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Effect of Early Language Education on UPNG Students' Academic Performance

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ABSTRACT

Since 2000, there has been a marked downturn in students' academic performance in both schools and universities of Papua New Guinea (Romanyshyn, B. & C. 2010; Honan, E. 2002/2003; Unage, M. 2012). This paper reports on a study, designed to investigate the causes of this worrisome trend, and conducted by the Linguistics department, School of Humanities and Social Sciences (SHSS), University of Papua New Guinea (UPNG) in March-June 2015. In particular, our study aimed to examine the possible involvement of the Vernacular Education (VE) policy in students' academic performance at higher levels of education. The VE policy, in place until 2013, effectively pushed PNG children's Age of Onset (AO) of English acquisition to adolescence. Since English is the language of higher education in PNG, this study explores a possible association between UPNG students' AO of English acquisition and their current academic performance. The results of this study appear to support the view that a 'critical period' for second language acquisition does exist.

Key words: Vernacular Education (VE), Papua New Guinea, Second Language Acquisition (SLA), maturational constraints, Age of Onset (AO), literacy

INTRODUCTION

Papua New Guinea (PNG) needs experts to manage its modern economy. The national education system must, therefore, produce them in sufficient numbers. Yet, over the past years, there has been a noticeable decline in university students' academic performance, and this downward trend has government planners and economists worried (Rule J et al. 2012; Rosewell, A et al. 2013; Batten A. 2012; Imbun B.Y. 2000). Granted, with overall adult literacy rate of just 57.3%, not even half of all six-year-olds enrolled in some type of preschool program, and with public expenditure on education estimated to have been only 2.3% of GDP, or 17.5% of total government expenditures in 2003,[1] this is a complex, multifaceted issue with no simple

[1] http://www.encyclopedia.com/topic/Papua_New_Guinea.aspx

cause or solution. However, since all formal education is acquired through language, language education policy has serious and direct effect on students' ability to learn at all stages of education. In a multilingual society, such as PNG, its significance and impact on the country's entire socio-economic development cannot be overemphasized.

This study investigates the effect of Vernacular Education policy (practiced in PNG from the mid-1990s up to 2013) on university students' academic performance. Since the vast majority of PNG children in the past twenty years have been schooled under the Vernacular Education policy, it is logical to expect that most current university students would have learned literacy in their Tok Ples languages. Based on pedagogical consensus (that it is easier for children to learn literacy in the language they speak), vernacular-only elementary education (VE) not only mandated teaching literacy in vernacular languages, but also delayed children's exposure to English. Currently, PNG Department of Education (DoE) website thus describes the process and goals of basic education in PNG:

> "At 6 years of age all children begin their basic education in an elementary school in a language that they speak. For the next three years they develop the basis for sound literacy and numeracy skills, family and community values including discipline; personal health care and respect for others. At 9 years of age children continue their basic education in a primary school. After six years of primary education that begins with a bilingual program, children have the skills to live happily and productively, contribute to their communities and use English to understand basic social, scientific, technological, and personal concepts and value learning after grade 8.
> **Elementary Education** - Is a great beginning
> — Gives cultural pride
> — Promotes our values and way of life
> — Community based, supported and cost effective."
> http://www.education.gov.pg/Students/index.html (Accessed February 4, 2016)

In the uniquely multilingual PNG society, most people speak several languages, usually their 'Tok Ples' and the national lingua franca, Tok Pisin. The use of English, the language of education, business and government, is more widespread in urban areas, where it is viewed as a prerequisite for professional success. Under the Vernacular Education (VE) policy, 'bridging' to English commenced in Elementary Grade 3, when students would be, on average, 9-12 years old, and often much older. Judging by the above-cited DoE website, this practice prevails up until now. Under the circumstances, the effect of delayed exposure to English on students' learning in PNG deserves a closer look. In the context of the plummeting levels of English proficiency (and, therefore, of overall academic performance) amongst university students in

PNG, the controversial issue of maturational constraints in second language acquisition (SLA) comes to the forefront.

