre or the hospital so that they can get the information and learn...

Student 2

They can... inform the health center people... school can tell them to come...and train teachers...

Student 3

...if teachers don't know, we can identify health center people to come and get lesson or class for the teachers...

This data supports that training for teachers is important and the school should arrange for qualified health workers to train teachers.

Discussion

First aid knowledge and skills are very important for teachers. This, according to Mobarak et al. (2015), is because accidents and emergencies can happen at the school at any time. Since teachers are most of the time around with the students, they are normally the first professionals who show up at any emergencies and accidents scene. Therefore, their knowledge and skills together with their ability to provide first aid support are crucial. The discussion section of the study discusses the result of the study under the three headings.

Factors that contribute to teachers' minimal first aid support

The objective of the study was to identify the factors that contributed to teachers' minimal first aid delivery in the school site. The result of the study indicated that most teachers were not trained or taught first aid procedures (as shown in figure 1) in their teacher training institutions. In addition, the result also suggested (as shown in figures 2 & 3) that teachers minimal first aid service delivery at the school were generally caused by the lack of confidence, the fear of repercussion and the unavailability of first aid kits. There were teachers at the school who have undergone first aid training but were still reluctant to provide the assistance when needed. The lack of confidence on the teachers' part was an indication of inadequate training. In addition, the fear of repercussion was a serious issue that discouraged teachers to provide first aid.

The finding of the present study is supported by Başer et al (2007), who stated that most teachers do not possess first aid knowledge and attitude to provide the support that students need because there are no courses about first aid offered in teacher training colleges to equip teachers before they graduate. Consistent with this, Mobarak, Afifi, and Qulali (2015) recommended that first aid training should be integrated in the teacher training programs to assist teachers acquire the desired first aid qualification.

In another study in India, there were some teacher training institutions that actually trained student teachers the basic first aid procedures, according to Karande et al. (2012). However, they still do not perform the first aid service when required and that is consistent with the findings to the study. Deekshitha et al (2018) also stated that many people were not ready to provide first aid support because they feared making mistakes, even though they underwent trainings.

This study identified the lack of confidence in teachers as the main contributing reason for teachers' minimal provision of first aid in school, apart from the unavailability of first aid kits and support materials, and the fear of repercussion.

The result of this study is significant because it pointed out an important skill that is lacking in teachers and as well, it identified the need for first aid kits in schools. As Joseph et al (2015, p. 280) indicated, "It was disappointing to observe that no school had a fully equipped first aid kit in the present study."

Without first aid knowledge and skills, teachers cannot provide students with the appropriate support they need. Therefore, the need for adequate teacher training on first aid procedures and the equipping of first aid kit at school are what this study identified to be important in the PNG context.

Views on teachers' competency level of first aid knowledge and skills at the school

The second objective of the study was to assess teachers' level of competency in first aid knowledge and skills. The result (as displayed in figure 4) indicated that over 80% of the teachers were unable to use the first aid kits. In addition, majority of them also indicated that they cannot respond effectively to accidents and emergencies,

though they were available to assist students with the organization of transport and the provision of the other services to bring the patient or the injured to the health centre or hospital. The result of the study showed that teachers have minimal knowledge and skills to help them provide first aid to students during accidents and emergencies. This would result in serious legal implications for the teacher and the school, if a student is given the wrong treatment, or if the teacher ignores the student because of his/her minimal knowledge.

This finding supported the findings in another study which evaluated first aid knowledge, attitude, practice, and associated factors among kindergarten teachers by Ganfure et al (2018), which found that majority of the school teachers were deficient in both training and the knowledge of emergency care. Consistent with this finding, de Lima Rodrigues et al. (2015) also stated that teachers are not committed and are fragile when they are deficient in health related knowledge, especially with regards to the correct procedures to be performed with the patient.

This study found that teachers at the school site were not adequately trained on first aid procedures and therefore, they cannot execute first aid support effectively to students.

Teachers' support to master first aid knowledge and skills

The result in figures 6 and 7, together with the excerpts from the interviews, indicated that most of the respondents knew the significance of first aid knowledge and skills at the workplace, and thus, emphasized that the school should take the responsibility to initiate training for teachers. This may also infer that the majority of the respondents have not been adequately educated and trained during their teacher training years, and they felt that, while that opportunity is gone, they desperately need that training now to help them provide first aid for students competently. Besides, the respondents saw themselves as part of the school and thought that the school should fund their training because they would require this knowledge and skills to attend to and provide care for the students when they fall sick or sustain injuries at the school.

This finding is consistent with what de Lima Rodrigues et al (2015) found in their study on *Teacher's Knowledge about First Aid in the School Environment: Strategies to Develop Skills*. "It was found that most teachers realize there is a need to obtain knowledge about urgency and emergency situations and the importance to invest in training in schools." They also indicated that to improve teachers' situation regarding first aid, "the implementation of training, lectures, educational programs or even the introduction of first aid discipline in the school context is essential." This study identifies that teachers can be alternatively trained at the school level if they missed out on that training during the teacher training years. Therefore, the onus is on every school leader to effectively plan and fund the trainings at the school for the benefit of every teacher and student.

Conclusion

The study and the literature review show that teachers' mastery of first aid knowledge and skills is important. Without it, teachers cannot provide students with the appropriate support they need. The study found that teachers were not adequately trained with first aid knowledge and skills. This resulted in them being unable to effectively provide the much needed assistance in times of accidents and emergencies at school. This is because teachers' level of competency in first aid delivery was inadequate. The study also found that teachers can be trained at the school level if they are not adequately trained in their teacher training institutions. Therefore, this study would like to emphasize the need for an effective and adequate teacher training in first aid procedures both in the teacher training institution and at the school level.

References

- Başer, M., Çoban, S., Taşci, S., Sungur, G., & Bayat, M. (2007). Evaluating first-aid knowledge and attitudes of a sample of Turkish primary school teachers. *Journal of Emergency Nursing*, 33(5), 428–432. <https://doi.org/10.1016/j.jen.2006.11.003>
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed). Third Avenue, New York: Routledge.
- de Lima Rodrigues, K., Ferreira de Lima Antão, J. Y., Silveira Sobreira, G. L., Nobre de Brito, R., Saraiva Freitas, G. L., Caeira Serafim, S., ... Pinheiro Bezerra, I. M. (2015). Teacher's knowledge about first aid in the school environment: strategies to develop skills. *International Archives of Medicine*. <https://doi.org/10.3823/1808>

- Deekshitha, P., Dhivya, K., Pravillika, S., Lavanya, D., & Kesini, M. (2018). Evaluation of knowledge, attitude, and practice about usage along with awareness on first aid measures among secondary school and intermediate students. *Journal of Pharmacy Research*, 12(1), 4–8.
- Ganfure, G., Ameya, G., Tamirat, A., Lencha, B., & Bikila, D. (2018). First aid knowledge, attitude, practice, and associated factors among kindergarten teachers of Lideta sub-city Addis Ababa, Ethiopia. *PLOS ONE*, 13(3), e0194263. <https://doi.org/10.1371/journal.pone.0194263>
- Joseph, N., Narayanan, T., bin Zakaria, S., Venugopal Nair, A., Belayutham, L., Mihiraa Subramanian, A., & Gopakumar, K. (2015). Awareness, attitudes and practices of first aid among school teachers in Mangalore, south India. *Journal of Primary Health Care*, 7(4), 274. <https://doi.org/10.1071/HC15274>
- Karande, N., Shah, P., Bhatia, M., Lakade, L., Bijle, M. N., Arora, N., & Bhalla, M. (2012). Assessment of awareness amongst school teachers regarding prevention and emergency management of dentoalveolar traumatic injuries in school children in Pune City, before and 3 Months after dental educational program. *The Journal of Contemporary Practice*, 13(6), 873–877.
- Kumar, S., & Phrommathed, P. (2005). *New product development: An empirical study of the effects of innovation strategy, organization learning, and market conditions*. Boston, MA: Springer US.
- Mobarak, A. S., Afifi, R. M., & Qulali, A. (2015). First aid knowledge and attitude of secondary school students in Saudi Arabia. *Health*, 07(10), 1366–1378. <https://doi.org/10.4236/health.2015.710151>
- Punch, K. (2000). *Developing effective research proposals*. London; Thousand Oaks, California: SAGE.
- Young, C., Wong, K. Y., & Cheung, L. K. (2012). Emergency management of dental trauma: Knowledge of Hong Kong primary and secondary school teachers. *Hong Kong Medical Journal*, 18(5), 362–370.
- Zayapragassarazan, Z. (2016). Urgent need to train teachers and students in first aid and cpr. *Education in Medicine Journal*, 8(2). <https://doi.org/10.5959/eimj.v8i2.435>

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Freddy Pennington was a full-time post graduate student at Divine Word University. He completed the Master of Educational Leadership program in 2018. The content of this paper was extracted from his research report which he undertook as a component of the MEdL program.

A critical enquiry on out-of-school-children and adolescents and the services available for them in Papua New Guinea - A case study

Grace Wrakia

Abstract

There are many issues surrounding out-of-school children and adolescents in Papua New Guinea. This study explored these issues by examining the current literature and by utilising data collected from a mixed method research. The study is a case-study set in Goroka - the capital town of Eastern Highlands Province. The study specifically looked at the main causes of why school age children and adolescents are not in school; activities these children engage in; services that are available for them; and makes recommendations that would assist these children and adolescents. Research data was collected from the responses on questionnaires and from group meetings. There were 32 children aged between 10-16, 4 service providers and 2 community groups who participated in this research. The assumption prior to the research was that the school system was the key contributing factor as to why school age children stay out of school. However, the research proved otherwise. The school system was one factor but was not the key factor. The research found that the social and economic status of the home was vital in generating demand for education. There was a lack of correlation between the focus group and parent and guardians in establishing what kind of activities these children and adolescents were engaged in. Whilst services available to the focus group were minimal and ineffective. The road to achieving Millennium Development Goal (MDG) and Universal Primary Education (UPE) is slow unless the Department of Education (DoE) and Department of Community and Religion collaboratively intervenes.

Keywords: out-of-school children, service, millennium development goal, universal primary education

Introduction

This study mainly discussed issues surrounding the fate of out-of-school children and adolescents in Goroka urban Local Level Government (LLG). Its purpose was to explore the reasons why school age children between the ages of 10 and 16 are not in school. This research probed the explanation and hindrances of the full achievement of Millennium Development Goal (MDG) in PNG, but specifically from the local context of the target site. This research took the investigation away from the school environment and into the homes and communities where these children live. The knowledge gained from this mixed methods research is intended to instigate change, led by the provincial community development office and its private and or faith based partner organisations in consultation with the Department of Education (DoE).

The effort to reduce number of out-of-school children has been supported by the findings of Petrosino et al. (2012) whose extensive research evaluating interventions aimed at increasing access to schooling in developing countries found that many children do not complete primary or secondary cycles once they enrol. Murray and Tietjen (2014) quoted international data from the Millennium Development Goal Report 2013 where it states that “out of the 137 million children who entered first grade in 2011, 34 million are likely to leave school before reaching the last grade in primary school” (2014:2). In PNG, updated data is not readily available to reflect these international findings.

According to the National Education Update profile (2014), Papua New Guinea had a total of 1,805,000 pupils enrolled in primary and secondary education. Of these pupils, about 1,427,000 (79%) are enrolled in primary and secondary education. The most recent statistics was published by Rigby (2015), where the estimation was made that there are “180 000 or well over half a million children in PNG out of school”. Rigby has identified that for “Eastern Highlands Province there is a completion rate of 50% of children” (2015:2), who enrolled in elementary school and later complete grade twelve. What has become of the other 50%? Why have they left or stayed out of school? This is the problem for which the researcher hoped to find answers.

Literature review

Yasunaga (2014) prepared a background paper to inform the global report by UNESCO and UNICEF entitled 'Fixing the Broken Promises of Education for All'. The paper reveals that school alone cannot provide basic education for all. This paper points out that there are 57 million children and 69 million adolescents who are still out-of-school in 2011, despite the many efforts of governments and international organisations. The report points out that the causes of children and adolescents staying out or leaving school such as poverty, rural location, gender bias and disability are multiple and interconnected. The report emphasises that socio-economic barriers are persistent because of the inequitable distribution of resources in the countries. It makes a strong recommendation for Non-Formal Education (NFE) as the solution for providing education to underserved children and adolescents.

Whilst in PNG, few in-depth research projects were made on the economic struggles that drive children away from school. Sullivan and Keleba (2010) conducted research that combined several rapid assessment techniques using qualitative assessment and a questionnaire to build a data base. The purpose of the research was to outline the social, economic and cultural dynamics that lead children opting for the worst forms of child labour rather than getting an education. The research concluded that this problem of children and adolescents opting for child labour is, firstly, a social problem and, secondly, an institutional problem. Though most of these children would like to go to or remain in schools, they opt to leave and stay out because they need the basic and daily necessities to survive, and staying in school will not provide that for them. The research recommended that education be subsidised, life skills training be provided and that social services be readily available for these children.

Gibson (2010), used data from a household survey done in PNG in 1996 sponsored by the World Bank, to report about the barriers in achieving the goals of universal primary education. The survey found that there is an overall drop in primary schools' enrolment and substantial gaps between regions and gender. The barriers to achieving universal education depended on variables such as children's characteristics, status of head of household, household characteristics, household size, community and regional characteristics, family income and school fee. This research report by Gibson concluded that family background variables such as income and parental schooling have a strong influence on the demand for children's education.

A comparative study by Rigby (2015) listed environment as a major reason for children staying out of school. This study was an extensive research on Complementary Basic Education (CBE) in Ghana and recently Rigby recommended CBE as a solution to PNG's education problem. The study identified that children are underserved due to economic circumstance, geographical location, gender, ethnicity, disability and language barriers. Geographical location takes second place in this list of education barriers. In low to middle income countries like PNG and Ghana, educational service assistance like CBE can provide help for children far reached of education due to geographical locations.

Andrew (2013), in consultation with the World Bank, conducted a rapid qualitative research in 16 districts, to establish links between gender equality, social cohesion and development. The research used a community questionnaire, focus group discussions and mini-case studies but only discussed findings of the first two. The study found that the eldest child and the male child are given preference in respect of education by their family. This report reaches the conclusion that the main reasons for girls leaving school were due to family problems, parents needing help at home and the girl falling pregnant. However, the report found that gender norms and roles in PNG societies are evolving, but only visible in matrilineal societies and urban centres. The participants in the research suggested that, if given the financial support, better learning resources and encouragement by family, they will remain in school. Financial support, quality education and family support are therefore needed to help girls stay in school, however the report does not comment on how to assist out-of-school girls re-enter formal education.

Rena (2011) conducted a study in four primary schools of Bumayong in Lae district in the Morobe province. The study involved 40 teachers and data was gathered through in depth interviews, participant observations, focus groups and documentary analysis. The study revealed that the quality of education has deteriorated over the past few decades. Many schools in PNG do not have classrooms, teachers, and basic facilities. As a result, the children are losing interest in going to school. Children dropped out of school so as to assist their families in the household and agricultural activities. It also reveals that the dropout rate of girls is more than that of the boys due to gender inequality in the country. The study recommended that budgetary allocations should be increased so as to improve the infrastructural facilities and encourage the children to attend primary school and thus achieve the Millennium Development Goal/Education for all in PNG.

Methodology

This study was conducted using both qualitative and quantitative research methods and included a literature review. Data was collected from three categories of participants. The main reason why this study used a mixed method approach is due to the fact that “this approach is that both qualitative and quantitative data provide different types of information- often detailed views of participants qualitatively and scores on instruments quantitatively - and together they yield results that should be the same” (Creswell, 2014:219).

A literature review was carried out to identify key government and international reports and policies that related to the research problem. A brief survey of potential participants led to the identification of 32 children between the ages of 10 and 16, 4 service providers and 2 community groups. Questionnaires which contained both qualitative and quantitative instruments were given out to category 1 participants- children aged between 10 and 16- and category 2 participants- service providers. Responses from category 3 participants – community groups- were collected from two separate group meetings.

