

An analysis of the impact on elementary teachers of an Aid program delivered in Indonesian Papua

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Abstract—In 2014, an Australian Aid program commenced implementation in Indonesian Papua. The Government Partnership for Development (GPDF) program engaged with teachers, principals and teacher educators from a range of schools and institutions in Indonesian Papua. This professional learning/training program was presented by lecturers and associated staff from an Australian university. The program offered a range of sub-programs in two-week blocks within the Papuan regency. This research has a focus only on the teacher participants. Data were also collected from colleagues of the GPDF teachers who were at the same school yet not as recipients (non-GPDF teachers) of the teacher training program, enabling a comparison. The Y-chart has been used in published research by [1] ensuring any difficulties with language intent were avoided. Native Indonesian speakers (from Papua) were trained as enumerators, further showing that the problems of the local languages were clearly understood by the researchers who were from Central Java and Australia. The study found differences between the GPDF and non-GPDF teachers in many dimensions that were reported. It was noted that the GPDF teachers were frequently having rigorous conversations and exchanges with non-GPDF teachers, leading to positive changes in pedagogical approaches for both groups. There was a singular research question: To what extent did the program make a difference to educators who participated in the teacher training?

Keywords—pedagogy, professional learning, y-chart, GPDF, non-GPDF

I. INTRODUCTION

The research investigated the impact of the Australian Government Partnership for Development (GPDF), a 2.5 year program between November 2014 and April 2016. This post-program study took place in May 2016, after the last professional learning two-week block concluded in April, 2016. The study was conducted in Papua within the four regencies of Merauke, Timika, Jayapura/Sarmi and Wamena/Lanny Jaya. The study design compared teachers who participated in the GPDF program and teachers who did not participate in the GPDF program. For ease of expression throughout this report, teachers involved in the GPDF program are referred to as GPDF teachers and those who did not participate are referred to as non-GPDF teachers. The purpose of the evaluation was to identify changes resulting from the professional learning of teachers.

To this end, the investigation aimed to answer the research question: To what extent did the program make a difference to educators who participated in the teacher training?

The rest of this paper is organized as follow: Section II describes theoretical background. Section III describes the study and data collection. Section IV presents the survey. Section V describes data analysis. Finally, Section VI concludes this work.

II. THEORETICAL BACKGROUND

The research literature suggests targeted professional learning is an approach to improving teacher capacity. This study investigates one of the proposed outcomes of the GPDF program: improved teacher capacity, thus influencing student outcomes. “The only way to improve student outcomes is to improve the quality of classroom teaching across an entire system.” [2] One approach to improving classroom teaching is by influencing the teacher, claimed in [3] to represent a variance of 30% in the teaching learning process. Hattie suggested that what teachers know, do and care about is a highly active element in the learning and teaching process. He attributes the teacher as the source of influence for the majority of dimensions (e.g. feedback, classroom environment, instructional quality). As a result, it might be assumed that professional learning/training with teachers has the potential to improve student outcomes, particularly, when teachers develop additional and alternate attributes as a result of the professional learning (see Figure 1).

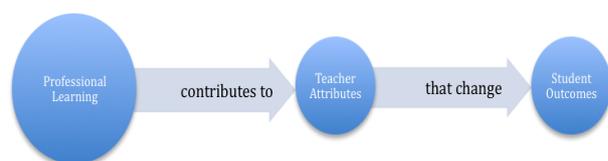


Fig. 1. A theoretical basis for this evaluative investigation: GPDF and student outcomes

Classroom teaching and the classroom teacher are at the heart of the teaching and learning process. ([2] Improving teaching and thereby, altering the teaching and learning process is achieved through changes to the teacher through access to professional development. (Masters) He suggests that professional learning would contribute to the development of the following attributes organized under four themes: High Expectations: Deep Knowledge: Targeted Teaching; and Continuous monitoring.