LITERATURE REVIEW

Adults typically outdo children in most areas of learning. Yet, in language learning, children seem to have an edge – the younger they are, the better they 'soak up' the languages surrounding them (Johnson & Newport 1989). All healthy babies master their native language in the first few years of their lives and, when exposed to a second language at an early age, acquire it with nativelike competence (Johnson & Newport 1989; Hyltenstam, K. & Abrahamsson, N. 2003; Schouten, A. 2009). Adults, on the other hand, require a conscious effort and structured instruction in order to learn a second language and, even in the best of circumstances, hardly ever attain nativelike proficiency.

> In contrast to child first language acquisition (L1A), the typical outcome of post adolescent second language acquisition (L2A) is non-native-like attainment (Birdsong 2009).

Given this empirical fact, it is logical to question the causes of such inverse relationship between the age of initial learning and ultimate proficiency. Penfield and Roberts (1959) were the first neuroscientists to explain children's effortless L2 acquisition on the basis of biological/ neurological advantage. They claimed that, due to its ***neuroplasticity*** [2] in the first nine years of life, "the child's brain has a specialized capacity for learning language" which makes "direct learning" from input possible. The lower attainment levels at later ages of onset (AOs) are due to the fact that children become "more analytical" and learn "indirectly" via their first language after that age (Ibid., p.).

Neurobiological Mechanisms of Language Acquisition

Recent research revealed significant changes in the brain that occur around the time when language acquisition outcomes begin to differ *systematically*; this, according to Hyltenstam and Abrahamsson (2003), suggests a certain 'correlation between the two.' They referenced Pulvermüller and Schumann (1994), who regarded connections between neurons (networking) as the neurobiological basis for all learning (including language acquisition), and had pointed to the process of *myelination*[3] as an important factor which affects the ability of neurons to make new connections:

[2] "The ability of neurons to make new connections, and varied connections, depending on the stimulus" (Eubank and Gregg, 1999, p. 69).

[3] "The myelination of cortical neurons is a physical-chemical process in the brain in which glial cells wrap the axons of the neurons with myelin. Myelin is a substance contained in the glial cells that consists of lipids and proteins" (Hyltenstam & Abrahamsson 2003).

> The function of this wrapping of the axons with myelin is to provide the neurons with nutrition and to increase their ability to conduct electrical signals more rapidly. This promotes the ability for the transfer of information at larger cerebral distances. At the same time, it increasingly makes connections between neighboring neurons more difficult. The process of myelination starts at the fetus stage and continues for at least several decades; there is, however, evidence that a high number of neurons in the adult brain remain unmyelinated. Since the beginning of the twentieth century, it has been known that different cortical areas myelinate at different times (Pulvermüller and Schumann, 1994, p. 711). By the age of 12 months, the primary sensory and motor areas … are myelinated. Higher-order association areas of the cortex … are myelinated much later, and it is in these regions that some neurons remain unmyelinated in adults. The language areas around the Sylvian fissure myelinate after the primary sensory and motor areas, but before the higher-order association areas: "Around puberty, all cortical areas, except perhaps the higher-order association cortices, have reached their full level of myelination" (Pulvermüller and Schumann, 1994, p. 713). The "maturation of the brain" is indeed often equated with the process of myelination (Hyltenstam & Abrahamsson 2003, pp. 561-562).

Language acquisition potential is dependent on the type and speed of connections in the cortical network. Two types of cortical connections between neurons are distinguished: the long-distance type uses apical dendrites[4] and axons to reach far from the cell body and connect different cortical areas, while the short-distance type uses basal dendrites to make 'local' connections. Myelination speeds up long-distance signal transmission through the axons, but also insulates the axon fiber, inhibiting its ability to connect with basal dendrites, which are close to the cell body, and local branches of the axons (axon 'collaterals'). It appears that language acquisition relies on 'local' connections within a limited 'language area' around the Sylvian fissure; this provides an explanation for why first language acquisition becomes impossible after puberty, and why second language acquisition becomes increasingly more effortful with the process of myelination in the 'language areas' which is often referred to as 'maturation of the brain' (Ibid., p.562).