Table 1: specifies the categories, the procedures and instruments used per category

Category	No. of Participants	Gender/ Type	Age	Research Type
1 Out-of-school Children	32	23- male 9 - female	10 -16	1. informal interview and observations 2. Questionnaire
2 Service Providers	4 Organizations	1 Government 1 Church 2 Non- Governmental	30 -60	1. Questionnaire
3 Parents and community members	2 Communities - 57 adults	1. Lopi community (south) - 6 male - 22 female 2. Town (center) community - 12 male - 17 female	30-60	1. Group meeting

The principal question, within the limitation of the case study, which all participants agreed and consented to participate in and answer was “What are the main reasons for school age children and adolescents staying out of school?”

Subsidiary to this principal question was the need to research:

- what kind of activities do these children engage in while not in school?
- what services are available to assist these children?
- what other recommendations are there to improve the fate of out-of-school children and adolescents?

Findings

1. Why do school age children and adolescents stay out of school?

The question was asked in many more ways than one but the main idea was to gather the reasons why children and adolescents stayed out of school. The responses indicated that the reasons are mostly because of factors at home rather than at school. Difficult circumstance at home (response 1), lack of or no financial support for bus fares, stationery, uniforms, lunch (response 3), lack of or no care and concern from parents and guardians (response 4), unstable or no home to stay in (response 7) and abuse by parents and guardians at home (response 10) are factors related to the kinds of home or family background these young people come from. Marriage and pregnancy for girls (response 5), and involvement in drug and alcohol (response 6) are personal experiences, which the young person was most likely to experience because of influences and the kind of environment they live or are raised in.

Overwhelmingly, the statistics indicated that the home and family background is a major contributing factor to why children and adolescents stay out of school. The school is still a factor but not as dominating as the others.

2. What activities are school age children and adolescents engaged in while out of school?

Firstly, there was an obvious lack of correlation between response by category 1 and the adults in categories 2 and 3. For instance, formal employment (responses 2), informal family business (response 3), unproductive work (response 4), involvement in drug and alcohol (response 6) and engagement in intimate relationships (response 7) displayed a lack of correlation between category 1 and adults in categories 2 and 3. An obvious

observation was in response 2; whereby category 1 respondents claimed to be engaged in helping their parents while they are out of school; however categories 2 and 3 registered by 100% that this was not the case. There is a high likelihood that false information was given.

Secondly, there was lack of formal employment opportunities (response 1) and NFE or life skill training activities availability (response 5). These two activities; formal employment and NFE, would assist children in gaining adequate and financial support as well as skills for self-sustenance. However, these two activities are the least of all the activities out-of-school children and adolescents are engaged in.

3. What services are provided for out-of-school children and adolescents?

The data presented another interesting case. Though 4 service providers participated in the research, not all provide the same service. Furthermore, the service they provide does not directly deal with out-of-school children and adolescents. Counselling is the main type of service provided. The only life skill training available was offered to parents and not the children. There may be other organisations that provide life skill training however, they were not part of this research. Another critical finding was that, none of the service providers were or are able to reintegrate these children and adolescents back into formal education.

4. What recommendations are there to help support out-of-school children and adolescents?

The data strongly indicated that many out-of-school children and adolescents would prefer to return to formal education (response 2). This response was also supported by categories 2 and 3. Counselling was least recommended by categories 2 and 3 participants and not seen as necessary by category 1 participants, though it is a common service provided by service providers. It was overwhelming but not surprising to see that category 1 participants had not responded well to this question. It showed that these young people were unsure and unaware of the solutions to their current situation. The adults in categories 2 and 3 had the dominant voice in this question.

Summary discussion of literature review and data analysis

Main reasons

There are many interesting correlations that can be noted between the findings of the literature review and the findings of the data collection. Research reports gave a number of reasons or causes of why children leave or stay out of school. These reasons were thematically categorised as: family socioeconomic barriers, environmental barriers, gender equality and the school system. In the data collected, over 70% of the responses from all participants pointed to the home and family background of the child as being the most common cause for children to be out of school. Both the literature review and the data collected emphasized that the same cause was the socioeconomic status of families where the children were raised. One of the national studies reviewed in this research states that 'most children would like to go to or remain in school, they opt to leave or stay out because they did not have basic daily necessity to survive' (Sullivan et al. 2010).

Activities out-of-school children and adolescents engage in

In terms of the activities that out-of-school children and adolescents engage in, relatively little was identified in the literature review. Child labour was the main type of activity reported on. The children engaged in child labour to assist either themselves or their family to survive on a daily basis. The two studies that identified this were Sullivan et al (2010) and UNESCO and UNICEF (2015). The data collected in response to research question 2 identified that firstly there was a lack of correlation between the children's response and adult participants' response. Children claim to assist parents and were engaged in informal businesses to help their family, while adults claim that was not the case.

Secondly, it was found in the data collected that there was a lack of support services available to these children such as life-skills training and formal employment. The data collected identified that 50% of these children engage in alcohol, drug, sex or other unproductive activities.

Services provided to out-of-school children and adolescents

Some of the literature reviewed and some of the data collected, drew attention to NFE as a means that can and has helped out-of-school children and adolescents to either sustain themselves economically or reintegrate into

formal education. The literature identified two forms of NFE which was provided in Ghana and the Gambia respectively. In Ghana, Rigby (2015) highlighted Complementary Basic Education. CBE has helped children out of the reach of education due to geographical locations whilst in the Gambia, NFE offered girls the opportunity to reintegrate into formal education through its re-entry program (Yasunaga 2014). The data collected from the 4 service providers found that none of them were able to provide a re-integrated program to assist children and adolescents re-enter formal education. Moreover, skills training that was provided was limited only to parents or adults.

Implications of this research

The findings in this study have implications for two government departments; the DoE and the Community Development and Religion Department, together with three groups of people: parents, the community and researcher.

Firstly, the implication of a lack of communication between adults and children and adolescents will lead to family relationships deteriorating even further. The research findings have shown that poor family backgrounds and the environment surrounding the child have been major contributing factors to why they stay out of, or leave school. Good communication between adults and these young people may in time, close that gap.

Secondly, social service providers have not been able to assist these young people as effectively as expected. The service providers stated that this is due to insufficient funding. The implication of this is that it limits the services that out-of-school children and adolescents can receive from social service providers.

Thirdly, DoE and the schools have not been fully implicated in the findings of this study, but they still bear some responsible as to why children and adolescents stay out of school. The demand for education can be generated by both parents and children. Demand for education can be generated by improvement of the system; more schools, more qualified and dedicated teachers; a child-friendly school environment and better learning facilities and resources and school based counsellors.

Finally, the implications for a teacher researcher are as follows. Firstly, it helps to identify the gaps and failings in both the education and social system that were initially created to educate and help young people. It helps the teacher researcher also to question the system and to find recommendations for improvement. The research shed light on sensitive issues surrounding the fate of school age children and adolescents who are not in the school system. The knowledge gained from this research helps the teacher researcher to realise the needs of young people and to respond to children and adolescents with care and tolerance.

The limitations in this research are due to limited number of participants, time and resources. The researcher was not able to interview parents individually to get their feedback about their views on the issue of out-of-school children. Though attempts were made, time was insufficient in completing the process. It was limited to only one urban centre in PNG. The research was unable to offer definitive feedback for the rest of the country. The random sampling process, created an uneven distribution of participants by gender and by zones. The biggest limitation of this study is that the schools and the Division of Education were not able to contribute to the study and share their opinions and experiences.

Conclusion

This study had brought to light many issues surrounding out-of-school children and adolescents in one urban centre in Papua New Guinea. The study explored these issues by examining the current literature in PNG and overseas on out-of-school children. It specifically looked at the main causes of out-of-school children and adolescents, activities these children engage in, services that are available for them and the recommendations that would assist these children and adolescents. The study then presented the results of the questionnaires and group meetings that were collected from 32 children aged between 10 to 16, 4 service providers and 2 community groups.

There were also a number of correlations in regard to participants' responses between the data and the literature review. In both the literature review and the data, it was clear that many children and adolescents were unable to stay in school and thus leave formal education because of lack of support from their family. It was clear also that adults and children do not agree on the kind of activities out-of-school children engage in. This is an indication that there is lack of communication among adults and children or adolescents. Finally, both the data

and literature have indicated that there is little done to assist and provide meaningful services to children and adolescents who are out of school.

Both literature and data have raised some similar recommendations. Firstly, recommendations can be directed to addressing children and adolescents who are currently not in school. Such recommendations as supporting, providing, financing and improving non-formal education, life skills training and social services for underserved and underprivileged children who come from poor family backgrounds.

The second types of recommendation are preventive measures. These recommendations, if implemented, can either retain children in school or attract children into school. The providing of quality education by increasing investment in building more schools; more and effective intervention and providence of better facilities; the demand of increasing enrolment and the use of language that is familiar to students thus increasing parents and community involvement.

In conclusion, there should be more research into the gaps and failings of the both the education system and the social service providers in achieving the MDG and UPE goals in Papua New Guinea. In PNG, where the country has a 70% illiteracy rate and only 2% of the population with a university qualification (National January 9, 2015:2), it therefore leaves very few elites to lead and manage a “growing population of 3.15 % per year” (National, March 6, 2015: 32). With well over half a million children out-of-school (Rigby 2015), a disastrous future looms unless more research and intervention is done through collaboration of the Department of Education and the Department of Community Development and Religion.

References

- Andrew, M. (2013). *Gender and Economic Choice in Papua New Guinea: Results from a rapid qualitative assessment in sixteen districts* (Assessment). Port Moresby: PNG Institute of National Affairs. Retrieved from http://www.inapng.com/pdf_files/Gender%20and%20Economic%20Choice%20PNG2.pdf.pdf
- Creswell, J. (2014). *Research Design*. Thousand Oaks, California: Sage Publications.
- Gibson, J. (2000). Who's not in school? Economic barriers to universal primary education in Papua New Guinea. *Pacific Economic Bulletin*, 15(2), 45–58. <https://doi.org/http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.196.4447>
- Murray, N., & Tietjen, K. (2014). School Dropout Prevention Pilot – First Follow-Up Impacts. Presented at the SREE Spring 2014 Conference. Retrieved from <https://eric.ed.gov/?id=ED562835>
- Forward by Minister. (2015). In *2015 Papua New Guinea Development Cooperation Policy* (pp. 6–8). Port Moresby: Department of National Planning and Monitoring. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=2ahUKEwifuriDj4XgAhUHQo8KHSSJDpEQFjAAegQIBxAC&url=http%3A%2F%2Fwww.planning.gov.pg%2Fimages%2Fdnpm%2Fpdf%2Flatest_pub%2F102_PNG%2520DevelopmentCooperationPolicyFINAL%2520MasterCopy%252025Feb2016.pdf&usg=AOvVaw03-FXCR7DaXUvnuDzJP4U
- National. (2015). Only 2% of Population have Tertiary Qualification, p. 2. *Papua New Guinea Education Profile 2014 Update*. (2014). Retrieved 3 August 2016, from <http://Papua New Guinea National Education Profile 2014 Update>
- Petrosino, A., Morgan, C., Fronius, T., & Boruch, R. (2012). Interventions in Developing Nations for Improving Primary and Secondary School Enrolment of Children: A Systematic Review. *Campbell Systematic Reviews*, 8(19). Retrieved from <https://campbellcollaboration.org/library/improving-school-enrolment-developing-nations.html>
- Rena, R. (2011). Challenges for quality primary education in Papua New Guinea—a case study. *Education Research International*, 2011, 1–11. <https://doi.org/10.1155/2011/485634>
- Rigby, B. (2015). *How to provide education to 58 million out-of-school children* (Statistics for out of school children). UNICEF.
- Sullivan, N., & Keleba, K. (2010). *Working street children in Papua New Guinea*. Port Moresby: Department of Community Development. Retrieved from <http://www.dfcd.gov.pg>
- UNESCO Institute for Statistics/UNICEF. (2015). *Fixing the broken promise of education for all: Findings from the global initiative on out-of-school children*. UNESCO Institute for Statistics. <https://doi.org/10.15220/978-92-9189-161-0-en>
- Yasunaga, M. (2014). *Non-formal education as a means to meet learning needs of out of school children and adolescents*. Montreal, Canada: UNESCO - Institute for Statistics.

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Elementary teachers' application of scripted mathematics lessons in 3 elementary schools in Port Moresby

Michael Uvisa Mera

Abstract

This paper discusses the implementation of the use of scripted mathematics lessons by elementary teachers. The study was conducted as a case study using mixed methods, so both qualitative and quantitative data were collected in this investigation. The research design was descriptive and interpretive case study. The purposive sampling was used to select the 18 participants in 3 elementary schools in an urban setting. The study investigated how elementary teachers are coping with implementation of mathematics scripted lessons and what materials they are using to support students' learning. It was found that elementary teachers were using the mathematics scripted lessons to guide their teaching. It also found that some teachers were willing to explore other teaching strategies to use when teaching basic mathematics at this level. It also found that monitoring of the implementation of this initiative was minimal in the research sites. Participants suggested that professional support was needed to assist them in areas in scripted lessons.

Keywords: Scripted lesson plans, professional support, basic mathematics, elementary teachers

Introduction

This study investigated the progress of the implementation of the new Standards Based Curriculum (SBC) especially the use of scripted lessons plans (SLP) to teach mathematics in elementary classes in three urban elementary schools at the research sites. This was aimed to assist teachers to strengthen elementary students to master basic mathematics skills and knowledge. This project provided an important opportunity to advance the understanding of how elementary teachers were expected to use the scripted lessons to teach basic mathematics and to use the prescribed standard assessment tools and benchmarks to measure the students' mastery in mathematical skills.

Brief literature review

Scripted lesson is a tool of direct instruction (DI). A common critique about scripted teaching presumes that any person can come into a classroom and teach a lesson if they follow the script (Commeyras, 2007). However, proponents of scripted teaching maintain that just like an actor brings life to his script, a teacher can and must use his own personality to breathe life into the teaching script (Commeyras, 2007). The goal of DI is to accelerate student learning by carefully controlling the features of curriculum design and instructional delivery (Marchella-Martella, Slocum., & Martella, 2004).

Scripted teaching programs are meant to be used as a support for teachers to help them develop their own teaching style and confidence in their teaching ability (Reeves, 2010). Swanson (cited in Bryant, Bryant, Gersten, Scammacca, & Chavez, 2008) found that studies using explicit instructional procedures such as sequence instruction, instructional routines, guided practice and independent practice on student learning on a regular basis were more effective. Research also shows that when teachers systematically develop and use scripted lessons, several encouraging outcomes can occur, one of which reveals that students spend more time actively engaged with their subject matter, thereby increasing their achievement (Rieth & Evertson, 1988).

In addition to the benefits, systematic use of effective scripted lessons can also decrease behaviour problems in the classroom. In their review of the literature, Gunter, Venn & Hummel (1998), acknowledged that scripted lessons were important to improve achievement and reduce poor behaviour hence scripted lessons can be of significant help. This shows that scripted lessons can lead to lower levels of misbehaviour and higher levels of achievement by students if applied appropriately by the teacher.

Methodology

The mixed methods paradigm was applied to collect and analyse data from the quantitative and qualitative research tools developed for this study. The goal for using the mixed methods approach was to draw from the

strengths and minimize the weaknesses of the quantitative and qualitative research approaches (Johnson & Onwuegbuzie, 2004). This methodology allowed for a more complete utilization of data than do separate quantitative and qualitative data collection and analysis (Creswell, 1999). The research design for this study was a descriptive and interpretive case study that was analysed largely through qualitative methods with a small quantitative component. Due to limitations of funding and time, the study was undertaken in 3 elementary schools in Port Moresby. The purposive sampling was used to select the 18 participants and the study was conducted for three weeks on site. All ethical procedures of research were applied to ensure that participants identities remain unknown and that all agreed to part-take in this study at their own discretion.

