SUMMATIVE EVALUATION OF THE ELSA TEXT2TEACH PROJECT: FINAL REPORT

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Executive Summary:

The ELSA text2teach Project is an intervention strategy for improving the teaching of English, math and Science in grades 5 and 6 in selected schools in the province of Maguindanao, Cotabato and South Cotabato. We undertook a summative evaluation of the Project two years into its implementation to assess learning gains among pupils exposed to this intervention relative to a comparative group of controls.

We adopted a quasi-experimental design with a pre- and post test administered to selected study schools in the text2teach project area and a comparable set of control schools in the same provinces. We picked a 10 per cent sample of the ELSA text2teach schools (12 out of 122 schools) and matched each chosen sample with a control school. Matching criteria were accessibility for testing, relative proximity to the counterpart study school and enrolment size. The 12 schools were distributed across province proportional to number of text2teach schools by province. Thus we had 5 schools from Maguindanao, 4 from Cotabato and 3 from South Cotabato with matching controls for a total of 24 schools.

All in all, there were 3297 pupils who participated in the evaluation by taking the pre- tests, 59 per cent from the study schools and 42 per cent from the control schools. Of these 1674 were grade 5 and 1623 were grade 6. At the end of the school year, 85 per cent of grade 5 and 89 per cent of grade 6 pupils took the post test. The pre-test was conducted July 31 to August 3,2006 while the post-test was done in the period March 11-16,2007

The test instruments used for the pre- and post test consisted of 50-item multiple choice type exams in English, Math and Science- all written in English. The items for these tests were based on the competency framework appropriate to the grade according to the Revised Basic Education curriculum. The test instruments were field tested in the Old Balara Elementary School, a public school in Quezon City.

Midway through the school year we also administered the same test instruments to a sample of teachers of text2teach from the various schools where the project was being implemented. The teacher participants did not necessarily come from the school in our study.

Using the Department of Education yardstick of 75 per cent mastery as indicator for acceptable performance in the grade level, we set the cut off of 37.5 points as the "passing mark" for the teachers (75 per cent of the 50-item test). Using this rough criterion, the teachers posted mean scores below 75 per cent in English (36.1 points) and Science (33.1 points) and at the cut point of 75 per cent (37.5 points) for Math. Per province, Cotabato teachers posted passing scores in all subjects, Maguindanao teachers had the lowest average scores. South Cotabato teachers were in between.

Regression analysis shows that the most important predictor of teacher score is province, being Maguindanao takes away points from predicted scores in English, Math and Science, being from Cotabato adds points to the predicted score. Being young (age 20-29) and having fewer years of experience in teaching also adds points to the predicted score in Math and Science at both grade levels. Evidently, experience as measured by age and teaching years does not lead automatically lead to higher scores in the diagnostic tests.

To assess the effect of text2teach as an intervention to improve learning gains we used the paired t-test, comparing each child's score at pre- and posttest. Our hypothesis was that children exposed to text2teach will show higher learning gains compared to controls. Learning gain is operationally defined as the difference between post and pre-test score. We also performed multiple regression with dummy variables to examine the effects of the intervention in combination with other factors such as the pupil's basic characteristics (e.g. age, sex, past academic performance, family and parent characteristics).

The major findings of the comparison of pre- and post test performance of pupils in the study, either as exposed to the text2teach intervention or as controls are the following:

- Exposure to text2teach as an intervention leads to significantly higher learning gains in English , Math and Science at both grade levels. The gains are very impressive for English and Science but less so in Math although still highly significant.

- Although exposure to the intervention leads to learning gains in general, the magnitude of the gain is modified by the province where the school is situated. Being from Cotabato adds to predicted learning gains in all subjects at both grade levels, while being from Maguindanao has the negative effect of subtracting from predicted learning gains.