This, in essence, is the 'critical period' hypothesis (CPH): physiological maturation of the brain diminishes our language learning ability. CPH supporters claim that children have a particular advantage in acquiring language – be it first or second – before they reach puberty, and that after this critical period has ended, the 'age advantage' disappears. They contend that language learning after puberty requires conscious effort and will inevitably be marked by non-nativelike features.

[4] Dendrites are the numerous 'signal receivers' of the neuron; an *apical* dendrite is a dendrite that emerges from the apex of a *pyramidal* cell. Apical dendrites are one of two primary categories of dendrites, and they distinguish the pyramidal cells from spiny stellate cells in the cortices. Pyramidal neurons are the primary neural cell type in the corticospinal tract; connections between their axons enable normal motor control and visually guided motor function. Pyramidal neurons in the prefrontal cortex are implicated in cognitive ability and memory. (Ref)

In opposition to this position, several researches (Singleton 1995, 1997, 2000; Marinova-Todd et al. 2001; Tokudome 2003) have postulated that, although rare, nativelike proficiency in a second language is possible for adult learners. David Singleton, in *The Critical Period Hypothesis: A coat of Many Colours*, admits that "research on age-related effects in L2 development often invokes the idea of a critical period – the postulation of which is customarily referred to as the Critical Period Hypothesis." He, however, argues that "to speak in terms of the Critical Period Hypothesis is misleading", and concludes that "the very fact that there are such diverse and competing versions of the Critical Period Hypothesis of itself undermines its plausibility" (Singleton 2005). Marinova-Todd et al. (2000, p. 28), on the same side of the spectrum, try to "dispel the persistent myths that children learn more quickly than adults and that adults are incapable of achieving nativelike L2 proficiency." This perspective on the part of TESOL teachers is hardly unexpected, for the CPH debate has huge implications for language policy and L2 teaching practice:

> "… if a critical period for L2 learning does exist, then schools should obviously introduce foreign languages earlier, and all states should introduce policies to accelerate the exposure to English of immigrant children, as California has done. Clearly, knowing the facts about the critical period for SLA is relevant to policy and to practice in education" (Ibid.).

At the 49th Conference of the Linguistic Society of Papua New Guinea (LSPNG) in Port Moresby, Prof. Nic Faraclas (Univ. of Puerto Rico), Robbie & Debbie Petterson (SIL), and many others argued that literacy must be taught in the child's 'home' language, and that English instruction would indeed be harmful in the first two years of elementary schooling (the PDFs of their Power Point presentations have been published (www.langlxmelanesia.com LLM Vol. 33 No. 2).

However, the multifaceted complexity of the language acquisition process, which necessarily reflects the psycho-physical and socio-historical nature of human language, warrants *dialectical* analysis, because dialectics combines the advantages of both analysis and synthesis in its approach. A consensus is currently forming that L2A is affected by the Age of Onset (AO) (that is, by whether language learning occurs within the 'critical period'), in combination with psychological, social, and physiological factors (Birdsong 2013).

In particular, the 'age factor' in L2A has recently gained a prominence in the debate. "*Cross-linguistic evidence for the nature of age effects in second language acquisition*" by Dekeyser et al. (2013) reports on "two parallel studies with native speakers of Russian: one on the acquisition of English as a second language in North America (n = 76), and one on the acquisition of Hebrew as a second language in Israel (n = 64)." Their findings reveal a steep

decline in the learning of grammar before age 18 in both groups. These results unequivocally confirm Johnson & Newport's (1989) findings that the later AO negatively affects the student's ability to learn grammar.

AIMS & OBJECTIVES

This study aimed to investigate the effect of the delayed AO of English acquisition on PNG students by establishing a possible correlation between the University of Papua New Guinea (UPNG) students' Early Learning Language (ELL) and their academic performance measured by their current GPAs. Indisputably, correlation does not imply causation; however, another confirmation of an inverse relationship between AO and L2A (particularly in terms of grammatical structures) may hopefully contribute to the ongoing debate.