Discussion of findings

The discussions of the research finding took on the interpretivist paradigm using the thematic networking approach. The interest of interpretivist is not the generation of a new theory, but to judge or evaluate, and refine interpretive theories (Walsham 1995, Myers 2009). The use of theory as an iterative process between data collection and analysis was applied in this study. The social constructivism theory of learning by Vygotsky and Thomas Guskey were used as the lens to draw upon the research findings. The theory defines learning as a social activity that plays a fundamental role in the development of cognition that results in active learning. The findings are presented under the following themes; challenges with implementation of mathematics scripted lessons; methods applied in assessing mathematics; and in-service training workshops

Challenges with implementation of mathematics scripted lessons

The respondents were asked whether they were implementing the scripted lesson plans. The information in Graph 1 shows that ninety-four percent of the teachers responded YES, suggesting that they use the mathematics SLP to teach. However, 6% responded NO, suggesting that they may not be using SLP as a guide to teach mathematics.

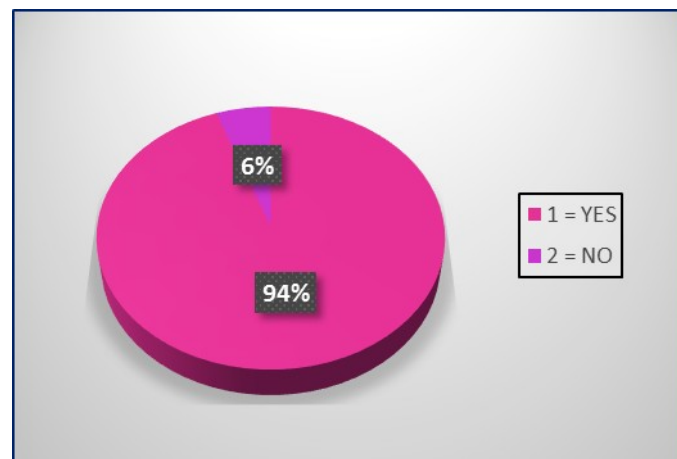


Figure 1: E2 teachers' use of mathematics scripted lessons

Contrary to figure 1 above, the teachers' use of the SLP to teach mathematics may be encouraging however, the qualitative data seem to suggest that this may be because of the suggested shortcoming of the prescribed mathematics scripted lessons. The following excerpts are responses to the open ended questions from the questionnaire

School A Teacher: *Mathematics scripted lessons are good but not so much of information is given from what I understand I implement or teach it.*

School B Teacher: *Progressing very slow with the scripted lessons. The scripted lessons are good but there should be more in-service on how to use them*

School C Teacher: *Mathematics scripted lesson is been (sic) very very good and also very helpful in terms of planning process*

The participants were also asked whether they were using the scripted lessons as a guide to teach. According to figure 2, fifty-six percent of teachers stated 'YES' suggesting that they followed the SLPs guided practice

however, 44% stated 'NO' suggesting that they were not following the SLP steps. This may suggest that the interpretation and implementation of scripted mathematics lessons may be understood differently by different teachers therefore, the application of SLP varies among the elementary teachers.

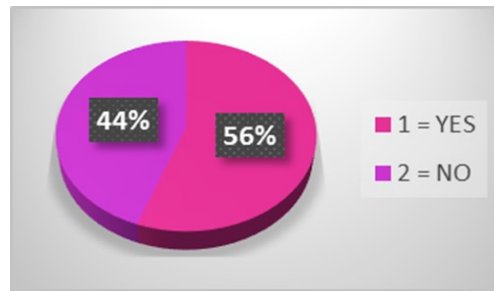


Figure 2: Mathematical concepts were taught following the scripted lesson steps

Teachers responses to the open-ended questions suggests that the respondents were facing challenges as shown in the excerpts presented here.

School A Teacher: *Mathematics scripted lessons are great but not so much of information is given. From what I understand I implement it.*

School B Teacher: *I will say its bit difficult at the first place but now I'm beginning to understand the mathematics script lessons.*

School C Teacher: *I am getting along well but some lessons do not match the topics eg: Term 2. Wk1. Monday. Objective: Sides, Corners, Shapes or angles to describe 2D shapes. Topic: Multiplication: 2 digit numbers. Teaching Activity: children to identify & describe shapes Strand: Number & Operation. It's a bit confusing for some teachers – some of us can contend to do a lesson plan again.*

The analysis of the findings presented above is discussed below to establish the extent of the challenges to which the elementary teachers encountered in their efforts to implement the change. The findings showed that understanding of the SLP as a tool to assist teach mathematics was a challenge in the initial stages of the reform. The study revealed that the interpretation and implementation of the SLP may have been understood differently by different teachers therefore, the application of the SLP varied among the elementary teachers. Duffee & Aikenhead (1992) point out that the application of the scripted lessons to teach mathematics has to be part of the teacher's cognitive constructs, skills and tacit know-how that form the central aspect of a teacher's practical knowledge, which guides decisions on classroom practice. According to Guccione (2011), scripted teaching programs when used properly as a tool allows teachers to add and subtract parts of the structure to create a learning environment that facilitates appropriate instruction individualized to the needs of their learners. Hundreds of schools could be using the same scripted curriculum however, if used appropriately, their lessons will be carried out differently as a reflection of the diverse learners in their respective classrooms. The goal is that all of the students will learn the same concepts and be able to use the knowledge that comes from the scripted lessons.

Respondent teachers claimed that individual students who were having difficulties with mathematical skills were identified with the use of SLP's; however, not all the teachers were confidently assisting students who were identified as having mathematical skills difficulties. The cause may be that some teachers were not following the guided steps of the SLPs. According to Slavin, (1993), Gunter, Venn, & Hummel, (2004), for each step of the SLP, the teacher provides clear instruction and explanation, and models the step in order to provide guided practice to students. This happens during individual activities and group practice. The teacher withdraws close assistance as the students acquire mastery of the mathematical concept. The findings showed that the SLP guided practice was not consistently followed through by some of the teachers in all the three schools that participated. The study showed that teachers' perspectives, knowledge base and their competencies may have adversely contributed to the poor start of the curriculum reform. This indicates a need to understand the various perceptions of change that exist among the elementary teachers to develop an intervention program to address the gap.

Teachers practice in assessing mathematics

The study investigated how well the teachers understood the SBC assessment process and how effectively it was actually applied during the teaching of the mathematics lessons. Graph 3 shows that teachers were equally divided with fifty percent stating that they understood the assessment process and were effectively applying it, while the other 50 % participants suggested that, they were not so sure of the assessment process.

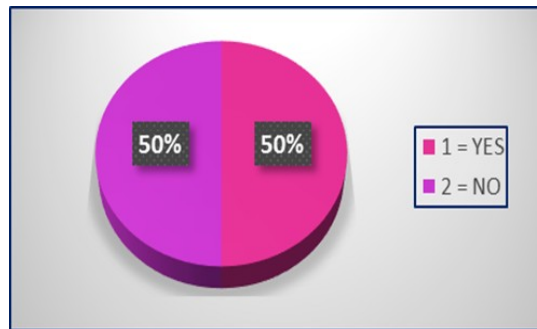


Figure 3: Teachers understand the SBC assessment process and effectively apply it during class assessments

Teachers responses from qualitative open-ended questionnaires are shown:

School A Teacher: Daily lesson assessment, Termly assessment through extraction several daily assessment points, Extraction of scripted lessons from Teacher guide, End of year general revision assessment.

School B Teacher: I do mainly on observing children during lessons and look through their exercise books

School C Teacher: The assessment strategy that I use is the daily marking of student tasks given on the blackboard

Moreover, the study attempted to gather views from the teachers to establish how well the students were meaningfully engaging in their mathematics lessons and whether their engagement was being formally or informally assessed. Figure 4, shows that 89 % of the respondents encouraged their students to participate meaningfully as part of their class assessment process while 11 % of the respondents stated NO, which may suggest that their students may not have been meaningfully participating in their mathematics lessons.

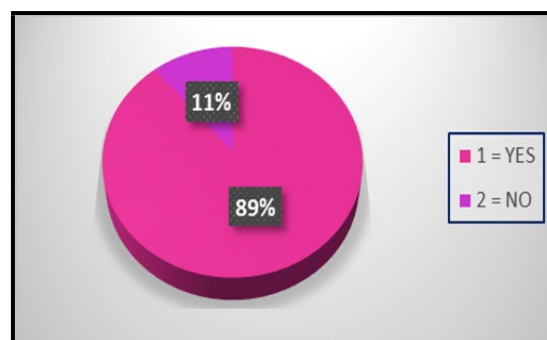


Figure 4: Students participate meaningfully in the lessons as part of the class assessment process

The practice in the three schools suggests that the level of students' participation in their mathematics lessons was arguably satisfactory and that teachers have been making some formal and informal assessments of their students' level of participation. The study investigated the use of oral questioning and interestingly observed that use of English and Tok Pisin was used interchangeably in the classrooms

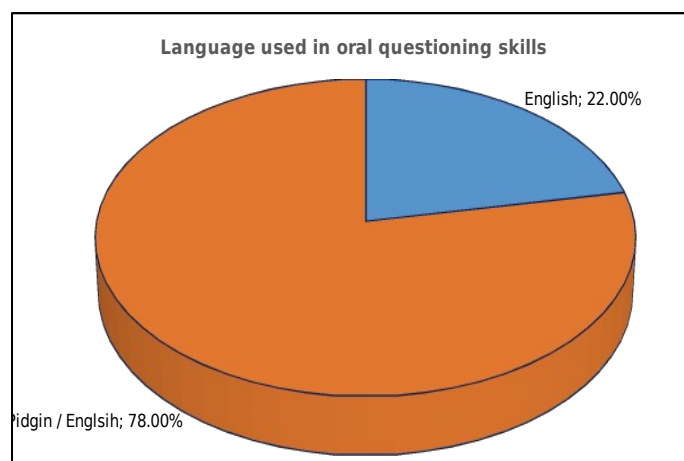


Figure 5: Language used in oral questioning

The figure shows that oral questioning skills applied by the teachers were satisfactory, however required improvement in the presentation and rephrasing of the questions. In most classes observed 78% used English and the Tok Pisin vernacular interchangeably to ask questions. Most students responded in Tok Pisin to explain the reasons for their answers. Teachers that repeated the same question in the pidgin language explained that they needed to establish clarity and understanding of the mathematics content. Other teachers that did not want to repeat the questions in Tok Pisin indicated their reluctance stating that English was the compulsory language of instruction.

Further discussions of the findings presented for the theme “teachers practice in assessing mathematics” is significant to establish the extent to which respondent teachers communicated their practice of assessing mathematics. The practice of SBC assessment process was evidently not standardized as communicated by teachers. The SBC assessment is continuous which means assessment is done before, during and after the mathematics lesson to demonstrate the desired lesson objective(s). According to the SBC awareness materials (NDoE, 2015), the SBC assessment procedure emphasises three types of assessment strategies. These are Assessment *AS/IN* learning; Assessment *FOR* learning and Assessment *OF* learning. The assessment *AS/IN* learning takes place in the classroom every day and is also referred to a ‘*formative*’ assessment. Assessment *FOR* learning is also formative but is commonly referred to as ‘*diagnostic*’ assessment. The assessment *OF* learning is used to provide a summary of students learning over a period of time and is generally referred to as ‘*summative*’ assessment. Teachers are required to understand and practice these three types of assessment daily in the teaching practice.

Moreover, the respondents communicated that students were participating meaningfully in the practice of mathematics lessons. The study showed that teachers were actually conducting informal assessments through observations, questions and providing feedback to individual and group responses. However, during observation of three classes out of the nine observed in the three schools it was noted that the teacher’s response to individual students were not very encouraging nor following the SLP guided practice. Students’ wrong answers during the mathematics lessons were not corrected nor correct answers emphasized by the teacher to stress its significance to the desired outcome. According to the SLP guided steps “check,” this requires that many of the practice opportunities provided to students involve questions that require either chorus or individual answers. After the chorus response one can either model the next step or probe with a check by scripted lessons asking an individual student a follow up question related to the step to ensure that all students fully understand the instruction. When learning is occurring at an accuracy rate of 80% or higher, teachers should now move to providing practice at the independent level (Gunter, Venn, & Hummel, 2004). After modelling/probing/checking all the steps in the lesson the teacher should provide guided practice on previously acquired knowledge (Heward, Courson, & Marayan, 1990). These independent practice opportunities can be done individually or in small groups. It is critical that teachers understand that this step may occur a number of days after the initial introduction of new skill or information.

Interestingly, the study showed that English as a mandatory language of instruction in the elementary sector is a growing concern. Observation of all nine classes conducting mathematics lessons revealed that both teachers and students used the Tok Pisin vernacular interchangeably at certain points of their lessons. Questions which were initially asked in English were rephrased by the teacher in pidgin to establish clarity and understanding. Students also responded or explained their responses in pidgin to express themselves meaningfully. De Clercq &

Shalem (2014), state that teachers’ poor proficiency in the language of instruction is one of the major obstacles to better teaching and learning. This discrepancy could be attributed to elementary teachers not being afforded the opportunities to study the English language systematically during their formal study of teacher training. What this may suggest is that the elementary teachers’ ability to teach in English will be more difficult for second language teachers, and even more challenging for students who are second language speakers. This makes the job of teaching mathematics in English harder for the elementary teachers who have not mastered the English language skills, ideas and concepts well in the course of their teacher training. However, it was also observed that all other teachers that did not want to repeat the questions in pidgin indicated their reluctance stating that English was the compulsory language of instruction. This trend which was displayed in all three schools suggests that teachers in most urban elementary schools may be using English as the language of instruction to ask questions, however most students may be responding to the questions in the Tok Pisin vernacular.

In-service training workshops

The teacher participants were asked about their views on in-service training. Graph 6 shows that 89 % of the participants believed that more professional in-service support is required by teachers to enable them to use the SLPs well to teach mathematics lessons. However, 11 % of respondents were of the view that they may have attended sufficient in-service training workshops on scripted mathematics lessons. This may suggest that they are now able to use scripted mathematics lessons, or it may suggest that these are the teachers who responded ‘no’ to question one, and don’t want to go to an in-service on something they don’t use

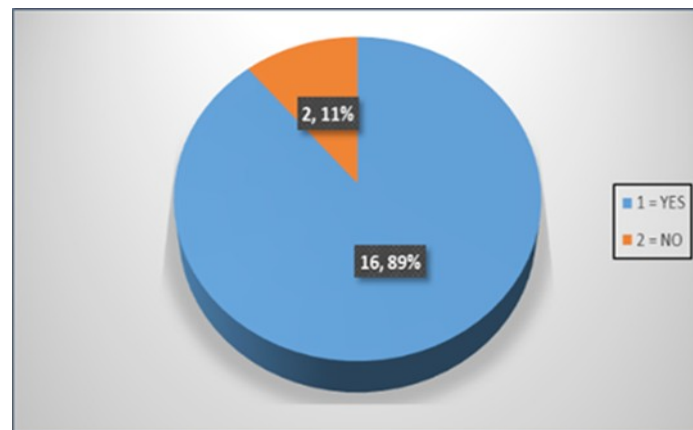


Figure 6: Professional development is needed teach basic mathematics well using scripted lessons

The excerpts from the participants show the varying professional support received:

School A Teacher: *Only one in-service – which I believe is not enough to really understand the scripted lesson approaches. I believe the department should concentrate seriously on how well they can equip the teachers.*

School B Teacher: *Yes, but not enough. We need more in-service and proper materials for teaching and learning. Curriculum Development areas need to organize accurately cause its SBC – Standards Base Curriculum. Teachers need their own SBC kit and not sharing.*

School C Teacher: *Yes, there was one in-service but not on mathematics lessons. The in-services are always on English language*

School A, B C Teachers: *No, not yet attended any in-service training in the last two years.*

The data seems to suggest that the teacher participants need more professional in-services on the use of scripted mathematics lessons. The study investigated the level of professional support that each of the elementary teachers in the schools have being providing to their colleagues, especially with the teaching of mathematics using the SLP. Figure 7 shows that 56 % of the participants stated that they had received professional support from their colleagues in the teaching of mathematics whilst 44 % stated that they had not received any professional support from their colleagues.