While these themes provide a guide for the change in teacher attributes associated with student outcomes and therefore, to be observed in this study, it is provided for a

western context and therefore, is not immediately transferable to a Papuan context. Though these lists can inform the development of professional learning packages for Papuan teachers, appropriate professional learning caters for the teachers, their context and competencies, enabling a shift within their reach while also stretching them. Hattie in [3] extends academic outcomes going beyond memorization to deep learning but also suggests social and emotional student outcomes are critical, including “self-efficacy, self-regulation and willingness to be challenged”.

The purpose of this study is to investigate teacher change as a result of professional learning delivered by the GPFD program.

III. THE STUDY AND DATA COLLECTION

The selection of Papuan schools drew upon teachers whose involvement in the GPFD was unknown to the investigators. Non-GPFD teachers were available due to their presence in the same school as the GPFD participants. Criteria were based on location and as close as possible drew from schools in urban, peri-urban and remote locations. All schools were elementary schools from four regency clusters of Papua. Data collection included teachers who attended the GPFD training and teachers who did not attend the GPFD. Teachers (GPFD and non-GPFD) provided data by use of a Y-Chart and participation in a pencil and paper survey. Enumerators collected data in Jayapura, Merauke and Timika and Wamena; enumerators translated data into English for subsequent analysis. Two external researchers, who were not involved in the data collection, assisted with the analysis. All forms used in the data collection were written in Indonesian. Enumerators were selected for their ability to speak fluent Indonesian and English and their background as teachers. They translated and uploaded documents into Dropbox from which they were accessed for analysis. Hard copies were forwarded to the key investigator.

All participants completed a graphic organizer known as a Y-chart. Graphic organizers [4] help participants to organize their thinking and writing processes. Using a visual display demonstrates relationships between facts, concepts or ideas.

In developing this approach as a research method, [1] had previously asked Australian pre-service teachers to draw a picture of what teaching with and about ICT looks like, sounds like, feels like, using a Y-chart graphic organiser. Hunt extended this thinking by combining drawing and words within the Y-chart.

The Y-chart had four component tasks: draw a picture of what a good teacher looks like; write some words that tell what a good teacher sounds like; describe how a good teacher thinks like; and draw/describe what a good teacher works with.

The use of drawings to capture thinking has been well researched by [5] [6] [7] and [8]. This frames the required thinking (and deeper cognitive engagement) being researched in a way that enables the participant to make meaning. For the researchers, these “aesthetic responses” [9] provide insight into knowledge and experiences.

A modified frame of teacher attributes developed by [1] was subsequently developed and used to analyse the data

collected. The research team believe that this data collection technique, underpinned by research, is a rich source of qualitative data that can show shift in teachers’ attributes. The standard Y-chart asks three questions: what does ... look like, sound like and feel like. For this research (with teachers and principals), a modified Y-Chart was used asking specifically how a teacher thinks and what they work with.

IV. SURVEYS

Teachers were also asked to complete a short written survey, seeking elaboration about: impact of training on student outcomes, changes in personal approaches to teaching and plans for future changes in teaching approaches. Surveys included both ratings and short responses. The survey completed at the end of data collection aimed to capture random comments by participants to enumerators and observations by enumerators. For those participants who felt greater comfort in oral communication, the ability for enumerators to report can add value and depth to the data. Furthermore, enumerators developed an informed viewpoint due to their presence. This added perspective to the data from teachers.

V. DATA ANALYSIS

Analysis was completed as an aggregated whole. Analysis involved comparison of data sets: Teacher survey data (GPFD teachers and Non GPFD teachers). Anecdotal enumerator data provided additional observations about teachers and classrooms. Teacher data were analysed to establish themes resulting in two lists of themes from both GPFD teachers and non-GPFD teachers. This approach enables a comparison of the two sets of data, looking for similarities and differences. An aggregation of data from all regencies was used to answer the research question.

The purpose of this investigation was to identify if such an impact was evident as a result of the GPFD program. An initial examination of teacher and principal data suggests that changes were evident for GPFD teachers who participated in training. Generally, this was validated by the data from non-GPFD teachers. A comparison of these perspectives with GPFD teachers provided an indicator of changes that are visible or planned for the future. It can be stated that GPFD teachers have a perspective on their work different from non-GPFD teachers. The data suggest that the shift in attributes of GPFD teachers indicate a significant probability of changed student outcomes in the future. This of course comes with caveats, including sustained support for the teachers already in the program and the development of strategies to ensure that ‘socialisation’ between participant and non-participant teachers occurs. Socialisation is the Indonesian description for teachers sharing with other teachers.