MATERIALS & METHODS

In March and April 2015, we conducted a survey of UPNG students' early education backgrounds, using a pre-tested questionnaire, designed to elicit information on when, where, and in which language they had first learned to read and write. Stratified random convenience sampling was used to select the survey participants. The pre-tested questionnaire had only seven straightforward and easy-to-answer questions that took on average less than three minutes to complete (Fig. 1).

These questionnaires were administered with the help of staff of all five UPNG Schools: School of Humanities and Social Sciences (SHSS), School of Natural and Physical Sciences (SNPS), School of Business Administration (SBA), School of Law (SOL) on the Waigani campus, and School of Medicine and Health Sciences (SMHS) in Taurama campus. This study was approved by the appropriate UPNG authorities, and an informed consent was obtained from the students. Participation in this study was voluntary.

The students' GPA results for the 2014 academic year were obtained from the Executive Officers of all five UPNG Schools. For first year students, who entered the university in 2015, their School Leaving Examination GPAs computed by the Office of Higher Education (OHE) were used. However, the OHE student ID numbers were different from their UPNG student IDs. Therefore, many of the first year students' GPAs could not be matched with the survey data collected, which severely reduced our sample size.

Using the student ID numbers, the data on the returned questionnaires were then matched with the students' GPAs and entered into Excel spreadsheets, ordered according to year of study and School.

SPSS version 21 software for Windows was used for statistical analysis of the data. The correlation and linear regression analyses of the match-up between our data sets were used to

explore a potential association between the students' Early Learning Language (ELL) and their GPAs.

The effect of early language education on UPNG students' performance

QUESTIONNAIRE

You are invited to participate in a collaborative research project conducted by Linguistics (SHSS) and Statistics (SPNS) departments of UPNG. This study aims to help develop effective education strategies for sustainable national development.
The success of this study depends on the accuracy of your responses. We guarantee total confidentiality – none of your personal information share with us will be disclosed in this study. Your participation, however, is entirely voluntary.

Please answer the 7 questions below:

1. Student ID number ……
2. Gender: ……
3. Year of Study: ……
4. Area of study & School: ……
5. The **name** of your **first language** (mother tongue) ……
6. Please state:
   (a) **When** you attended your Elementary school ……
   (b) **Where** you attended your Elementary school……
7. What was the **language of instruction** in your Elementary school? Please tick the appropriate box:

☐ Vernacular-only ☐ Tok Pisin mostly ☐ English mostly

THANK YOU FOR YOUR PARTICIPATION IN THIS IMPORTANT STUDY!

Fig. 1. A sample of the pre-tested questionnaire used in the survey

RESULTS & DISCUSSION

The information contained in seven hundred and seventy-nine (779) questionnaires was successfully matched with the respective GPA values, forming the final dataset. The data collected was descriptive only and therefore explains how the current students performed but not why they performed the way they did.

For our general findings (N = 779), we have a normally distributed dataset with minimal negative skewness (-.042). According to the data, 95% of the students that participated in this study started elementary school in 1997 or later; thus, they were educated under the VE reform, which mandated the use of the child's 'home' language as the early learning language. While the questionnaire contained a range of questions, this paper focuses on the results from

four independent variables (University School, Year of Study, Early Learning Language and Gender). Our variable of measurement, the dependent variable, was the students' GPA score from the previous year. For the students in their first year, this means the OHE score they had achieved before entering university.

As all the independent variables were categorical and the dependent was linear, we used several series of ANOVAs; we ran an eta (η) on all ANOVAs to investigate the covariance of the categories; for the three independent variables with three or more categories, we ran an F-test for significance (and a Sheffe's test for between-sample significance). For the independent variable 'gender' a t-test for significance was performed. Overall, the general findings had enough data collected for them to be significant. However, very few of the between sample tests were large enough to generalize from. This study needs to be expanded significantly to understand what is going on, on a micro level.