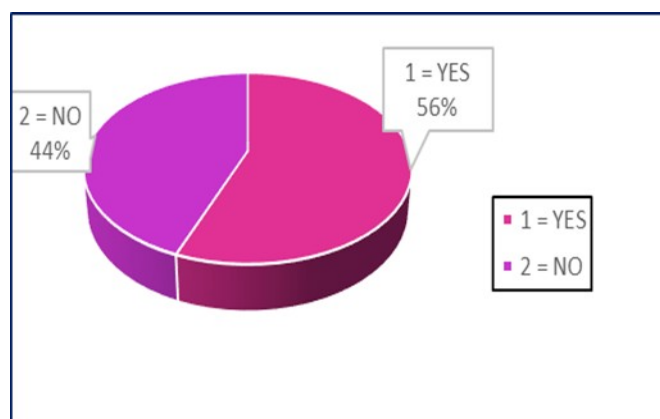


Figure 7: Teachers support each other professionally with teaching of mathematics scripted lessons

Overall, the respondent teachers' clearly stated that there was inadequate in-service workshops conducted on teaching mathematics for the past two years. There are many implications of the lack or insufficient in-service training for teachers, however essentially all contribute to the absence of professional capacity building and competency development of teachers' knowledge base. The greatest challenges at the in-service level is the need to support practicing teachers with the implementation of a demanding new curricula. Some teachers are of the view that the new SBE curriculum represented a major break from the norms of teaching for which elementary teachers were trained. Some also stated that the initial one-week in-service training on SBC in 2015 saw many teachers who came out feeling unsupported, overburdened with the little emphasis on subject matter knowledge, lesson planning, and quality assessment. According to De Clercq & Shalem (2014), effective, professional development activities (PDAs) should be focused on ways of teaching that improve learners' learning. As Welch (2012, p 2) puts it: "if professional development is not centred on the link between educator skill and knowledge and student learning, it cannot be said to be working."

Furthermore, the participants agreed, that they have had minimal interactions with the school inspectors for monitoring purposes since the introduction of the Standards Based Curriculum in 2016. The essence of an inspectors visit to schools is to observe and advice on the monitoring of quality standards and its level of practice by teachers in a school. The response from the schools' highlight seriously a lack of monitoring of teaching and learning practices in schools by those entrusted the responsibility. School inspectors normally assess schools with respect to standards, usually defined within a wide quality framework, and give feedback on the strong and weak points of the performance of schools based on these standards. Some Inspectorates also give schools advice on how to improve, while others are required to limit themselves to their evaluative role and to refrain from remedial action (Ehren, Altrichter, Mcnamara, & O'hara, 2013). A recent review (Ehren al et 2013), shows credible connections between inspections and school improvement and behavioural change among teachers. The schools use the inspection reports and the feedback provided by the inspectors, to implement improvements in the areas of curriculum, teaching and learning and overall school management and administration. According to the respondents, school inspectors have failed to carry out due diligent monitoring and evaluation to provide an honest feedback of their performances to determine the success of the SBC curriculum reforms.

Recommendation

It is therefore recommended that professional in-service programs should be developed and conducted systemically to assist the teachers develop complex English language, assessment and mathematical skills using the SLP. In view of the findings, a future research should be a case study to establish sufficient grounds whether SLPs should be made explicit at the elementary sector.

Conclusion

The practice of scripted lessons plans (SLP) to teach basic mathematics by elementary teachers is understood differently as revealed by the study. The study also revealed that the significance of the impact of SLP to teach mathematics has had minimal profound effect on the practice of the elementary teachers. The respondent teachers communicated that SLP is not monitored as a standardized practice, hence teachers tend to apply their own structures to teaching mathematics lessons. Furthermore, assessment practices observed in the schools do

not conform to the Standards Based Curriculum assessment procedure. Although informal and formal assessments are being conducted, the use of English and the Tok Pisin vernacular to explain mathematics concepts interchangeably is a matter of concern. The findings revealed that content knowledge and English language proficiency of the elementary teachers require improvement. Moreover, in-service workshops have been ineffective in the schools and requires immediate attention to addressing the gaps identified in this study. By systematically educating the teachers through this professional approach, an effective intervention can be collectively developed. Most importantly, school inspectors' performances have also got to be seriously monitored if schools are to show any signs of improvement.

References

- Bryant, D. P., Bryant, B. R., Gersten, R., Scammacca, N., & Chavez, M. M. (2008). Mathematics intervention for first- and second-grade students with mathematics difficulties: the effects of tier 2 intervention delivered as booster lessons. *Remedial and Special Education, 29*(1), 20–32. <https://doi.org/10.1177/0741932507309712>
- Commeyras, M. (2007). Scripted reading instruction? What's a teacher educator to do? *Phi Delta Kappan, 88*(5), 404–407. <https://doi.org/10.1177/003172170708800515>
- Creswell, J. W. (1999). *Mixed-method research: Introduction and application*. Thousand Oaks, CA: Sage Publications.
- De Clercq, F., & Shalem, Y. (2014). Teacher knowledge and employer-driven professional development: A critical analysis of the Gauteng Department of Education programmes. *Southern African Review of Education with Production, 20*(1), 129–147.
- Duffee, L., & Aikenhead, G. (1992). Curriculum change, student evaluation, and teacher practical knowledge. *Science Education, 76*(5), 493–506. <https://doi.org/10.1002/sce.3730760504>
- Ehren, M. C., Althrichter, H., McNamara, G., & O'Hara, J. (2013). Impact of school inspections on improvement of schools—describing assumptions on causal mechanisms in six European countries. *Educational Assessment, Evaluation and Accountability, 25*(1), 3–43.
- Guccione, L. M. (2011). Integrating literacy and inquiry for English learners. *The Reading Teacher, 64*(8), 567–577. <https://doi.org/10.1598/RT.64.8.2>
- Gunter, P. L., Hummel, J. H., & Venn, M. L. (1998). Are effective academic instructional practices used to teach students with behaviour disorders? *Beyond Behaviour, 9*(3), 5–11.
- Gunter, P. L., Hummel, J. H., & Venn, M. L. (2004). Teacher-made scripted lessons. *Elsevier Academic Press, 95*–108.
- Heward, W., Courson, F. H., & Marayan, J. (1990). Using choral responding to increase active student responses. *Direct Instruction News, 9*(2), 30–33.
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: a research paradigm whose time has come. *Educational Researcher, 33*(7), 14–26. <https://doi.org/10.3102/0013189X033007014>
- Myers, J. (2009). The design and analysis of small-scale syntactic judgment experiments. *Lingua, 119*(3), 425–444. <https://doi.org/10.1016/j.lingua.2008.09.003>
- Reeves, C. L. (2010). A difficult negotiation: fieldwork relations with gatekeepers. *Qualitative Research, 10*(3), 315–331. <https://doi.org/10.1177/1468794109360150>
- Rieth, H., & Evertson, C. (1988). Variables related to the effective instruction of difficult-to-teach children. *Focus on Exceptional Children, 20*(5). <https://doi.org/10.17161/fec.v20i5.7503>
- Slavin, R. E. (1993). Ability grouping in the middle grades: achievement effects and alternatives. *The Elementary School Journal, 93*(5), 535–552. <https://doi.org/10.1086/461739>
- Walsham, G. (1995). The emergence of interpretivism in is research. *Information Systems Research, 6*(4), 376–394. <https://doi.org/10.1287/isre.6.4.376>
- Welch, M. (2012). Appropriateness and acceptability: Employee perspectives of internal communication. *Public Relations Review, 38*(2), 246–254. <https://doi.org/10.1016/j.pubrev.2011.12.017>

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Students' low performance in numeracy in primary schools

Nelson Durisi

Abstract

Examination results in recent years show that students generally perform lower in numeracy than in literacy and combined subjects. This study explored the challenges faced by teachers and students in teaching and learning numeracy lessons in class. It has been claimed that the introduction of Tuition Fee Free Education (TFFE) in 2012 could be a contributing factor to the decline in numeracy levels. This is because class sizes have increased, especially in the town schools, and this can contribute to shortages of learning resources if the increase in students' enrolments has not been properly planned for. Teachers may not be able to support students' learning of mathematics if there are too many students to support in one class. Mixed methods were used in this research to explore how students are supported in their learning of mathematics in the primary level of their education. The purposive sampling was used to select the research site and the participants. The data was collected using questionnaires, interviews, lesson observations and focus group discussions on site. This study found an increase in enrolment in the research site. This contributed to overcrowding, shortage of learning materials and created work stress for teachers. It was found that addressing individual learning needs of students was a challenge in large classes so teachers tended to cover only basic knowledge content during lessons. This supports Earthman's (2002) finding that teachers barely have sufficient time to cover content depth when working with large class sizes, because of time constraints.

Key words: low performance in mathematics, overcrowding, support for students learning, resource books, examination results, overcrowded learning environment, teaching strategies

Introduction

There have been discussions by parents, education authorities and interested education stakeholders on the general students' low performance in numeracy compared to language and literacy and combined subjects in the national grade eight examination in recent years. The national pass mark that is set as the bench mark for grade eight students to achieve is 80 out of 120 in all the subjects in the grade eight national examinations. They had to achieve at this level to advance to grade nine in secondary level (Devette & Magury, 2017). However, many grade eight students are unable to achieve at this level and therefore the cut off mark is lowered by the provinces to allow more students to advance into grade nine. This may mean that most grade eight students selected to grade nine may not fully understand subject contents well at the end of primary education. Therefore, when they are selected to secondary level education, they may find it hard to cope with grade nine lessons. The students may turn to cheating to maintain their education or may begin to drop out of school. Furthermore, when the low performing students are selected to grade nine, the trend of low performance is carried over to the secondary level of education. This study is focused on low achievement of numeracy in primary school in Papua New Guinea (PNG).

Numeracy achievement in primary schools is becoming a concern for many schools in PNG. According to the research by the national research institute (NRI), it stated that the quality of learning in basic education was beneath the expected standard (Devette & Magury). This is particular the case for academic performance in numeracy, as shown in Figure 1. As discussed earlier, in recent years the selection authorities had to select students who scored below 80 in order to allow for more students to advance to grade 9 for secondary level education. This practice had hindered students' learning of subjects at the next level of education, especially in mathematics, because they may have knowledge gaps in this subject. This may have an impact on the number of students who choose to study in the mathematics and science fields. Results of grade 8 numeracy achievements for the years 2008 to 2013 had indicated that the students have not been achieving the national cut-off mark in the examination (DoE, 2013) However, there is a steady progression moving towards the national cut off mark. This has clearly indicated by the rate of achievement in numeracy is progressing as indicated in Figure 1.

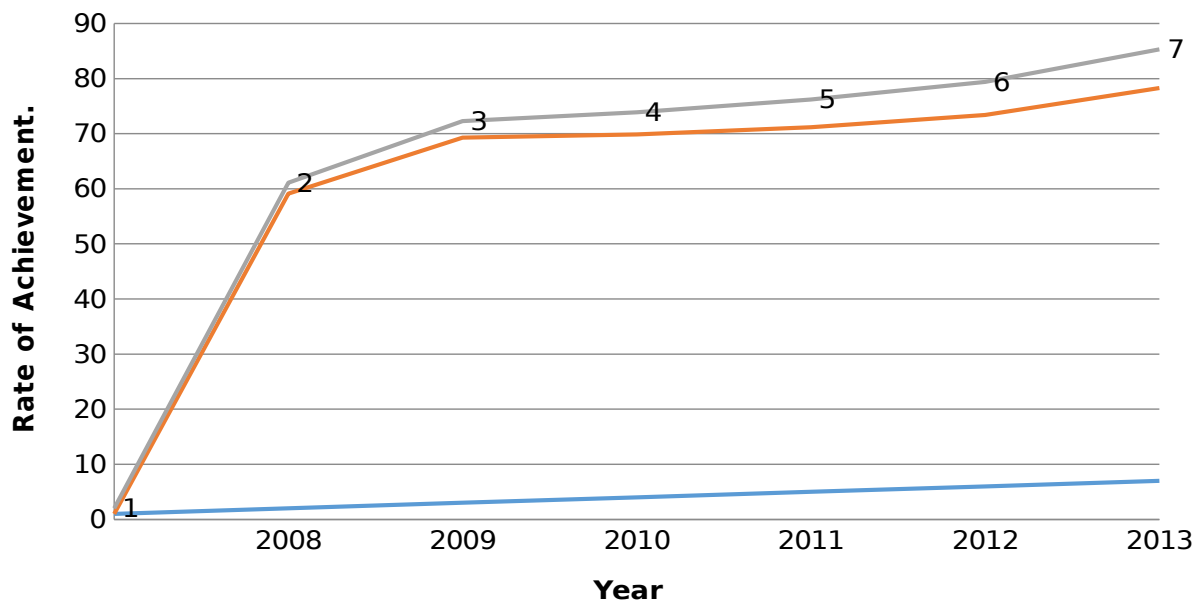


Figure 1: Rate of progression for numeracy skills from 2008 to 2013
 Source: Department of Education- 2008-2013 examination results

The line graph is showing the achievements of numeracy of grade eight students with the following results; 2008 -57.1, 2009 -67.3, 2010- 66.3, 2011 -65.88 2012- 66.38 and 2013 – 71.3. The data indicated gradual improvement despite a drop of 0.42 in 2010.

This research is focused on identifying causes of low numeracy performance in primary schools. The relevant data available to be used on the research are the years 2008 to 2013. The current information for the years 2014 to 2017 were not made available at the time of the study.

Literature review

The structure of education in Papua New Guinea goes through five stages. They are elementary, primary, lower secondary, upper secondary and the tertiary. Each sector prepares the students with relevant knowledge, skills and attitudes to move to the next level of education. Each sector is to provide effective learning strategies which can enhance quality education which is emphasized in Papua New Guinea Vision 2050 document. However, all sectors have their own challenges in addressing the learning needs of students. The primary sector, in which the study is based, has as one of its challenges the question were grade 8 students achieving below the national cut off mark especially the numeracy examination. Those challenges are attributed to number of factors that affect the performance of grade 8 numeracy performance in Papua New Guinea. Major challenges of achievements in numeracy can be the resource books, students' enrolment, teaching and learning and the staff lesson content delivery.

Resource books play a fundamental role in school curriculum. The textbook has assumed the central position in mass education not only to support instruction but also to symbolize that instruction or in other words, the textbook defines the curriculum. (Westbury, 1990, p.2). Textbooks are used as guides for teachers to assess the parameters of instructions and students' achievements. Students heavily rely on texts that constitute the base of school knowledge, particularly in developing countries where there is chronic shortage of qualified teachers (Altbach & Kelly, 1988, p. 3). A resource shortage has become a common challenge for many schools in Papua New Guinea. In the absence of the resource books, teaching and learning becomes a tedious job for teachers and students. The availability of learning resources in schools is very important because they play a major role in supporting students' in their school subjects in primary education.

Mathematics textbooks are vital support resources to support students' learning of mathematics. As stated by Lockheed & Verspoor (1991), the impact of the presence or absence of textbooks can be easily assessed from the results of students' achievement in their subject areas. The absence of mathematics textbooks in the classrooms as found in the study by Lockheed & Verspoor (1991) may be one of the reasons for students'

general low performance in the grade 8 national examination as shown (figure 1) in the examination results in the last three years. Research by Rena (2010), on the challenges for quality primary education in Papua New Guinea has revealed that there are inadequate text books for teachers' use due to distribution problems.

The introduction of Tuition Fee Free Education (TFFE) in 2012 has increased the enrolment of students in primary schools throughout the country. When more students were enrolled, more resources and work from teachers is needed to address the increase in student population. Overcrowding, especially in towns and city schools having 50 to 100 students in a class is a worldwide issue (Ijaya, 2000). Papua New Guinea is facing a similar trend in that students' enrolment where more students are accommodated in rooms that were designed for a lesser number of students. Studies by Earthman (2002), Yaman, and Uygulamanda, (2009) and Burnet (1995) found that overcrowded classroom conditions hinder teachers' attention to individual students and slows down the progress of students. Addressing the individual learning needs of students would be a challenge in bigger classes. Teachers tend to cover only basic topic lessons according to the allocation of time for the learning area (Earthman 2002, p.11). When the above challenges are not addressed, students' numeracy performance may be affected.