- There are province-specific findings such as the following:

  1. It is possible to overcome perceived learning handicaps attributed to ethnic affiliation as shown by the outstanding performance of predominantly Muslim and IP populated study schools in South Cotabato compared with the predominantly Christian control schools.
  2. In an environment where pupils already manifest learning gains even without the text2teach intervention, the effect of text2teach is to further enhance the gains such as in the case of the Cotabato schools.

  3. In an environment not optimally conducive to effective learning such as in Maguindanao, text2teach can spell the difference between some learning and no learning at all. Evaluation of effects of exposure to the intervention other than through learning gains as we measured it should be explored in order to document possible qualitative change that may have resulted from exposure to text2teach.

  4. For Cotabato, the pattern in learning gains differs between grade 5 and grade 6. The most dramatic gains are posted at grade 5. This means that probably the initial exposure to text2teach has the greatest effect on learning but the effect of a second exposure is no longer as dramatic, although still positive. In other words, the effect of length of exposure is not linear but probably pleateaus somewhat with longer exposure. Considering that Cotabato schools whether study or controls are already the highest performers of the three provinces, this result can not be generalized to South Cotabato and Maguindanao- but most likely to other schools where learning gains with or without intervention is normal and expected.

  5. For Maguindanao, the pattern of learning gains also varies between grade 5 and grade 6. At grade 5, the learning gains are minimal; they shoot up at grade 6. Unlike Cotabato, longer exposure to the intervention works better for the Maguindanao pupils as it takes two years of exposure to text2teach to observe its effect. Thus for Maguindanao pupils, optimal results may be obtained with longer exposure beginning at lower grade levels.

- The regression results produced to one unanticipated finding which is that being male has a negative effect on learning gains. It has been customary to focus on female children as the more disadvantaged, especially in the Muslim-dominated regions. Our finding in this study of a male disadvantage in learning outcomes highlights the need to use more empirical bases for deciding on actions to take for programs that target gender-based disparities instead of relying routinely on currently popular notions. The negative effect on learning of being male needs further study as it has many possible implications.

Summative evaluation of the ELSA text2teach project in Maguindanao, North Cotabato and South Cotabato: Report on the Pre-test

Background:

The overall objective of the summative evaluation of the ELSA text2teach Project in Maguindanao, Cotabato and North Cotabato is to estimate the impact of this intervention on learning in English, Mathematics and Science among grades 5 and 6 pupils in the schools where the text2teach project is being implemented. To achieve this objective, we adopted an evaluation design which is a quasi-experiment comparing a number of text2teach schools (the study schools) with a comparable set of non-text2teach schools (the control schools) in the same localities. We assess learning gains via a pre-test post-test design where pupils in grades 5 and 6 in both study and control schools take a diagnostic test in English, Science and Math appropriate to the grade level at the beginning of the school year (the pre-test) and the same test toward the end of the school year (the post test).

We also record background characteristics of the pupils for use as additional explanatory factors that may account for learning gains over and above the effect of the main independent variable which exposure to text2teach lessons in English, Science and Mathematics for the duration of school year.

The test instruments:

The test instruments in English, Science and Math were prepared by faculty members of the University of the Philippines Integrated School who themselves are currently teaching in these grade levels, namely:

Melanie Donkor- English

Rolando Villablanca – Science

Aurora Zuniga – Mathematics

Two sets of tests were prepared, one for grade 5 and one for grade 6- all in English. Altogether there were a total of six tests, one per subject area and grade level. Test items

were based on the competency framework for the respective grade level according to the Revised Basic Education Curriculum. Thus each test consisting of a 50-item multiple choice type of examination was designed to assess competencies that should have been acquired at the end of the grade level. The teachers who prepared the tests also viewed the actual video lessons used in the intervention to give them an idea how the lessons are presented in the text2teach classes.

Pre-testing the test instruments:

The test instruments were first field-tested at the Old Balara Elementary School, a public school located along Tandang Sora Avenue in Quezon City. Being a public school located in a lower class neighborhood with enrollment comng from lower to lower middle classes we believed the type of students enrolled in this school would be comparable to our sample schools. Two sections were chosen per grade level, the high section and a regular section. The tests were conducted on June 29 and 30 and July 3 and 4, 2006. The set of three subject area tests were administered in one sitting, in the following order: English, Science and Mathematics. In all testing time was approximately two and a half hours. Results are shown in table 1.