Gender

Our sample had 40% female vs. 60% male students. This gender distribution does not reflect the general population demographics, nor university demographics from the majority of the world's universities where females outnumber males (Barro, Robert J and Jong Wha Lee 2013, DiPrete, Thomas A and Claudia Buchman, 2013 and Silander, Charlotte, Ulrika Haake and Leif Lindberg, 2013). In 2009, The United Nations measured the percentage of men and women in tertiary education and found that the average university enrolment of females in East Asia and the Pacific was 48% (Department of Economic and Social Affairs, 2010). This was an increase, compared to 1990, when the average university enrolment for women was 38% in East Asia and the Pacific. The number of female students enrolled at UPNG thus does not appear to reflect the general average of the Pacific region, being significantly lower than the regional average.

Looking at the gender distribution within the UPNG schools (Table 1), we can see that it is relatively evenly divided. The school with the largest percentage of female students (SHSS) has 47% female students, while the school with the lowest percentage of female students (SBA) has only 36% female students.

Female	40%	36%	43%	38%	39%	47%
Male	60%	64%	57%	62%	61%	53%
School	**UPNG**	**SBA**	**MBBS**	**SOL**	**SNPS**	**SHSS**

Table 1. Gender distribution of students within the UPNG schools

Early Learning Language

Looking at the distribution of the early learning language, our results are even less encouraging. According to the World Bank, 87.5% of Papua New Guineans lived in rural areas in 2010, leaving only 12.5% of the population in urban areas (World Bank 2012). According to Wanek (2013) approximately 22% of Papua New Guineans claim to speak English, whereas 45% claim to speak Tok Pisin. In addition, 20% claim literacy in English and 20% claim literacy in Tok Pisin. Thus, no more than 20% of the general student population of PNG had English as their early learning language, yet almost half of the students at UPNG are from that particular group. The smallest group (only 15%) are students with a vernacular language as their early learning language, despite this being by far the largest student group in PNG (Fig. 2).

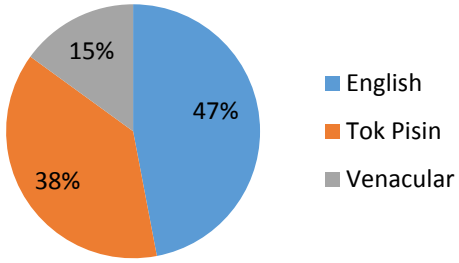

Fig. 2: Student reported early learning language (ELL) @ UPNG

The early learning language pattern for three of the five UPNG schools (SBA, SHSS and SOL), presented in Table 2, is relatively similar to that of UPNG in general. The variation happens in the SNPS, where we see a somewhat concerning trend. It is a requirement at UPNG that, to get into MBBS (the Medical School program), students need to complete the 'foundation' year at SNPS. It is only the very best from SNPS (in reality, the 'best of the best' science students from the whole university) that make it to MBBS. Unfortunately, while the majority of SNPS students have a vernacular early learning language (ELL) background, hardly any of them make it to the Medical School. The data from SMHS (unlike that from the other schools) comprises the entire MBBS student population. Currently, there are 4 students enrolled in the MBBS program, who had a vernacular language as an early learning language. All of them are year 2 students, doing their first year in the MBBS program. None of them have made it to year 3.

School	English	Tok Pisin	Vernacular
UPNG	47%	38%	15%
SBA	37%	46%	17%
MBBS	70%	27%	3%
SOL	51%	34%	15%
SNPS	41%	37%	22%
SHSS	50%	33%	17%

Table 2. Student distribution (%) by ELL and UPNG schools

Gender, Early Learning Language and GPAs Combined

Out of the total of 779 students, 363 (46.6%; 363/779) had English as their ELL; of them, 188 (24.1%; 188/779) were female, and 175 (22.5%; 175/779) were male. Of the 779 students, 296 (38%, 296/779) had Tok Pisin as their ELL; of these, 98 (12.6%; 98/779) were female, and 198 (25.4%; 198/779) were male. Out of the 779 students, 120 (15.4%; 120/779) had vernacular as their ELL; of them, only 23 (3.0%; 23/779) were female, and 97 (12.5%; 97/779) were male (Table 3). The prevalence of English as ELL was higher than that of Tok Pisin and vernacular. The prevalence of Tok Pisin was also higher than that of vernacular. Fig. 3.1 shows percent distribution of all the students by gender and ELL, while Fig. 3.2 presents the actual numbers of students surveyed.