Research indicates teacher attributes can be indicative of improved or changing student outcomes. The potential of this shift in teacher attributes for changing student outcomes must be viewed within the context of the rich student-teacher relationships that were noted by enumerators and in data not used in this report.

The teacher shift for GPFD teachers is presented as a comparison between the attributes of GPFD and non-GPFD teachers. These clusters of data included Attributes of learning, learning resources and Learning environment are listed as new dimensions in the frame. The language, teaching and learning process, evident in the data of GPFD

teachers is strongly evident of two new foci: learning and students. Conceptually, examination of the data reveals reflection on this learning focus through the teacher-centric/student-centric dimensions and the teaching-learning dimensions of the classroom environment. In examining the data below, the shift toward an increased understanding of the complexity that is learning in a classroom is evident for GPFD teachers. A shift from knowing teaching as delivery of information and knowledge is evident. There is evidence that teaching is now related to students achieving a wider range of outcomes based on actively working with students (see Table I).

Data are discussed using a modified form of the framework constructed [1] in previous work using Y chart graphic organisers.

TABLE I. FRAMEWORK OF TEACHING AND LEARNING [1]

Dimensions	Sub-category
Teaching processes	Teaching practice; Collaboration; *Planning; *Active learning; Approaches to problem-solving; Classroom management; and Knowing the learner
Attributes of the teacher	Personal qualities; *Professional qualities; Appearance; Focus on language; and Teacher-student interaction
*Learning process	*Learning process; *Valuing students; and *Student communication
Teaching resources	*Teaching tools; and *Development of teaching tools
*Learning environments	*Physical spaces
Connectedness	Connections: networks; and Connections: across curriculum

Asterisks indicate new sub-categories or dimensions which arose from the data and literature

It was noted that some non-GPFD teachers have been influenced by their GPFD colleagues and this has been actively encouraged by principals. At times, this results in a blurring of boundaries in the data as GPFD thinking infiltrated the data from non-GPFD teachers: regardless, a desirable outcome. This suggests a potential greater reach into student outcomes by the GPFD program.

In analyzing the data, it is important to consider the cultural context in which the data have been collected. This quote from a Papuan enumerator is helpful for this: Papuan indigenous students are culturally accustomed to do things all together. This natural behavior tends to be brought into the classroom activities when they are asked to do tasks in daily practice.

The words of the GPFD teachers indicate a shift in thinking about teaching, its purpose and the role they play in children's learning. Comparison of GPFD and non-GPFD teachers indicate a strong differentiation on all dimensions except Connectedness. Many differences can be visualized on continuum such as teacher-centric practices versus student-centric practices, valuing students ability to learn and contributing to their own learning versus students as empty vessels, the passivity of learning versus learning as an active event. There are strong differences in GPFD teachers thinking about the responsibility with which they are charged as teachers and they appear to reflect this responsibility with being creative, innovative and motivated. It is obvious that these traits need to be evident in preparing for learning, use

of materials and thinking about the environments both in the classroom and beyond.

Of particular interest was the use of the word professional by GPFD teachers. Data suggest that this is being analysed by teachers and new meaning attached to the role of teachers.

Differences between the two groups of teachers indicated:

- Learning to be an active process
- Students are different and require varying approaches
- Students can be expected to take a greater role in the learning process
- Teachers have an ever-widening role in providing for student learning and student needs
- Words such as creative and innovative relate to the teaching role
- The learning and teaching process extend beyond giving information and giving explanations
- Teachers are professionals with responsibility to influence students emotionally, socially and academically.

Each dimension and related sub-categories are presented as a 'report card' illustrating what the data showed about the teachers who participated in the professional training (see Table II as following).