Table 1. Mean scores in 50-item tests, by subject, grade level and type of section

	High section			Regular section			All Sections			
Subject	Mean	s.d.	n	Mean	s.d.	n	Mean	s.d.	N	Sig.
English										
5	23.3	5.48	41	17.7	4.01	52	20.1	5.46	93	*.00*
6	27.4	4.08	44	17.7	3.54	45	22.6	6.18	89	*.00*
Science										
5	20.9	5.61	41	14.4	3.79	52	17.3	5.67	93	*.00*
6	25.8	4.19	44	15.9	3.29	45	20.8	6.25	89	*.00*
Math										
5	22.6	7.76	41	18.2	4.74	52	20.1	6.60	93	*.001*
6	25.8	4.19	44	15.9	3.29	45	20.8	6.25	89	*.00*

Table 1 shows the results of the tests as mean scores in the 50-item examinations broken down by subject, grade level and type of section- whether high or regular. Differences in

mean scores between the high and regular sections were highly significant (*p<.00*) for each test at both grade levels. This means that the diagnostic instrument could successfully discriminate among pupils of different levels of ability (based on the *a priori* criterion of type of section). As expected, pupils from the high sections scored higher than those from the regular sections. Given that the tests contained items that were still to be learned during the school year it was not expected that the pupils will score very highly. Nevertheless, pupils from the high section had mean scores that ranged from 21 to 27 out of a possible score of 50 (42 to 54 per cent correct answers) , while the range of mean scores for regular section students was 14 to 18 (28 to 36 per cent correct answers.).

We intend to administer the same exams at the end of the school year to assess learning gains in this set of pupils, even if they are not part of the actual study. This group can serve as another control group, one composed of pupils exposed to the public school system as are the actual test subjects on the study. Their main distinguishing characteristic is that they are from a highly urbanized area.

Based on feedback from the Old Balara pupils, minor corrections were made on the test instruments consisting mainly of correcting typographical errors.

Appendix A presents the item analysis results for each of the tests. Reliability as measured by Cronbach's alpha ranged from .69 for English 5 to .79 for Math 6. Reliability for the other tests fell between these two values.

All 50 items in the original test were retained for the field pre-test despite some items with low item-total correlation since these exams are considered mastery tests and each item is deemed as testing for a specific competency that is expected to have been acquired at the end of the grade level.

The conduct of the pre-test in the field sites:

After the validation of the test instruments the next step was to conduct the actual pre-test in the provinces of Maguindanao, North Cotabato and South Cotabato. As proposed in the original protocol, 24 elementary schools were chosen to participate in the summative evaluation exercise, 12 text2teach and 12 non text2teach schools. The conduct of the tests in these schools was done in close partnership with a collaborating local institution, the Cotabato City Polytechnic State College (CCSPC), a state college offering only tertiary level courses and with main campus in Cotabato City. CCSPC was identified by SEAMEO INNOTECH as the partner for the field tests because the school and the personnel have no direct link to the elementary education system and thus have no stake in the outcome of the tests. Furthermore, there were no text2teach schools in Cotabato City and this further bolstered the impartiality of our partners.