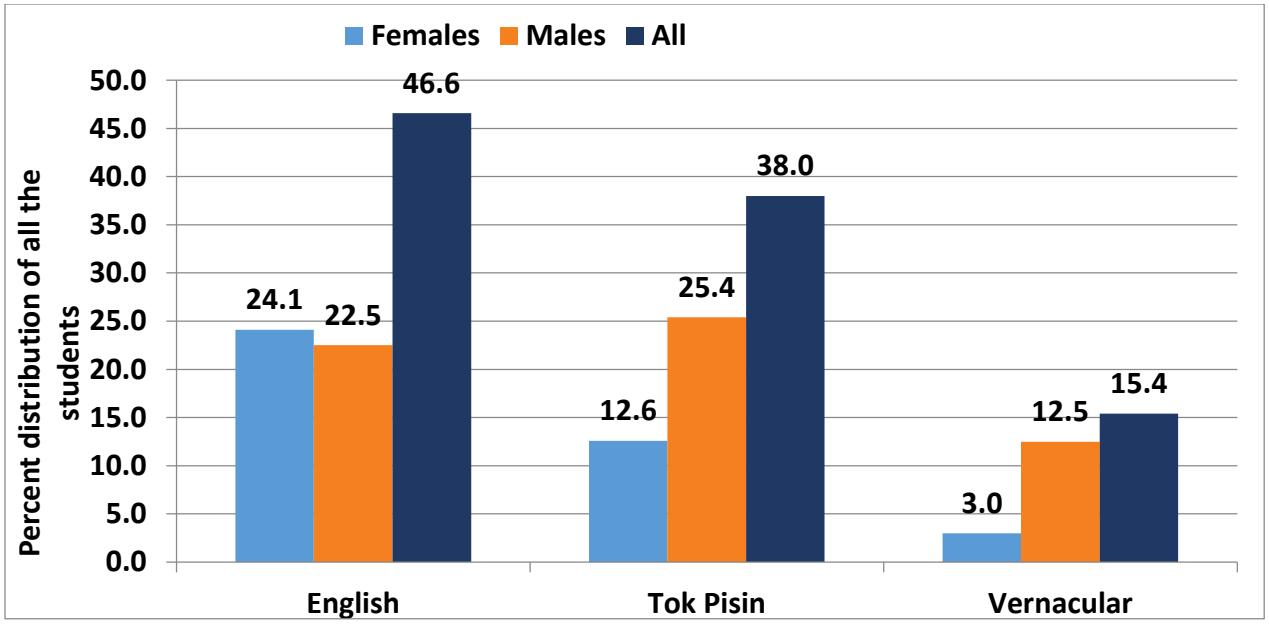

Fig. 3.1. Percent distribution of all the students by gender and ELL

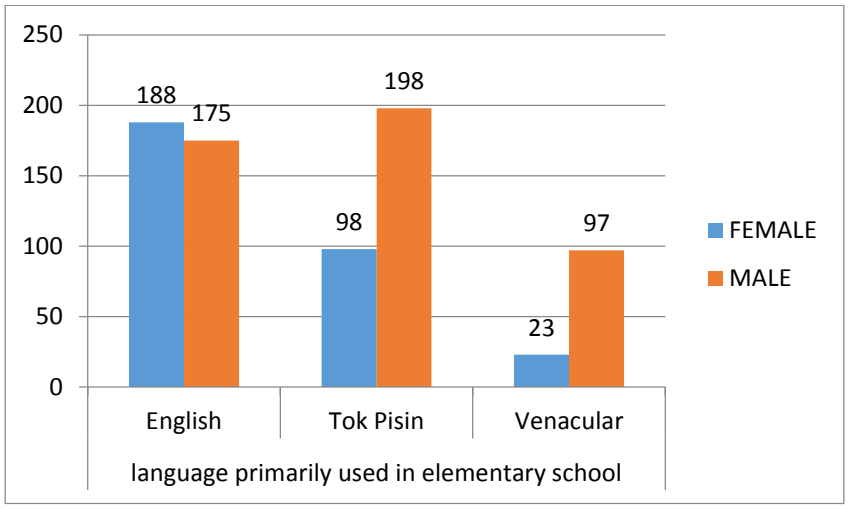

Fig. 3.2. Gender versus early learning language

Thus, our analysis indicated that students with a vernacular ELL were generally underrepresented at UPNG, as they represent just 15.4% (120/779) of our sample. In this group, 23 out of 120 students were female. Therefore, only three percent of the overall UPNG students surveyed were females with a vernacular ELL. This is a severe underrepresentation (Fig. 3.1, Table 3):