In a large class size, teachers would find it a challenge to attend to individual learning needs of students. The large number of students in class results in an acute shortage of resource books to cater for every student and teachers' needs. Text books play very important roles in improving students' learning in primary education. Teachers and students rely on the resource books to guide them in their learning in schools every day. Constructing learning centres, subject corners and remedial activities can be challenge to teachers in crowded rooms.

Teaching impacts the performance of students' numeracy results. Teaching should be more interactive between and teacher and students. Learning becomes meaningful through social interaction. Students bring some numerical knowledge from their societies that teachers need to build on. When students are engaged in doing mathematics in ways that are similar to doing mathematics in out-of-school situations, they will learn better (Masingila, 1993). Students should be engaged in practical mathematics activities where they discover answers for themselves which become lasting experience for them. Teachers should see themselves as facilitators of learning in class rather than transmitters of mathematical knowledge (Matang, 2002. p.29).

In the phase of current changes in curriculum reforms in Papua New Guinea, teachers are required to keep abreast on what the mathematics curriculum entails. Staff in-services and trainings on teaching, assessment and evaluating of students' learning in mathematics are required. Teacher professional development is very important to help teachers to teach students in ways which lead to learning improvements (Bruce & Showers, 2002). Teaching, assessment and evaluation enhances performance in mathematics and other courses which help teacher and students to improve academically. Ongoing support by supervisors through lesson observations and peer-teaching help teachers overcome challenges they may be facing in teaching numeracy.

The performance of numeracy for grade 8 students in the years 2008 to 2013 is a challenge for schools in Papua New Guinea. The achievement had not reached the required pass mark of 80 due to lack of resources, high enrolment leading to overcrowding in class resulting in poor performance in by teachers leading to poor results in grade 8 examinations.

Findings

In order to gain more insight into how the teaching of mathematics are taught and students are supported in the grade eight at the school site, data was collected on resources that are used to support students' learning, the teaching strategies that are used to teach mathematics and how teachers are supported to strengthen their teaching strategies in mathematics.

Student resources

The student participants (grade eight students) were asked whether they had mathematics textbooks to use during their mathematics lessons. The excerpts from students' interviews presented here shows their various responses.

Student 1: There are no... any mathematics text book. The teacher only write on the front (meaning board) and we copy into our books.

Student 2: *No one share (sic) maths text book with me because we don't have any maths text book in our class.*

Student 3: *The teacher have (sic) no maths text book to give it (sic) to the students to use it (sic). She always writes on the blackboard and we all copy.*

The quantitative data supports other data in this study which shows that grade eight students' mathematic textbooks used to support students' learning is nil which is why the teachers write the notes on the board for students to copy. This may suggest that grade eight mathematics lessons may be focused on teacher writing notes on the board while students copy the notes. It also infers that much time is spent on students copying written notes and activities from the board and therefore minimal time may be spent on explanations of concepts and informal assessment on the students' understanding of the mathematical concepts taught.

Teacher resources

In order to explore the issue of resources further, the teachers were asked during interviews about the availability of mathematics resources to support their teaching. The excerpts from the interview data below show their responses.

Teacher 1: *Teachers' resource books in the schools are a problem. Teachers need resource books to teach effectively. (When there is a) Lack of teaching resource book (sic), learning is not effectively and not interesting.*

Teacher 2: *Math resource books are our greatest problem. We lack teaching materials that has led to low numeracy lessons being taught not effectively (This means that because of inadequate mathematics resources, the teaching of mathematics lessons is challenging).*

Teacher 3: *Insufficient resources. We have only few books for example 8A we have two teachers' guide that only two teachers use while others go without teachers resource books. Sometimes it's very frustrating when we want to teach a lesson and we find out that we don't have the guide.*

In a focus group discussion with the teachers, the issue of mathematics teaching support resources was the focus of discussion. During the discussions, a teacher raised the question to the principal if the school board has photocopied teacher guides for use by teachers. A teacher commented that she had taken her initiative to photocopy a resource book for her own use.

These data support other data already discussed that this school has inadequate mathematics resources to support the teachers to teach mathematics at grade 8 level. This also support other data in this study that the students do not have access to students' mathematics textbook. Consequently, teachers write notes on the board for students to copy and shown in other data for this research.

The teachers were also asked in the questionnaire whether the mathematics material available to them was useful for their teaching and students' learning. The graph shows the teachers' responses.

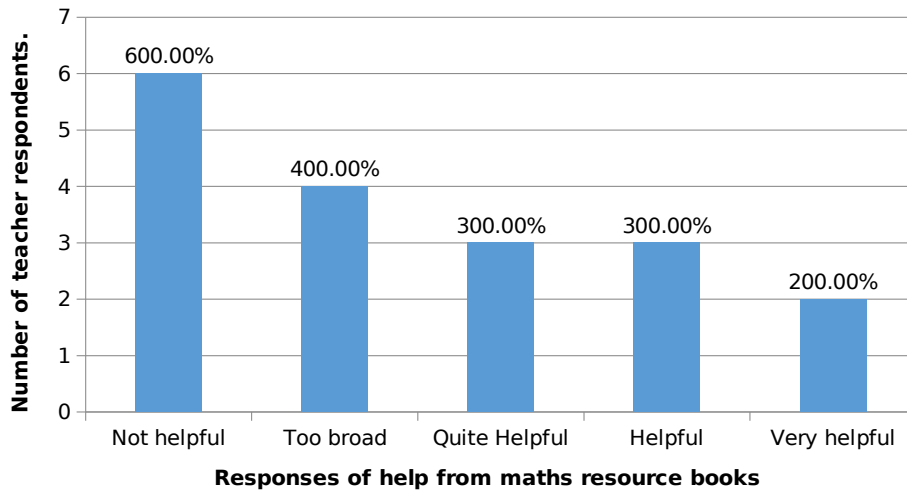


Figure 2: Usefulness of maths resource books

The graph shows that of the 18 participants, thirty-three percent stated that the mathematics resource are not helpful while twenty-two percent stated that they were too broad. However, forty-five percent stated that they were quite helpful, very helpful and are helpful. It also shows that fifty-five percent of the teachers found the content in the mathematics resources too board and not helpful. This may infer that because the content was too board, some teachers did not find them helpful.

Support for students' learning from teachers

In order to find out whether students' learning was supported by the mathematics teachers, the students were asked whether their mathematics teachers supported them during their mathematics learning. Figure 3 shows the students' responses.

Column graph showing the assistance students receive from the teacher

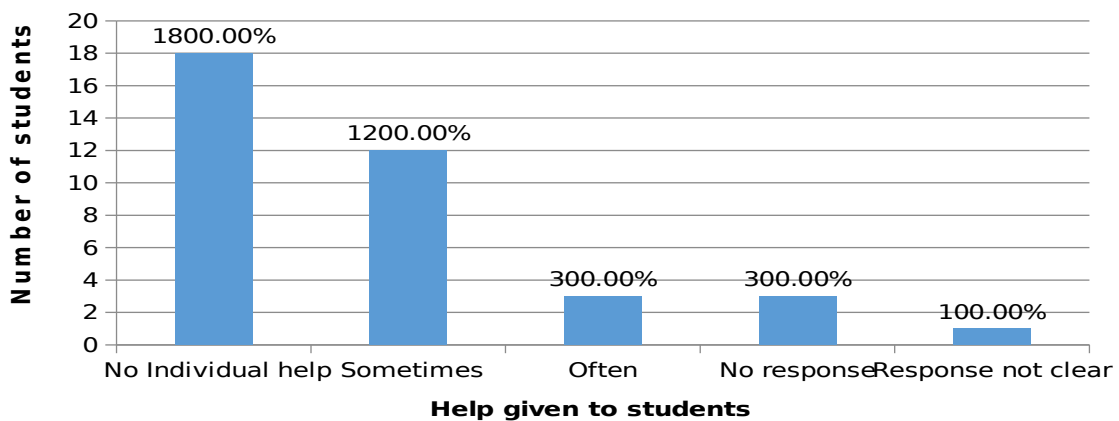


Figure 3: Students' individual assistance received from teachers

The data shows that almost fifty percent of the six-six grade eight student participants stated that they did not receive individual support from their teachers while thirty percent reported that this occurred only sometimes. Eight percent of the respondents did not give clear responses while the rest did not respond to this question, maybe because they did not understand well the question. These data are supported by the following excerpts from students' interviews. presented here.

Student 1: *I don't receive help from my maths teacher. The help I receive is when she stands in front and teaches.*

Student 2: *The teacher doesn't have enough time to go around and help each one of us individually. This is because we are too many and it's hard for her to help each one of us.*

Student 3: *I receive help from the teacher when she was standing at the front and teaching us. There is no time to talk to individual students.*

From these data, it can be inferred here that the class sizes in the grade eight are large, and this could be the reason which is why almost fifty percent of the students are not supported individually during mathematics lessons as shown by the graph in Figure 3. This also infers that because of the large class size, most of the participants may not be supported well to understand mathematical content and basic concepts. This finding supports Earthman (2002), Yaman and Uygulamada, (2009) and Burnet (1995) findings which found that overcrowded classroom conditions hinder teachers' attention to individual students and slows down the progress of students' learning. Earthman (2002, p.11) particularly pointed out that when class sizes increase, 'teachers tend to cover only basic topic lessons according to time for the learning areas.' This seems to be the practice in these participants' class.

The participants were also asked whether they had a study timetable for study after school. Of the sixty-six students that participated in the study, sixty-one reported that they did not have study timetables at home. These data are supported by the following excerpts from students' interviews.

Student 1: *Yes, I do have a study timetable at home but I don't follow it most of the time.*

Student 2: *Not really because I have too much work to do because I am helping my family to cook and wash plates and other work. So I don't have time to study.*

Student 3: *No, I don't have a study timetable to follow at home. When our maths test is ready, our teacher reminds us to study for maths test that's when I study at home.*

These data show that most of the students do not have a study timetable for study at home. This may suggest that parents do not encourage their children to study at home after school. It also infers that the students are busy with household chores and therefore have limited time for study. It may also suggest that parents and students may not value studying after school because they may not understand well the role of homework in students' support for learning.

The classroom teaching strategies

There are different types of teaching strategies that teachers may employ when teaching mathematics. The teachers were asked about the teaching strategies that they used most when teaching grade eight mathematics. Their responses are presented in Figure 4.

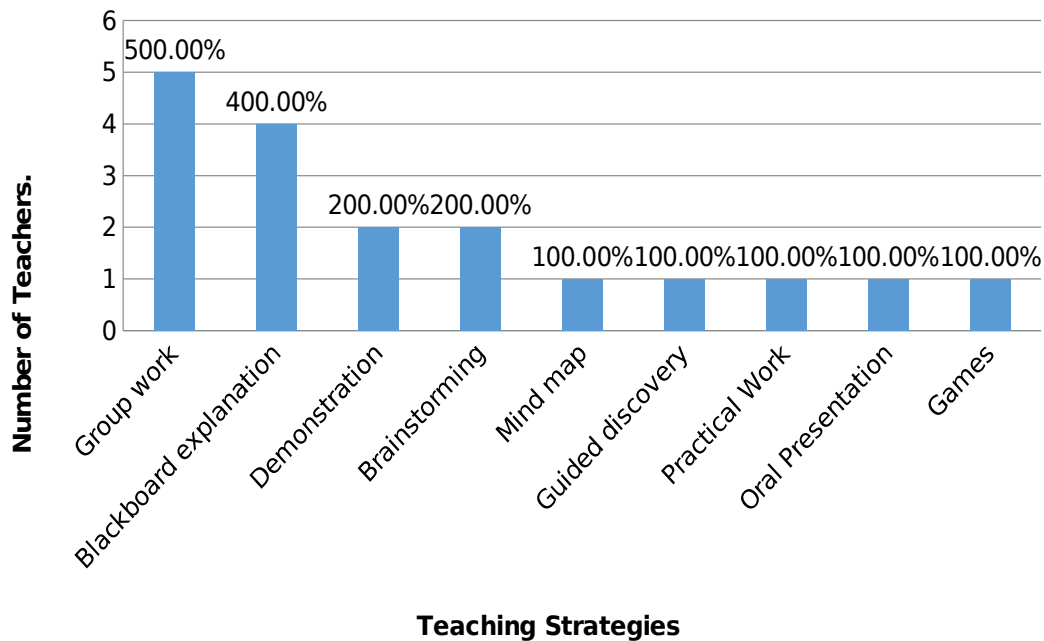


Figure 4: Various teaching strategies use by teachers for numeracy lessons

The data in Figure 4 show that thirty percent of the teachers mostly use the group work teaching strategy while twenty-three percent write notes on the blackboard for students to copy. Only eleven percent of them used demonstration and brain storming and even fewer (five percent) use mind map, guided discovery, practical work, oral presentation and games as mathematics teaching strategies. The teachers who apply group work claim that students learn better when they interact with their peers. This is supported by the following excerpt from a teachers' interview.

Teacher 1: *Group work is very helpful to me in my lessons because it gives me time to help the weak students while everyone is busy on their assigned activities. It is also helpful because the fast learners are always helping the slow ones which I see very good so I apply that in most of my lessons.*

Teacher 2: *I cannot be able to move around to supervise the work of students nor invite them to my desk because of the large number of students (65) inside a room which has the capacity to accommodate only 20 students to sit comfortably.*

Teacher 3: *For me blackboard explanation is a helpful strategy because it is convenient in addressing the whole class in a crowded classroom as well as coping with the absence of students' textbooks.*

These data support Hogan (1999) study which found that the group work teaching strategies work well when teaching large class sizes. For example, in this particular case, it assisted teachers to ensure that students are kept busy on their assigned activities while the teachers attend to learners with special needs. The data also show that most teachers apply group work and blackboard explanation as major teaching strategies to cater for the big number of students in class.

Students' challenges in learning mathematics

The students were asked about the challenges that they encountered when learning mathematics. Their responses are presented in Figure 5.

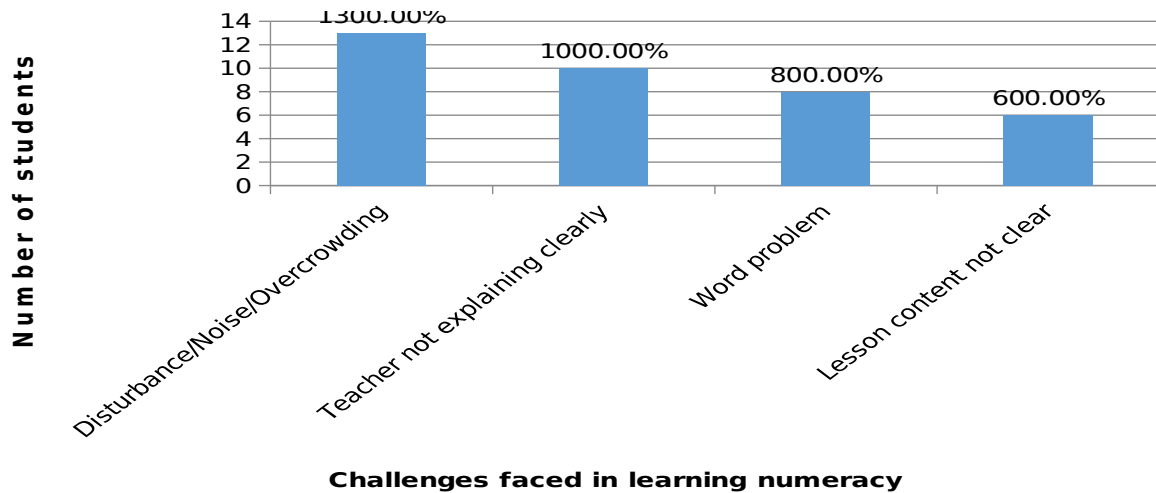


Figure 5: Learning challenges encountered by students during mathematics learning

The data show that thirty-five percent of the students were disturbed in their learning in the classroom environment. Another twenty-eight percent did not understand well the teacher’s explanations of concepts, while twenty-two percent had difficulty understanding specific mathematics vocabulary, and a further thirteen percent difficulty with understanding the content taught. Data in Table 1 in this paper show that the grade 8 classes in this school research site are large which could be the cause of the learning disturbances. These data are further supported by the following excerpt from the researcher’s journal record.