TABLE II. A REPORT CARD ON THE CRITICAL ATTRIBUTES

Dimensions	Sub-category of change	Changes evident in GPFD teachers
<i>Teaching processes</i>	Teaching practice	Some teachers use varying approaches; attempts by some to be more student-centric
	Collaboration	Little evidence noted
	*Planning	The need to prepare for learning is equated to a responsibility of a teacher. More consolidation necessary.
	*Active learning	This is a win for the program and is likely to achieve a multiplicity of outcomes.
	Approaches to problem-solving	Not clearly evident. More work on Higher Order Thinking would assist
	Classroom management	Some thinking about differentiation and organization to support this
<i>Attributes of the teacher</i>	Knowing the learner	This is starting to establish itself in the culture of teachers.
	Personal qualities	At acceptable levels to engage students and enable change
	*Professional qualities	Responsibility for preparation, knowing students becoming evident.
	Appearance	Highly rated by students and highly self rated by teachers and principals. Self-efficacy of teachers is a major consideration.
	Focus on language	Use of appropriate language and mother tongue seems well received. This will need to be considered in the context of directives from Jakarta.
	Teacher-student interaction	Reflection on different approaches to interacting in classroom context. Considerable knowledge of the outcomes to be achieved from changes here. Developing through group work. Needs consolidation
<i>*Learning process</i>	*Learning process	This is not articulated well by teachers
	*Valuing students	A win for all; self-efficacy of teachers
	*Student communication	Developing but constrained by cultural values.
<i>Teaching resources</i>	*Teaching tools	Developing but needs consolidation
	*Development of teaching tools	Developing but needs consolidation
<i>*Learning environments</i>	*Physical spaces	Minimal evidence of change. This takes time and may be an indication that the length of program/support from program leaders needs to be reviewed.
<i>Connectedness</i>	Connections: networks	Communication within and beyond immediate schools needs consolidation; Concept of teachers networking for professional learning and support of each other is limited.

In the following, explanatory commentary is given in support of the advice presented in the report card above.

A. Dimension: Teaching Processes

GPFD teachers placed importance on this dimension. A comparison of the quantity of 'talk' from GPFD teachers suggested a developing reflection on the interacting elements of teaching. This dimensions include Teaching practices, Planning, Active Learning, Collaboration, Approaches to Problem-solving, Classroom management and Knowing the student. Thinking from non-GPFD teachers was more limited

in both quantity and nature. GPFD teachers provided evidence of changing their thinking toward a broader range of teaching practices. They outlined giving explanations and giving advice as an element of their teaching role. The teacher-centricity is evident in the data from both GPFD and non-GPFD teachers. However, different thinking about student-centred practices is evident for GPFD teachers.

It is warming to note the comments from an enumerator: Based on a short discussion with GPFD teachers, in fact, they can show their creativity in designing teaching materials. However, they lack understanding of the process behind learning, and lack flexibility in various ways in teaching students.

B. Dimension: Attributes of a Teacher

Strong themes in the data relate to being professional in the teaching role and thinking deeply about how this is enacted. GPFD teachers strongly indicate a need to be motivational and energetic. Teachers from both groups accept the importance of being excited about their role, being fair and honest. GPFD teachers are more likely to use the word responsibility. Student data acknowledges that many teachers care about them; that they are kind and polite and seen as smart. Teachers and students agree that teachers should be honest and patient. The word diligent occurs often in both student and teacher data. A report from an enumerator suggests changes in teacher attitude towards students: There are some significant changes in terms of teachers' behavior towards students. The teachers use a lot of positive and motivated words/sentences to improve students' performance. So, it also influences students' attitude to both their teachers and friends.

Researchers noted the comment from a GPFD teacher who said that she had tried the six thinking hats in reflecting on her teaching and learning tools for students even though she still unsure about using it.

C. Dimension: Learning

GPFD teacher data on learning are characterized differently from that of non-GPFD teachers and students. This dimension is interesting in that student data do not include the term, learning in the way presented in the western literature. Students refer to teachers wanting the children to be smart. It appears that students will become smart by teachers explaining, giving advice and giving examples. This could suggest the emphasis is on information-giving and memorisation required for tests, thereby, students will achieve a high score.