	All students	**Females**	**Males**
English	363 (46.6%)	188 (24.1%)	175 (22.5%)
Tok Pisin	296 (38.0%)	98 (12.6%)	198 (25.4%)
Vernacular	120 (15.4%)	23 (3.0%)	97 (12.5%)
	779 (100%)	309 (39.7%)	470 (60.3%)

Table 3. Distribution (%) of all the students according to their ELL and gender

Gender distribution within the ELL categories:

- Within the English ELL category, there is no statistically significant difference between the numbers of female (24.1%) and male (22.5%) students.
- The results obtained for Tok Pisin and Vernacular show higher prevalence of male students

compared to the female students; although the total number of female students that participated in this study was lower, than the number of male students (by a ratio of 1:1.5), the prevalence of male over female students with Tok Pisin / Vernacular ELL was significantly higher. This may indicate that female students with both Tok Pisin and Vernacular ELL find it harder to gain entrance into the university. A more detailed study is required to check this assumption.

The analysis of the relationship between gender, early learning language and GPA data revealed that the average GPAs are lowest for the students with Tok Pisin ELL, and that females do best in the group with English as an early learning language (Fig. 4):

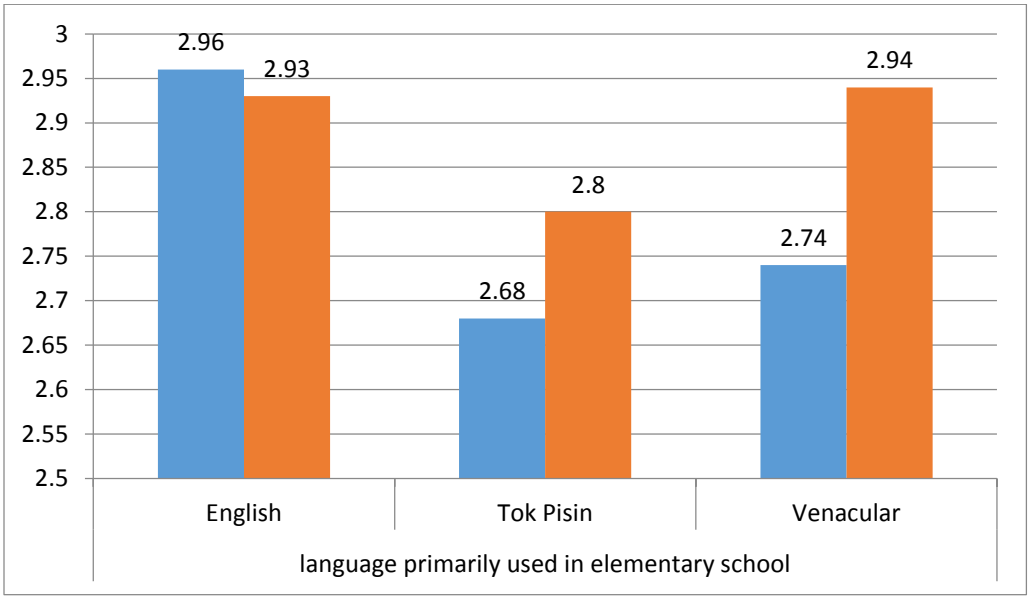

Fig. 4: Gender, early learning language vs GPA (combined)

Amongst the many reasons for why the students (particularly females) with English ELL seem to be doing much better than their counterparts in the other two ELL categories may be demographics (social class, urban vs. village location), cultural attitudes, etc. However, since English proficiency is a prerequisite for university admission, the negative impact of the delayed exposure to English, mandated under the VE policy, cannot be ruled out, and seems likely. Further and more detailed research is needed in order to prove that this observed correlation does mean causality.