The mathematics lesson on the topic ‘Fraction’ was conducted in a crowded classroom. The students were seated three in a desk. The desk size in this classroom can sit only two students comfortably. During the mathematics lesson, laughter was heard at the corner of the room near the door’s exit. Six students, 4 girls and two boys, decided to sit on the floor right in front of the teacher while the lesson was being conducted. One male student seems in his mid-twenties, decided to stand at the back placing his exercise book on the wall while copying notes from the board. The lesson was conducted in tok pisin which most students understand and speak better than English. There was a lot of noise heard from the opposite room as the class teacher was yet to enter the classroom.

These data further support Earthman (2002) finding that learning in the large size class environment can be challenging. This is particularly the case for students learning mathematics in this school research site.

Grade 8 Class sizes in school research site

Teachers’ and students’ data show that teaching and learning resources is insufficient in this school which has forced the teachers to use group work and copying notes from the blackboard as the most preferred teaching strategies in mathematics. As shown by other data in this paper, teachers are also unable to support individual students well because time does not allow them to support all students in class because there are too many of them. Table 1 shows the number of students in each grade eight class in the school research site.

Table: 1 Grade 8 classes enrolment for year 2018

Class	Males	Females	Total
8A	24	35	59
8B	32	36	68
8C	26	35	61
8D	32	33	65
Total	114	139	253

The data in Table 1 shows class sizes which exceeded the teacher per student ratio of 1: 30. Data already discussed show that large class sizes hinders teachers support for individual students, impact on the available teaching and learning resources and disturbances during classroom sessions. This further supports the findings by Earthman (2002), Yaman, and Uygulamanda, (2009) and Burnet (1995) that overcrowded classroom conditions hinder teachers' attention to individual students and therefore slows down students' learning progress.

General findings

The study identified that there was an acute shortage of resource books in primary school research site. Students had no textbooks to refer to for their mathematics activities or for revision purposes. The teacher wrote all the activities on the blackboard because there were not students mathematics textbooks. This was because the set of mathematics textbooks were used in another grade eight class. The textbooks were rotated among the classes in grade eight. This sharing strategy can be challenging especially when the mathematics lessons in the other grade eight class do not end on time. This can deprive students in the other grade eight classes of mathematics textbooks and so teachers opt to write the mathematics exercises on the board for students to copy, as a best approach to address this need. Shortage of teachers' and students' textbooks were also identified by Rena's (2010) research of availability of textbooks in school (2010). The research found that text books for teachers' and students' use are inadequate in many schools in Papua New Guinea.

The study further discovered that there was lack of individual support given to students by the teachers. Teaching must be directly addressing the individual needs of students. All students have different abilities and their learning intelligences vary that need to be addressed individually (Gardner, 1984). However, teachers are not providing adequate support to weak students who need to be attended individually to address their different needs. The finding was supported by Yaman and Uygulamanda, 2009 of the challenges teachers face in bigger classes. The crowded rooms leave no space for teachers and students to move around giving a challenge for the teachers to address students' learning needs. All lesson presentations are seen as an 'one fits all' approach which leaves many students not understanding the lessons well. Group work and blackboard teaching strategies are not only seen as effective methods of teaching but also effectives approaches in managing learning in overcrowded classrooms.

There are challenges discovered in learning mathematics in class. The data indicated that much of the challenges had been created by the condition of the rooms in which the students are seated for their lessons daily. The volume of noise was too disturbing for concentration in studying or working on the activities. This is a challenge for students in an overcrowded room. The study further identified that students do not understand most of the lessons presented by teachers. The level of comprehension is a challenge for them when concepts are explained in English as most speak Tok Pisin and their English language competency is still low. It could also indicate that teachers may lack knowledge on mathematics appropriate teaching strategies and subject content as students find it hard to understand lesson content presented by teachers.

The high enrolment of students has forced some schools and in particular the school site to increase the number of students in a class, to cater for this and has a result created overcrowding in the available classrooms. This is a major issue as found in this research. This is because large class sizes have created challenges in teaching and administration of the students' learning and assessment, and management of students' classroom behaviour in the school site. As pointed out by Earthman (2002), overcrowded classroom conditions also hinder teachers' attention to individual students and slow down the progress of students. The high enrolment of students has also resulted in resource scarcity in the school site. This also creates additional work load on teachers because they have to cater for the large number of students in their classes especially when designing relevant and suitable mathematics activities and assessment tasks for the students' various needs.

Conclusion

The study found some possible contributing factors for grade eight students' low performance in numeracy in the schools site. One of these is the increase of student enrolment which was not planned for. This created challenges that had to be addressed by the school administration. Due to the unpreparedness for this increase in students' enrolment, a shortage of resources was created. This is because existing resources could not sufficiently cater for the increased number of students' learning needs. In the school site, there was a shortage of mathematics teachers' guides, resource books and students' textbooks. The teachers catered for this challenge by organising students to work in groups and wrote notes on the board for students to copy. The study also found that the teachers' support for individual students' learning was inadequate because there were too many

students too support in the classes, and the teachers could not cater for all of them during the mathematics lessons' time allocation. It was also found that informal assessments of individual students' learning were neglected because of insufficient time during the mathematics lessons. Most of the teaching strategies that the teachers chose to apply were influenced by their view on how best they could cater for all the students' learning needs. Therefore, they chose group work and writing notes on the blackboard as the preferred mathematics teaching strategies. These challenges may also contribute to grade eight students' low performance in numeracy in other primary schools in Papua New Guinea.

The greatest challenge that the teachers encountered in the school site is the provision of remedial and other mathematics sessions because of time constraints. They were unable to provide adequate learning support for both academically abled students and those who needed special support. An additional challenge is that teachers use English as the language of instruction. The students however, are not yet competent in speaking, reading and writing in the English language even at grade eight level, and therefore the comprehension of mathematics content was challenging. Most of the students in the school site were fluent speaker in Tok Pisin.

The number of students in all the grade eight classes in the school site range from fifty-nine to sixty-eight. The number of students in all classes in this grade exceeded the recommended ratio of teacher to student of 1: 30. This issue as discussed earlier exerted pressure on the existing learning and teaching resources, supervision of individual students' learning and limited the choice of the most appropriate and effective mathematics teaching strategies to apply when teaching mathematics at this level. Proper planning to take in increased student enrolments would have enabled the school to prepare adequate staffing, teaching and learning resources and classrooms to cater for the increase students' needs adequately in this case.

References

- Altbach, P. G., & Kelly, G. P. (Eds.). (1988). *Textbooks in the Third World: policy, content, and context*. New York: Garland Pub.
- Bernard, H. R. (2013). *Social research methods: qualitative and quantitative approaches* (2nd ed). Los Angeles: SAGE Publications.
- Bruce, J., & Shower, B. (2002). *Designing training and peer coaching: Our needs for learning*. Retrieved from <https://www.nationalcollege.org.uk/cm-mc-ssl-resource-joyceshowers.pdf>
- Burnet, P. (1995). The development of clinical learning environment. *JAN*, 22(6). <https://doi.org/10.1111/j.1365-2648.1995.tb03119.x>
- Department of Education. (2014). *PNG Education 2008-2013 Examination Results*. Port Moresby.
- Devette-Chee, K., & Magury, P. (2017). The current state of education in Papua New Guinea: Some facts and figures on access and quality of education. *National Research Institute*.
- Earthman, G. (2002). *School facility conditions and student academic achievements*. Los Angeles: University of California.
- Gardner, H. (1984). *The theory of multiple intelligences: Some issues and answers*.
- Hogan, D. M., & Tudge, J. R. (1999). Implications of Vygotsky's theory for peer learning. *Lawrence Erlbaum Associates Publishers*, 39–65.
- Ijaya, Y. (2000). Effects of overcrowded classrooms on teacher-student. *Academia Publishing*. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cad=rja&uact=8&ved=2ahKEwiX6pm_x43eAhWHuo8KHcmxBqYQFjACegQIBhAK&url=https%3A%2F%2Fwww.researchgate.net%2Fpublication%2F264841043_effects_of_over-crowded_classrooms_on_teacher_-_student_interactions&usg=AOvVaw2kEBWBQOgcyjZEK4aXD41
- Kilala, D., & Magury, P. (2017). *The current state of education in Papua New Guinea: Some facts and figures on access and quality of education*. Port Moresby: National Research Institute.
- Lockheed, M. E., & Verspoor, A. (1991). *Improving primary education for developing countries*. Washington: World Bank.
- Masingilla, J. O., Davidenko, S., & Prus-Wisniowska, E. (1996). Learning from mathematics practice in out-of-school situation: A framework for connecting these experiences. *Springer*, 31(1–2), 175–200.
- Matang, R. (2002). The role of Ethnomathematics in mathematics education in Papua New Guinea. *Journal of Education Studies*, 24(1). <https://doi.org/http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.562.7228>
- Rena, R. (2011). Challenges for Quality Primary Education in Papua New Guinea—A Case Study. *Education Research International*. <https://doi.org/http://dx.doi.org/10.1155/2011/485634>
- Westbury, I. (1990) *Textbooks, textbook publishers, and the quality of schooling*, Chicago, University of Chicago Press.

Yaman, H., & Uygulamada, K. (2009). Teachers' views on the applicability of the Turkish course curriculum in crowded primary classrooms. *Educational Sciences: Theory and Practice*, 9(1), 349–359.

Yin, R. K. (2003). *Case study research: design and methods* (3rd ed). Thousand Oaks, California: Sage Publications.

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Student teacher punctuality

Terence Subam

Abstract

This case study explores student teacher tardiness to lectures and tutorial sessions, gaining insights into the issue. In this paper the researcher discusses the importance of punctuality, factors and implications of tardiness, and strategies to deal with tardiness. Mixed methods were used in this case study utilising qualitative and quantitative approaches throughout the research process using the convergent parallel design. In selecting samples for the study, purposive sampling was used involving sixty-four (64) students and nine (9) staff members of the research site, a teacher education institution in East New Britain Province. Techniques used to collect data were questionnaires, semi-structured group interview, observations, and artefacts as in, students' attendance records. As a result, the research looked into factors that impinged on student teacher's lateness or tardiness but also found possible strategies to improve punctuality to classes. Suggestions are given for improvement to campus' academic and administrative programs in approaching tardiness. The findings of this study revealed that tardy behaviour should be dealt with constructively by educational leaders to modify tardy behaviour.

Key words: punctuality, tardiness, student performance, teaching and learning

Introduction

Punctuality is a feature or a characteristic that refers to performing tasks on time or 'being prompt', whilst the word tardiness means 'slow to act' (Collins English Dictionary, 2012). Punctuality to activities such as work, a game, attending classes or any other specific program becomes an issue when someone or a group of people have the habit of being late. Punctuality to activities or events varies from one place to another depending on the society, culture and/or values that influence how people think and behave. For instance, in Japanese culture being late would be an insult to others, whereas in Papua New Guinea (PNG) and most Pacific Islands it would not matter at all, for example people could still go to a birthday party one hour late. In PNG, it is difficult to change people's mindset about punctuality or promptness when it has been rooted as a practice. This affects those who are involved in education; teachers and students in any level. School tardiness is becoming a trend nowadays and it has become a growing issue (Powell, 2013). If it is "a habit that is fixed in childhood and youth, and when children are brought up with a disregard for the importance of punctuality, likely citizens who lack purpose or enthusiasm will be created" (Olcott, 1885). Institutions are places where the importance of punctuality should be instilled in young people's minds as an ethical way of behaving. Teachers can use punctuality as a feature to make students understand themselves and the society they live in (Powell, 2013).

Background

Punctuality to lectures or tutorial is a concern for student services and academic staff. If student teachers are practicing it now, then the same practice may be seen in schools where they will be teaching in the near future. Lateness or tardiness delays lectures or tutorials unnecessarily. This practice of lateness causes interruptions and distractions when late students come into the classroom or study rooms, and they would have missed important information. If this issue is not addressed appropriately, it can have greater implication on later practice student teachers will be doing in schools later in their career.

Therefore, in order to explore this issue further this research focused on the three research questions that guided this research.

1. Why do student teachers come late for classes?
2. What factors contribute to student teachers' observed weak commitment to lecture and tutorial punctuality?
3. What strategies can be used to improve student teacher's class punctuality?

Methodology

This research is an exploratory case study and used mixed methods to collect, analyse and integrate qualitative and quantitative research in a single study. Mixed methods have been used as it involved different techniques in

bringing together data collected to see the problem from different angles for triangulation purposes. This allowed the researcher to make linkage to data collected when analysing to have full insight of the problem (Creswell, 2015) using a variety of techniques as in questionnaires, interviews, observation and artefacts.

Purposive sampling was used to select the research site and participants for the case study. A total of seventy-three participants were involved, sixty-four students of two year one classes and nine staff members (four from student-services and five academics).

Data collection using the mixed methods occurred simultaneously through the “convergent parallel design” (Creswell, 2015: 544) to relate qualitative data with quantitative data through data analysis. A questionnaire was formulated to collect qualitative and quantitative data through close-ended (likert) and open-ended questions (extended). The questionnaire contained four parts. The first part of the questionnaire dealt with respondent’s profile; the second part looked at perceptions about class punctuality; the third part centred on the improvement strategies for class punctuality, and the last part is the extended answer questions. A total of forty-four questionnaires were given out and participants responded overwhelmingly returning all questionnaires.

Interviews particularly semi-structured group interview with prepared questions was put to use as well. A total of twenty-nine participants were interviewed, twenty students (10 males and 10 females) from the two classes engaged, and nine staff members where open discussion was encouraged. Data obtained from the semi-structured interviews were analysed thematically. The themes were derived from the key research questions. Observation was also used in the research putting participants in a neutral setting, allowing normal behaviour to take place. An observational checklist was used to guide the researcher and artefacts were also examined during the research.

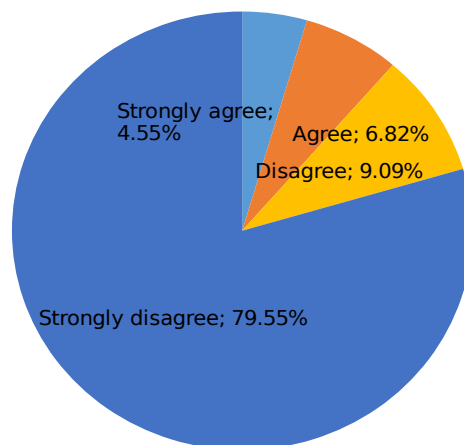
Discussions and findings

Findings are categorised into three main themes; importance of punctuality, factors that contribute to tardiness and strategies for tardiness improvement.

Importance of punctuality

Punctuality is an important concept that is talked about in many places or organisations as in workplaces and schools. In schools, tardy behaviour is evident when it comes to educational activities programmed for students and students go late for them. Institutions are places where the importance of punctuality should be instilled in young people’s minds. Punctuality does affect those who are involved in education; teachers and students in any level, particularly those at the research site. When respondents were asked to air their view on ‘being on time is unimportant’, eighty-nine percent (89%) disagreed and eleven percent (11%) agreed.

Figure 1: Importance of being punctual



This showed that majority of respondents recognised the importance of punctuality to lectures and tutorials. When students and staff were interviewed on different occasions they expressed their opinions as shown in the excerpts presented here.

A student mentioned:

Yes, it is very important for a student to attend tutorials and lecture because we are here for a purpose to equip ourselves with knowledge, therefore, as a beginning teacher I should attend lecture every day.