The data from GPFD teachers suggest an approach to learning that values:

- what the students already know,
- that students value their work
- that students can teach other students.

This view is supported by enumerator commentary: Overall, students are more active and engaging in the GPFD classroom. It can be seen from the questions they gave to the teacher were vary even though it they were not all high-order thinking questions. The students have shown their products in the class. The teacher has applied some materials she got in the GPFD Program.

D. Dimension: Teaching resources

The development of teaching resources is an emerging theme in the thinking of GPFD teachers. GPFD teachers connect the idea of materials to increased student interest, increased student motivation and understanding occurring more easily. Mention of teaching resources included purchased and teacher created.

Supporting this is an enumerator comment: The teacher showed a very simple thing she could do. She has made a media to help her students in recognising the letters. Before attending the GPFD Program she did not have any idea to guide her students in recognising the letters and Pak used different resources for teaching and he also shared his knowledge and skills for one of his teacher at school.

There was a limited reference to learning being related to the real world and changes to the learning environment as in the next section.

E. Dimension: Learning Environment

The idea of learning happening in environments other than the classroom and away from desks is likely a new concept for most Papuan teachers. The data suggest that some GPFD teachers have considered it in recent times but few non-GPFD colleagues show consideration at all.

As noted in an enumerator report: The (GPFD) teacher really wants to apply group work but she feels difficult because she has 45 students. It is quite difficult to always moving. No space. Another reported: The teacher herself said that she feels difficult because she has to handle two classes at the same time, that is 2nd grade and her class itself 1st grade.

The enumerators did not note any physical changes in classroom design. However, some principals noted that GPFD teachers were keen to 're-design' classrooms.

F. Dimension: Connectedness

Drawn from Hunt's original framework [1], the concept of connectedness was barely evident. A term in contemporary education literature, connectedness relates to integration across the curriculum, making connections across subject matter and networking with other learners and classrooms. The latter invokes the use of ICT and Internet to change the learning environment beyond the classroom walls. No clear evidence could be found of teachers developing networks within their schools or beyond

VI. CONCLUSIONS AND OPEN PROBLEM

The question to be answered by this evaluation involved improved teacher capacity. The evaluation examined the relationship of the professional learning provided within the GPFD.

In answering the question, it is acknowledged that the four regencies differ extensively in their school, educational, social, cultural and geographic contexts.

Given these complexities, the question is best answered by acknowledging a high probability of widening student outcomes for students of GPFD teachers. There was adequate evidence across the regencies and schools within a regency, that a shift, albeit varying in size, has occurred in teacher attributes and that this shift has potential for increasing the range of outcomes for students beyond social

and content outcomes to social, academic/cognitive, learning and attitudinal outcomes.

There is limited consistency between the dimensions adopted between teachers, schools and regencies. However, reflection on the teaching and learning process and this particular phrase, indicates that a major lesson has been adopted. Furthermore, the potential for change is enhanced by the attitude demonstrated by school leaders in their support of GPFD teachers in their work in their classroom, to collaborate with colleagues who are also GPFD teachers and to elaborate upon their experiences with other non-GPFD teachers.

While this study used comparison between GPFD and non-GPFD teachers as a method for establishing shift and probable change, acknowledgement is given to non-GPFD teachers who are independently finding ways to change their practice as in this example:

An enumerator reported: This classroom was taught by a non-GPFD teacher. In this classroom, the students were doing their assignments or tasks on the floor, and they seemed to be very happy and enjoy with their work. I think this is wonderful because by simply rearranging how the desks in the room are setup, we can not only get better control of our students, but also create an open and friendly classroom.

In conclusion, the focus of this investigation drew upon the relationship of professional learning and student outcomes. It connects with the research literature (e.g. [2] [3] that supports the potential of professional learning to impact upon Teacher attributes that, in turn, create improved and/or changed student outcomes.

There is evidence of a positive impact of the GPFD program on student outcomes, both now and in the future. Evidence of greater familiarity with the range of student outcomes that needs to be achieved is associated with the change in teacher attributes. Shift is evident from an emphasis on social (behavioural) outcomes and academic performance to cognitive/academic, social, learning, and attitudinal student outcomes with some understanding of how these outcomes interact to create a synergy.