SIGNIFICANCE

Literacy, and formal education generally, are of tremendous significance in the ability of any society to produce the human resources required for its effective and sustainable socio-economic development. In conducting this research, we were acutely aware of all the socio-economic implications and cultural sensitivities, surrounding the Tok Ples issue. Dramatic changes occurring in the way people live, think, and communicate in the new Global Village

reality evoke widespread fears of 'losing' the ancestral languages, and an understandable desire to protect them (Temple 2016).

Many experts in Papuan and Austronesian linguistics support and even encourage these sentiments, extolling the benefits of Vernacular Education in PNG, particularly for its role in promoting linguistic diversity and preserving the endangered languages. Professor Foley, for example, noted in his plenary address at the LSPNG 2015 conference:

> "Although it has since been reversed, the Department of Education of Papua New Guinea had moved to promulgate a policy of vernacular medium education in the first few years of schooling rather than the previous English only policy. This was an important step, greatly to be applauded, and one that hopefully in the long run would have aided the long term survival of the many small endangered languages of Papua New Guinea" (Foley 2015).

Going further, however, Foley cast doubt on the ability of Vernacular Education policy (VE) to ultimately preserve the beauty of the traditional oral forms and structures of the 'original' vernacular languages:

> "But even if that policy [5] were to be re-instated today, I sound a word of caution. I wonder whether the use of Watam in the village school and Watam literacy will promote over time a valorization of structures like those of the text prompted by *Frog, Where are You?*, rather than those of traditional oral narratives. Given the similarity of this text to that of literate texts elsewhere in the world, I suspect it might. And, ultimately, this is likely to lead to the devaluation of the rich and creative poetic structure of traditional oral narratives and perhaps their loss. This would be a loss of the variety of human creative expression, not only of the Watam language community, but the world. The only way to counterbalance this, I think, is to be aware of the potent normative effects that linguistic work and tradition and the schooling practices derived from this have upon us and our understanding of the world. Developing multilingual nations like Papua New Guinea need to beware adopting wholesale the educational policies of developed nations like Australia, which even there in many respects are failing. Literacy may have costs as well as benefits, and it is vital that we be mindful of that and work assiduously to minimize the costs" (Ibid.).

The importance of issues investigated in this study (i.e., the relationship between literacy, language education, and language policy) cannot be overestimated. Language education is the cornerstone of the national education system, whose function is to produce the human

[5] Vernacular Education (VE) – OT

resources to power the economy and create the 'wise, healthy and happy society' of Vision 2050.

CONCLUSIONS

Our analysis revealed a gross underrepresentation of students with vernacular education backgrounds, despite them being in the majority nationwide. This is indicative of a certain disadvantage they face when competing for university admission with students who received their elementary education in English or even Tok Pisin. Our general findings can be summarized thus:

- Students with a vernacular early learning language are disproportionately underrepresented at the University of Papua New Guinea.
- Female students with a vernacular early learning language do not make it to university. This may be caused by a combination of cultural and social factors.
- Once the students with a vernacular early learning language make it to University, there is hardly any variation between their GPAs and the GPAs of the students whose early learning language was English
- The students with Tok Pisin as the early learning language appear to struggle at university, compared to their English/Vernacular counterparts.

Our findings strongly suggest that the decline in UPNG students' academic performance over the past two decades is most likely the consequence of multiple complex and interrelated socio-economic and cultural factors. Compounded by logistical difficulties of implementing the Vernacular Education policy in a uniquely multilingual but rapidly changing and integrating socio-economic environment, these issues present serious challenges in raising education and literacy levels in PNG, and their effects of the VE policy are likely to be felt for another 10-12 years.

The disproportionate predominance of students with ELL English amongst UPNG student body may be an indication of the adverse effect of the delayed AO of English acquisition, mandated by the VE policy.

Further research is needed to confirm these assumptions.

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