Another participant said:

It is very important because (pause) attending lecture is like a procedure. If you miss out in one step or the procedure you will not know what's next to follow.

Another respondent had this to say:

Coming to school on time or classes on time, arriving on time is a must. Students must learn to be on time. They must learn to be punctual because this is what they will do or faced up in the future when they get into schools as teachers. And for teachers, those who are in the field have become a habit, and coming on time must become a habit for students while they are here and they should practice it. Students must practice it because it is important for their life and for their profession as teachers. And as role models they must show this punctuality to other teachers and students they are going to be moulding.

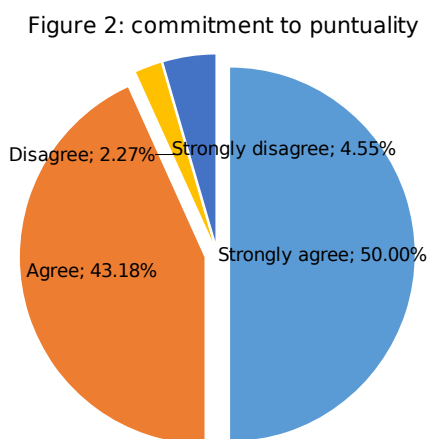
The data show that respondents believe that punctuality is important and has long-term implications if not practiced, particularly for those who are undergoing job training as teachers. The data also shows that respondents believe that punctuality should become part of students' habit. For student teachers, punctuality should be a routine part of one's practice and to a full extent for the acquisition of knowledge and skills required by the profession. Participants in this study realised that for those trained to be teachers should become accustomed to the habit of being on time. If one is not mindful of one's tardy behaviour it can "communicate a perspective about the person, their organizational affiliation, and their commitment to the values that lead to a productive career and life" (Dinks & Baum cited in Powell, 2013) to meet the demands of the world they would be working and living.

When staff members were interviewed one commented that:

Being early for class also shows that students value their learning at this place, they value why they are here for example, and they must know they are trained to be a teacher. So it's their attendance to class and eagerness that indicate to us that the students value their purpose of why they are here and to be trained as a teacher.

The data presented here indicates that being on time is not to attend classes to acquire knowledge and skills only to meet the demands in teaching, but it is also to do with role modelling punctuality to others. In the research site it is lecturers who are the role models, but in the schools where students would be teaching it is modelling punctuality to children, parents and citizens, and colleagues that is important. The data also indicated that punctuality to class shows one's willingness and commitment to learn from the research site's schedule programs and by taking part in them.

However, data shown by the figure below indicate that students go late for lectures and tutorials, showing 'ignorance to time' when time is overlooked. Ninety-three percent (93%) agreed and seven percent (7%) disagreed.



The findings also indicated that students value and know the importance of time but ignorance to time sometimes takes precedence and therefore tardy behaviour is evident. This is shown in the excerpt from a student semi-structured interview:

Yes, it is very important as a professional teacher to be on time but there are many different things that we are connected too that causes the students to be late. All the things around us are linked and these things affect the time that we use. Like, sometimes after breakfast we come back chew betel-nut and smoke, and look at the phone to access the internet. These are some of the things that make student teachers become lazy to attend class and I am one of them.

A participant in a semi-structured group interview mentioned that students are not concerned of time as shown in the statement:

I think our students don't value time. To them time is not very important that's the reason why most of them come late. I normally take the first period. For this semester and I noticed that around four students usually come before eight o' clock. That's in the morning but in the middle block only two. I notice that some students they come late they don't try to walk quickly to the next lecture room. So to me they are not really concerned with time.

This data indicates that tardiness is evident at the research site and staff and students are aware of tardy behaviour and that students needed to be pushed in order to overcome tardiness.

Factors of tardiness

Tardiness has a lot of implications on students who are tardy themselves, teachers and programs. Findings have shown that these are factors of tardiness at the research site; time management, motivation and drive, workload, student-student-lecturer relationship, peer pressure and rule enforcement.

On studying the two classes for a month (September to October) through observation recording and assessing the attendance records, students exercise tardiness, impinged by one or more of the factors mentioned above. Table 1 and Table 2 show that on a weekly basis students are tardy, with a slight difference between male and female but variation from one class to another. In class 'Y', a lot more males exercise tardiness than females compared to class 'Z'. The data also shows that tardy students have the tendency of being absent during the week.

Table 1: Class 'Y' students' lateness to lectures and tutorials

Time	Week 11		Week 12		Week 13		Week 14	
Gender	Male	Female	Male	Female	Male	Female	Male	Female
Lateness	13	13	20	12	12	17	1	7
Total	26		32		29		8	
Absenteesism	13		22		35		17	

Table 2: Class 'Z' students' lateness to lectures and tutorials

Time	Week 11		Week 12		Week 13		Week 14	
Gender	Male	Female	Male	Female	Male	Female	Male	Female
Lateness	3	5	9	12	1	6	5	13
Total	8		21		7		18	
Absenteesism	19		25		34		29	

This finding is similar to what was found in Muir's (2005) study. For example, in this study, at risk students were interviewed to address the issue as to why they were tardy. The following reasons were given by the

participants are similar of that study such as “transportation problems, overcrowded conditions, lack of a culturally sensitive curriculum, dirty and limited access to bathrooms, health related causes, sleeping habits, and family related excuses.” Powell (2013) in his study on the other hand found that current technology also is a contributing factor that impinges on student tardiness. Whilst, Wolfson and Carskadon (2005:57) also proposed that the contributing factors to tardiness were; “enrolment, socio-economic background of students, students’ living environment and bus tiers”. Most factors that impinge on students’ punctuality, as shown by literature, are also the case for other students in Papua New Guinea.

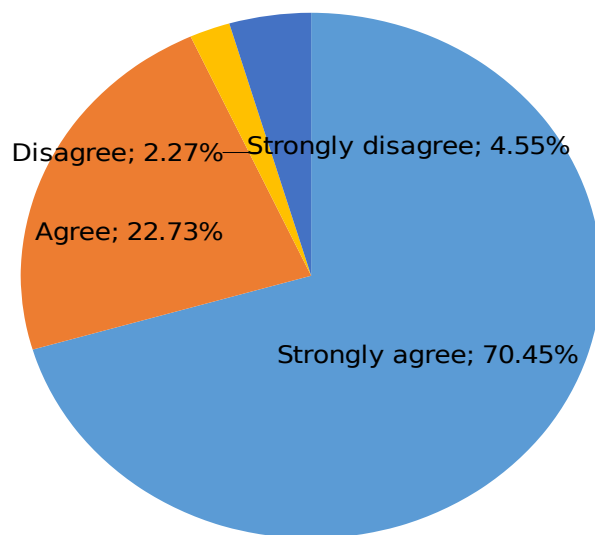
Factors of student-teachers’ tardiness

This study also found time management, lack of regulation enforcement, motivation and drive, workload, and transportation are factors of student-teacher’s tardiness in the research site.

Time management

Lacking time management is a factor of tardiness, ninety-three percent (93%) agreed and seven percent (7%) disagreed when asked of their opinion.

Figure 3: Lacking time management



Through the research observations the following notes over the four weeks showed these behaviours.

On several occasions few students go late for breakfast or lunch. But some students after having breakfast or lunch get carried away telling stories or you see them sitting down listening to music, others are seen holding on to their mobile phone, smoking and chewing betel-nut.

When students took part in a semi-structured interview, one pointed that:

I think one of the major causes of going late for class is the social media where it affects the students’ studies as well as attendance. Because most of their time are spent on social media rather than doing studies and recapping whatever that is taught in the class.

Another student teacher had this to say:

Many of us we usually go late or we don’t attend lectures and tutorial classes on time because there are some contributing factors causing us to go late to attend lectures. I’m one of them, many times in the night I never sleep early, I sit down tell stories with friends and go into social media like Facebook. These are some things that made us to sleep late to attend lectures.

However, in a group discussion interview with staff, this is what the respondents mentioned:

I think time management is very important for each and every one of them. They have to time themselves in whatever duties they have and what activity they should be doing each day.

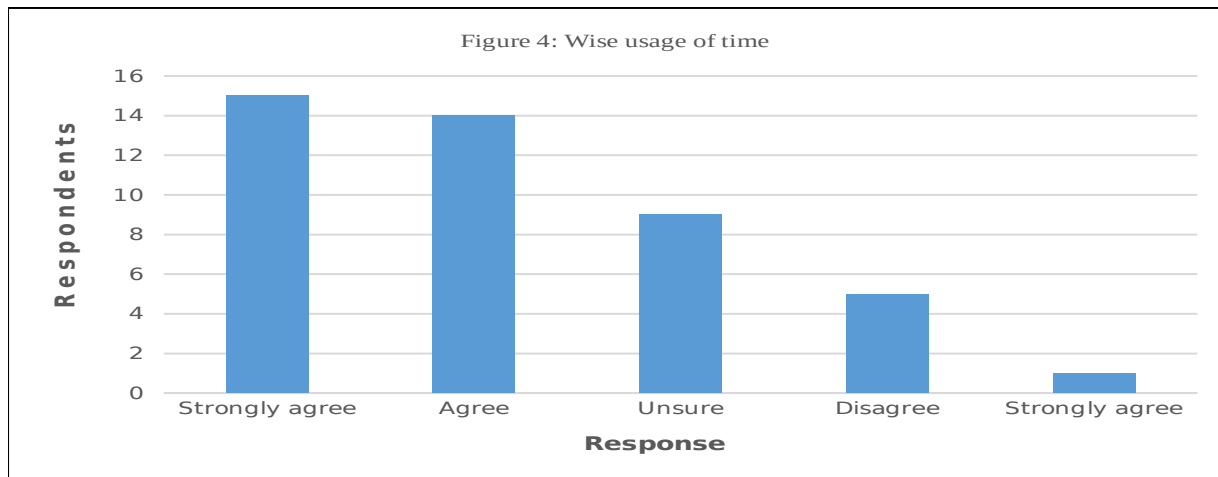
Another staff had to say this affirming thus:

I think that doing other tasks apart from attending class, like umm, assignment they forget about the time or they are busy telling stories with their friends and they forget about moving quickly to the next class. To me I think they don't prioritise their commitment to the class. That is why they usually come late.

One respondent indicated:

A lot of students seem to sit up in the night and so they don't wake up early to be on time for class so I really feel that they need to see to when they sleep and when they wake up.

Data shows that students take time for granted even if they know that time is important. Willingness to push themselves and concern for wise usage of time during in-between activities should be prioritised. The findings also show that students' consciousness of time is limited to some degree when they are doing activities that are not related to their studies. A lot of their time is spent on non-academic activities that keep them up late into the night even if they are doing their assignments. Students need to manage their time well by having a good night's sleep in order to go early for classes.



Participants were asked if they stayed up late into the night. The data shown by the figure indicated that, sixty-three percent (63%) agreed, twenty-one percent (21%) are unsure, and thirteen percent (13%) disagreed. Findings show that a lot of students stay up late doing assignment or either using time for other activities as in telling stories, watching movies or chatting using their phone to access Facebook and/or WhatsApp.

Enforcement of punctuality

Several respondents pointed out that due to lack of enforcement of rules and regulations or policy students take advantage and go late for lecture and tutorials.

In a semi-structured group interview this respondent stated:

Punctuality is one of the rules that schools apply so that school starts on time, lessons starts on time. So if we have to enforce it then it has to be enforced. But there is lack of enforcement for this particular rule. So there is a need to improve or make sure that rules for coming early are enforced. Whether by lecturer concern or the class patron, all of us are concern for students' learning on campus.

In support, another respondent mentioned:

Maybe ah, lecturers are not strict so when students come late he or she doesn't do anything and so they continue to come late.

However, class captains of class 'Y' and class 'Z' were asked if they were monitoring punctuality or tardy behaviour to class and they said, they do not know what to mark on the checklist for tardy students. They only put a tick (✓) for students who are present and zero (0) or 'x' for those who are absent and there is no symbol for lateness, in comparison to the researcher's record.

The data shows that enforcement of rules or policies that already exist for lateness and/or tardiness is vital for student behaviour change management. Data also shows that tardy behaviour is not seen as a serious issue at the

research site. The findings also indicate that class captains needed to be inducted on marking the attendance checklist to record lateness to lectures and tutorials. From observation and note taking, a lot of students take their time going for lectures and tutorials and eventually go late for classes and nothing is done about their lateness.

Lack of motivation and encouragement

Lack of motivation is another factor of tardiness caused by different aspects shown by the following excerpt. A student remarked that:

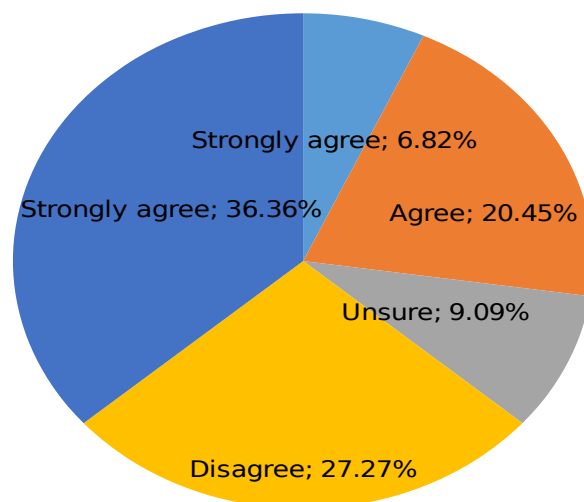
One thing is about the dormitory. Overcrowding in the dormitory students find it difficult to sleep on time that's why it affects students. When they go to sleep late they wake up late and go to class late.

Another respondent stated that uninteresting lecture presentation is also a cause of lack of motivation to class attendance as indicated by the excerpt.

Seems that most of the lecturers teach boring lessons and this makes some of us feel bored in lessons when they are teaching so that's why it makes some of us decided not to attend lectures.

The data shows that over-crowdedness and uninteresting lecture presentation can have effect on students' punctuality. However, results obtained from the respondents through the graph in regard to 'uninteresting lecture presentation' revealed that the majority (63%) of respondents disagreed. This indicates that lecturers present interesting lectures and tutorials too. Nine percent (9%) are unsure and twenty-eight percent (28%) agreed, indicated that lecture presentation is still open for improvement.

Figure 5: Nature of lecture presentations



Another respondent mentioned the following things as indicated in these excerpts from a semi-structured group interview.

Firstly, I see this as a spiritual problem. Spiritual problem I mean that um, students are not attending or slow to attendance. If they are not very interested it goes back to their spiritual life of respecting somebody. Secondly, lack of motivation and drive from the staff. You know students are coming late and what are the staff doing to try to motivate students. It goes back to them they have to ask themselves why students are coming late to lectures. Maybe there is lack of motivation and drive. Thirdly, maybe the lectures are boring. That is why when that somebody is teaching they know this time is for Mr, for Mrs, or Ms. Oh the lecturers are boring why should I go, I'll just come late. Finally, maybe students have personal problems. Sometimes they are sick or have personal reasons.

Some respondents felt that peer-pressure and student-student-lecturer relationship discouraged students from attending class or encouraged tardiness. A respondent had to say this about peer pressure:

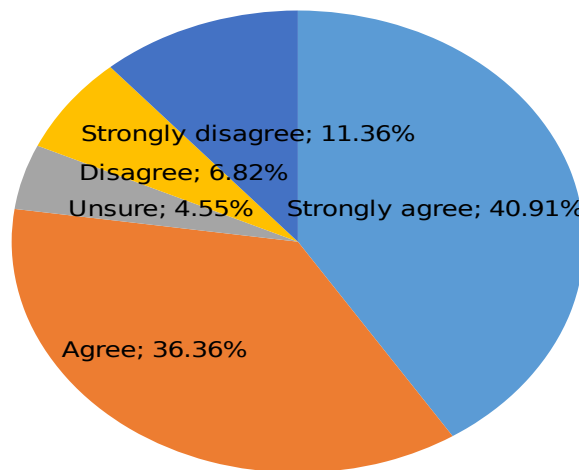
Something that causes students to be late for class or lecture is due to peer influence and like for example chewing of betel nut and smoking is one of the factor that cause students to be late for lecture and tutorial sessions.