The potential for this impact to develop further must be viewed within the richness of the student-teacher connectedness that exists between teachers and children. In considering their teacher, students readily identified respectful relationships on which the work of the GPFD program builds. Students readily recognized the diligence of many teachers and their effort in working with them, in particular attributes such as patience and kindness. Given this positivity in the classroom environment, there is much with which to work that increases the probability of increasing the student outcomes based on the professional learning of the GPFD training.

Table II presents the attributes identified in research and the evaluation as markers of change in teaching practice. This summary presents a story of progress that should be considered a pre-requisite to enhanced or better student outcomes. In conclusion, progress is within reach if support is sustained. The centre column of Table II suggests those attributes that are considered markers that have probability of achieving the student outcomes outlined in the discussion.

Those attributes in the right column should be considered the successes evident and challenges for the future.

A. Issues

In considering the results of this study, a number of considerations are required: the alignment of curriculum requirements, the choice of teachers for the program by the school/s, and national exams. These issues were beyond the control of the program managers but shed light on the achievement of, absence or weakening of student outcomes.

Firstly, the school in which enumerators identified most change is a model school for Curriculum 2013. Teachers identified a strong alignment between GPFD training and the requirements of the curriculum being implemented. It is a school where GPFD-guided thinking is being fostered for all teachers, thus providing a rich environment for the GPFD teacher to work and spread the learning from the GPFD training. This context exemplifies a major barrier to the impact of professional learning, long recognized by the literature, this being misalignment of the professional learning with the context of the school. The gulf between that which is now and that which is to be achieved is too wide for some teachers to bridge. However, school leadership support of the GPFD teacher can overcome some of this and it is to be hoped, as suggested in the Principal data, that this will occur across regencies.

Secondly, the teacher selection for the GPFD training from within a school can influence the outcomes. Enumerator reports indicated that teachers may have been selected because of their poor pedagogy. Once again, for these teachers, the gulf is too wide between where they are now and where the professional learning takes them, resulting in small movements in their work and consequently, a longer timeframe for the achievement of enhanced student outcomes resulting from the GPFD.

Thirdly, GPFD teachers of classes involved in the national exam saw this as a barrier to changing practices. Both teacher and enumerator data indicate no change for these teachers.

Fourthly, the GPFD teacher has very good awareness but the school system is being the obstacle. (Enumerator report)

Fifthly, while some GPFD teachers have moved into principalships and this can be seen as beneficial, disappointment is attached to GPFD teachers not being given the opportunity to implement their learning. It is to be hoped that these teachers find themselves in roles (as principals) whereby they can influence others.

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REFERENCES

- [1] J. Hunt, Pre-Service Teacher Perceptions of ICT Teachers. *Proceedings of ICICTE 2015*, Kos, Greece.
- [2] Masters, *A Shared Challenge: Improving Literacy, Numeracy and Science Learning in Queensland Primary Schools*, 2009. Australian Council for Educational Research.

- [3] J. Hattie, Teachers Make a Difference: What is the research evidence? *Paper for Australian Council for Educational Research*, October 2003
- [4] J. Novak & B. Gowin, *Learning How To Learn*. Cambridge University Press, 1984.
- [5] F.L. Goodenough, *Measurement of intelligence by drawings*. New York: Harcourt Brace. 1926
- [6] D.A. Norman, Some observations on mental models. In D. Gentner & A. L. Stevens, (Eds.), *Mental models* (pp. 7-14), 1983. Hillsdale, New Jersey: Erlbaum Associates.
- [7] J. Moreland, & B. Cowie, Picture this: Young children photographing science and technology. *Paper presented to 35th ASERA Conference*, July 2004. Armidale. New South Wales Australia.
- [8] K. Appleton, J. Hunt, D. Heldsinger, & R. Thrupp, *Information communication technologies uptake and usage by primary-aged students*. Central Queensland University: Queensland, Australia: 2006
- [9] Black, *Forming knowledge with new shapes: what arts-based research methods can offer*. Rockhampton: CQUniversity. 2011