In regard to student-lecturer relationship some respondents feel alienated. This is highlighted in this statement by a respondent.

Students are not interested in lecturers because ah, sometimes teachers take it personal on students that they scolded them and they feel shy of their peers and when it comes to his or her session they take their time or don't want to attend. Students have hatred feeling of that particular lecturer.

Other respondents claim that they go late for a lecture due to work load, as in, assignments or extra-curricular activity, which in turn increase the tendency of staying up late and reduces their interest to attend class on time.

Figure 6: Coping with assignment tasks due at same time



Majority of respondents (77%) agreed, five percent (5%) are unsure and eighteen percent (18%) disagreed. This illustrates that students are having difficulties meeting assignment deadlines. This suggests that students may not be managing their time well.

The following remarks were captured from a response: *“I think that some students they work on a lot of assignments and they work overnight so they sleep late in the night and wake up late in the morning”*. The respondents recognised the negative impact on students as a result of staying up all night.

The data revealed that there are different aspects that reduce students' interest in attending classes on time. These negative aspects can be external or internal factors that impinge on students' punctuality, which leads to the same result at the end, tardiness. The data indicated too that interesting lecture presentations, usage of innovative strategies need to be encouraged, and positive mutual student-student-lecturer relationship needs to be created as a motivational element for students. The data also indicate that students may need to manage and equally distribute their time well to maximise usage of time to improve tardiness as shown below.

Dealing with tardiness

Tardiness can be dealt with if appropriate mechanisms are used or made available to students at any level, time and place. This study brought about the following approaches below that can help tardy students at the research site value the importance of punctuality through; role modelling punctuality, enforcement of rules and regulations, providing individual counselling, creating relevant learning environment, and exercising responsibility, reliability and regularity.

Role modelling punctuality

Tardiness or lateness can become very serious and can infect other students (Bataineh, 2014) if it is not dealt with quickly. The data analysed indicates several approaches that can be taken to deal with tardiness. One of the important things is to practice being on time. A respondent in a semi-structured interview had to say this:

When students see a lecturer is being on time, arriving on time, arriving at lecture block on time that will give them a push to also be on time. If students see lecturers come in after they have already been in the classroom, then what's the use of us going and waiting for the lecturer who is supposed to be on time. One of the strategy is having the lecturer or tutor being on time. Seeing that the lecturer or tutor is being on time students will run to the classroom on time.

Another one mentioned that: *role modelling is very important. Once we start coming late our students start coming late too.* Whilst a student expressed: *As a student teacher punctuality is very important to be role model to students in the schools.* Lecturers set a bad example for students when they go late for class, students will think it is reasonable to go late also (Coleman cited in Bataineh, 2014).

The data indicated that for students to follow rules and regulations regarding punctuality educational leaders have to be in the forefront to show that through practice. The data also shows that absenting oneself and/or frequent lateness for class by lecturers can be detrimental to students if not modelled regularly to influence them. This also shows that staff and students do recognise the significance of modelling punctuality to lectures and tutorials or to be 'on time'.

Enforcement of rules and regulations

The research site's draft supplementary attendance policy shows five main categories and its sanctions. Under the category 'attendance to lectures' particularly punctuality states this:

1.5 A student can be marked as late, if he/she comes in for lectures after 10 minutes or for the whole period without any good reasons
--

The draft policy states that in the students' roll book class leaders or lecturers can mark tardy students 'late' for lateness. From observation this is omitted by class captains in putting a letter 'L' for late or an appropriate symbol in the roll book for tardy students. The policy also missed specific sanctions for lateness but caters only for absenteeism. A participant mentioned that:

Enforcement of the rules goes with short-coming and warning and we have to give them time frame. The student does not comply with this rule after three short-comings or three warnings must be prepared to leave because he cannot live within the rules and cannot change then why stay here. If we start doing that then students will comply with the rules of coming early or being punctual.

When students were asked in a semi-structured group interview one stated:

If we know our purpose of why we are here, then we will know punctuality and we will know what to do here. Secondly, my suggestion is that, it is with the administration. If the administration strongly upholds the rules and regulations then punctuality of students will go very well in terms of behaviour, dressing and attending the lectures.

Another student affirmed:

Even though we do checklist we must put punishment for those who never attend classes on time. Even when checklist is done and those checklists without any punishment on late comers, people still come late.

Another respondent mentioned:

Maybe we get a little bit strict on them. Anybody who comes late all the time refer him/her to the disciplinary; refer the student to us so that we deal with him. Or write him/her short-coming letters or warn him. Many times we are not strict on students. They continue to defy instructions why, because we are not strict with them.

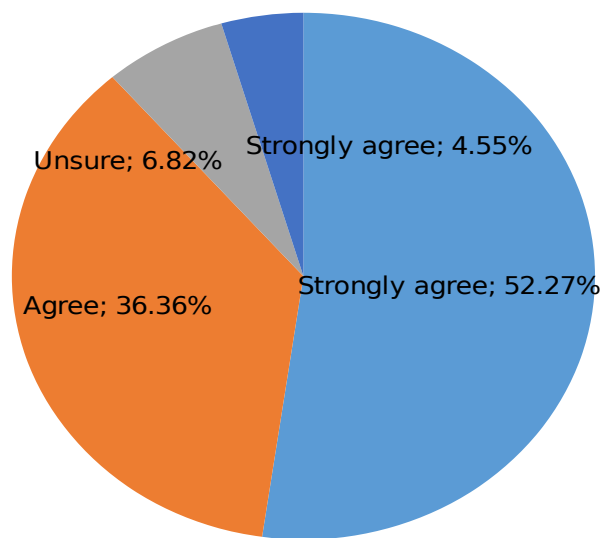
The data showed that punctuality needs to be considered seriously by the College. The literature cited in this study indicated that tardy behaviour can eventually lead to severe absenteeism if not monitored closely. The data also indicated that the research site's policy needs to be spelt out clearly and be enforced by the relevant

authority, so students are convinced to follow and abide by it, knowing if such behaviour continues they may be asked to leave. The findings also indicated that lecturers need to play their part by being strict when keeping record of tardy students and do frequent follow-up by monitoring individual students. If tardy behaviour is neglected or not dealt with suitably the behaviour will continue to exist (Bataineh, 2014).

Individual counselling

Treating individual concern students is another approach that can be used to deal with tardy behaviour. That is reducing the chances to categorise students into one basket for being tardy. The graph shows that eighty-eight percent (88%) respondents agreed to speak to tardy students, seven percent (7%) were unsure and five percent (5%) disagreed.

Figure 7: Support for unpunctual students



Counselling and directing individual or group of tardy students can help to divert their attention to making a commitment to be on time. This is highlighted in this response.

Effective individual counselling is needed for individuals not counselling the big group. Counselling is helping somebody to detect his or her own problem. Counselling is getting somebody to help himself or herself. Say for example if a group of students come late, call them in and say okay you tell us, why you are coming late. He has to tell us instead of us giving instructions to him and so forth.

The data indicates that the majority of respondents recognised the importance of finding out reasons for tardy behaviour. Students may have personal problems, such as health and illnesses, transportation, students unable to have showers because of water problem, staying up late doing assignments, over-crowdedness in the dormitories, or being ignorant to time are all possible explanation or reasons students would give. Findings showed that students would have their own reasons for displaying tardy behaviour so each student or a group would need to be spoken too to know what is going on in those students' lives to determine possible action(s).

Learning environment and living condition

Creating a supportive atmosphere for students is an on-going aspect of maintaining positive relationships, by giving students the opportunity to be productive. A lot of respondents mentioned that there is a need for creating innovative teaching and learning environment as well as improving living conditions for students. These are significant aspects brought about in this study that is based on needs analysis concurrent to tardy behaviour.

This is shown through the following excerpt.

We have to improve, ah...play our part I think to improve our way of presenting our lecture and tutorials. Maybe could be one contributing factor of making the students feeling bored, you know, they sort of turn to dislike being on time because they know they don't have the drive and the enthusiasm. So some kind of change in motivation or what you call it, strategy how lecturers present their lectures. So in a way it motivates them or attracts them to be on time for classes.

Another respondent supported:

There should be more lively strategies in teaching. Teaching should be alive, innovative, and pro-active...ah...so that by this we motivate the students to come to class so that they know that something good is there because strategies are informative.

Another expressed that: *Some courses are not taught interestingly so students turn to come late where favouritism is shown.* However, another respondent stated that: *students have the attitude of favouring some subjects/courses more than others and that is why they go late to those they have little interest in.*

Whilst another argued that:

Student teachers should attend all lectures on time because they will benefit from the lessons taught, not the lecturers. It all comes back to student teachers... how they manage their time.

The data shows that teaching and learning needs to be innovative to meet students' demands but importantly to create interest to motivate students to attend class on time. The data also indicates that students may favour lecturers who are creative and who use strategies that engage students in active learning. The findings also point out that lecturers have to be mindful of the adult learners and plan appropriate activities for them. Students have to make real commitment to attend all lectures and tutorials to gain skills and knowledge to equip themselves for their future career as a teacher. In a group discussion another respondent mentioned sub-standard library resources. This is shown by the statement.

Regarding the learning environment...the library resources especially the reference books. These books (short pause) I never even use such books because through my observation and what I have experienced I go through these books I don't even come up with information that can help me.

This data indicates that for learning to take place efficiently supporting materials must be updated and made available for usage in the library. As a result, students sit overnight surfing the internet using their mobile having sleepless nights and eventually practice tardy behaviour. In relation to over-crowdedness this excerpt highlights it.

Some dormitories are over-crowded and so in the mornings when comes the time for student teachers to have their bath (uh mm) they are over-crowded so they go and wash group by group so it takes up time.

This data shows that over-crowdedness exists and suggests that students have to queue up to have their shower and as a result may come late to lectures or tutorials.

Responsibility, reliability and regularity

Punctuality is an individual's responsibility to see that 'being on time' is an important aspect in life, place of work and in schools or institutions. A lot of respondents mentioned that students should manage their time well by setting priorities right. The excerpt from a students' group discussion highlights management of personal time.

Alright, this goes back to the students ammm...the other thing that we can do is to have our own timetable so we manage time wisely. There is a lot of time given which we are misusing and we can make up for those times by using up those times to do our work instead of staying overnight and coming late to school.

Another student pointed out that: *Student teachers must learn to use their time wisely.* While another mentioned that: *Individual time management is very important in such institution. If time management is a problem at the beginning of first year of training, it will be a common practice in the field.*

Another respondent referring to ignorance to time mentioned that:

Students not attending lectures on time is like a disease that affects many students simply because they know the schedule and timing for each unit or activity but simply ignore it because they have other activities to do or sleep away in the dormitory.

This data shows that students do not manage their free time well and take time seriously by making full use of it regularly. The discussion signified that time is important, that students should not take for granted. There are factors that impinge on students' punctuality to lectures and tutorials, however, tardiness can be dealt with using the right approaches to minimise it.

Conclusion and recommendations

The case study revealed that punctuality is an issue at the research site. Tardy behaviour can have a lot of implications for the future trained teachers who will be teaching in Papua New Guinea schools. Time is considered important but the challenge is to be loyal to it. The findings showed that there are different factors of tardiness and therefore, tardy behaviour has to be treated in reference to the needs-based analysis and that tardiness has to be taken seriously by everyone at the research site in dealing with the issue appropriately. The study revealed that respondents recognised the importance of time and how valuable it is if not used well, and that tardiness can be dealt with if suitable strategies are used which the research has highlighted.

The following recommendations are proposed.

- Students and staff need to work mutually with each other to deal with the issue before it becomes a learned behaviour. Student teachers who pass out should know and value seriously punctuality in their lives and at the workplace.
- Tardy behaviour should be dealt with constructively by the concerned authority taking into consideration the "behaviour modification approach" and also the "needs-based approach" (Muir, 2005). This will help in making appropriate decisions based on the cause of the tardy behaviour.
- Educational leaders as in classroom teachers at any level: primary and secondary, academic staff of tertiary institutions need to be aware of the kind of students they are interacting with. Tardy behaviour is caused by different factors and each case has to be fairly treated. Be supported by the head teachers, school's board of management (BoM), higher institution's leader's management team (LMT).
- Educational leaders should create interesting presentations through the usage of various teaching strategies to engage students to motivate them to learn through active participation but importantly to attend classes (lectures and tutorials) on time regularly.
- Rules and regulations have to be enforced fully to deal with or eradicate tardy behaviour. This may include speaking to concern students, giving them a warning, specifying possible disciplinary actions, and set out other sanctions for student behaviour change management.
- Students have to be guided well to know their responsibility when it comes to timing. Students have to be pushed to put their priorities right, relying on lecturer's guidance and their will-power to make choices. They should learn to be responsible, be reliable and be regular in using time wisely by being at the right place at the right time, not wasting precious time.

The exploratory case study showed that time is precious and if tardiness is not dealt with properly tardiness can lead to other behavioural problems as in absenteeism and low academic achievement. Students will be missing a lot in terms of skills, pedagogy, and knowledge. How can one perform well as a teacher if he or she misses important things to perform well in a school one would be teaching? Students at the research site needed to be reminded of punctuality to lectures and tutorials to meet standards that are set for them to achieve. Further research should proceed thoroughly into investigating specifically tardy students in gender as a longitudinal study to fully deal with tardiness with more accuracy and caution. Time was a limitation making this task impossible.

References

- Bataineh, Z. M. (2014). A review of factors associated with student's lateness behaviour and dealing strategies. *Journal of Education and Practice*, 5(2), 1-7.
- Collins (2012). Collins English Dictionary. William Sons & Co. Ltd. <http://www.dictionary.com/browse/punctual>
- Creswell, J. W. (2015). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Boston: Pearson.
- Muir, M. (2005). Strategies for Dealing with Tardiness. Research Brief. Education Partnerships, Inc.

- Olcott, C. S. (1885). Punctuality. *JSTOR*, 5(8), 8. Retrieved from <http://www.jstor.org/stable/44008505>
- Powell, D. A. (2013). Management and elimination of secondary student tardy behavior (Order No. 3605055). Available from ProQuest Central. (1476436178). Retrieved from <https://search.proquest.com/docview/1476436178?accountid=191104>
- Wolfson, A. R & Carskadon, M. A. (2005). 'A survey of factors influencing high school start times'. *NASSP Bulletin*, vol. 89, no. 642, pp. 46-66. [Electronic Version] Retrieved from JSTOR database on Sep 24, 2017.

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Appendix 1: Program for the Faculty of Education 2nd Research Symposium, 12th October 2018 in the SVD Memorial Auditorium

Faculty of Education Research Symposium Program

Date: 12th October, 2018

Theme: Transformative educational leadership for the digital age

Master of ceremony: Dr Lynus Yamuna & Selected MEdL students

Time keeper: Violet Gerega

Greeting guests on arrival: Ms Irene Wrakuale & selected full-time MEdL students

Opening remarks: Associate Professor Dr Joseph Kekeya, Dean, Faculty of Education

Launching of the symposium: Professor Pamela Norman, Deputy President and Vice President Academic

Session 1: Challenges in teaching and learning in the 21st Century

Mr Paul Anda

Mr Nelson Durisi

Mr Michael Mera

Ms Grace Wrakia

Mr Alex Puki

Ms Eva Wangihama

Session 2: Attitudes towards the teaching profession

Ms Erita Yawi

Mr Charlie Rungol

Ms Eunice Woktop

Mr Terence Subam

Session 3: Professional development to enrich teachers' knowledge and skills

Mr Apelis Benson

Fr Alphonse Dende

Mr Freddy Pennington

Panel Discussion

Dr Elisabeth Schuele

Mr Apelis Benson

Mr Michael Mera

Presentation of certificates

Associate Professor Dr Patricia Paraide

Closing remarks

Associate Professor Dr Joseph Kekeya- Dean of Faculty of Education