The choice of which schools to include in the summative evaluation was accomplished through the following procedure. First, the President of CCSPC , Dr. Dingan Ali and his deputy, Dr. Felipe Balucas Jr. chose candidate participant schools purposively from the 122 ELSA test2teach schools during the initial meeting between myself and the CCSPC officials at the SEAMEO Innotech head office in Quezon City. They based their preliminary selection of study schools on enrolment size and accessibility for testing through its proximity to the national highway. Further in identifying potential schools for inclusion they were mindful to keep the choice of schools widely dispersed around the Project sites, i.e. the provinces of Maguindanao, Cotabato and South Cotabato albeit with clustering around the national highway cutting through these provinces accessibility . This was to ensure representativeness of the entire geographic spread of each province while still fulfilling the requirement of accessibility . Dr. Ali who has worked in government prior to his stint at CCSPC was very familiar with the Maguindanao-Cotabato area and the location of the public elementary schools. For each study school that he and Dr. Balucas picked, he also suggested a control school that was as close as possible in size of enrollment and proximity to the national highway as the selected study school from among ELSA text2teach schools.

The tentative list of schools drawn at SEAMEO INNOTECH with Dr. Ali was sent to the district superintendents per province for their evaluation and approval. They in turn suggested control schools in those areas where the CCSPC team had not identified one, mainly in South Cotabato. Other minor changes were made on the CCSPC generated list in most cases due to concerns from the field about accessibility and security. Based on the foregoing procedure we arrived at the final listing of study and control schools shown in table 2.

Table 2. Study and control schools for the ELSA text2teach summative evaluation

STUDY SCHOOLS	CONTROL SCHOOLS	MUNICIPALITY/PROVINCE
Tanuel	Datu Pingiaman	Datu Odin Sinsuat, Maguindanao
Making	Molina	Parang, Maguindanao
Datu Sangki Ampatuan	Datu Dumpao Banog	Ampatuan, Maguindanao
Malangit, Buluan	Datu Paglas	Buluan & Paglas, Maguindanao
Layug (Mamasabulod)	Matalam Farm	Pagalungan and Datu Montawal, Maguindanao
Sinawingan	Cocal	Libungan, North Cotabato
Katidtuan Central	Osias	Kabacan, North Cotabato
Saguing	Malasila	Makilala, North Cotabato
Dalipe	Lika	Mlang, North Cotabato
Dumadalig	San Felipe	Tantangan, South Cotabato
Ambalgan	Teresita	Sto Nino, South Cotabato
Koronadal Proper	Silway 8	Polomolok, South Cotabato

For the fielding of the pre-test two teams were formed. Team A headed by Dr. Sema Dilna of CCSPC conducted the tests in Maguindanao while team B headed by Dr. Francisco Balucas Jr covered North and South Cotabato. Each team was accompanied by a field supervisor from the Population Institute/Demographic Research and Development Foundation Inc. A half day training session on the conduct of the pretest was held at CCSPC a day prior to the field work. The teams were also trained how to guide the pupils in filling up the self-filled questionnaire about the respondents' background characteristics. Furthermore, the need to secure the test instruments was emphasized. The teams were made aware of the

contamination of research results that could possibly ensue should teachers in the study and control schools gain access to the test instruments and ask their pupils to practice for it in the post test.

The teams went on field simultaneously from July 31 to August 4, 2006. Due to the schedule of classes in Maguindanao (Sunday to Friday) team A conducted the pretests from July 31 to August 3.

In all 3297 pupils, 1674 grade 5 and 1623 grade 6 pupils, took the pre-test. Table 3 shows the distribution of test takers by school and province. As evident in table the ELSA test2teach schools tended to have bigger enrollment than the control schools, a bias that is built in into the process of selection by program administrators from SEAMEO INNOTECH in consultation with Department of Education officials as to which schools in the three provinces will participate in the text2teach program. One major consideration for inclusion of a school was a large enrollment in order to maximize the gains of the program. Consequently, control schools which we picked on the basis of their relative proximity to an ELSA text2teach study school will tend to be smaller in size. Altogether,of the 3297 pupils who took the test, 59 per cent were from the study schools, 41 per cent were controls (table 4).

Table 3. Distribution of test takers by grade level, province and school

Province	Type	School	Grade 5 N	Grade 6 N
Maguindanao	study	Tanuel ES	62	45
	study	Making ES	126	127
	study	Datu Sangki ES	108	79
	study	Malangit ES	41	30
	study	Layug ES	65	53
	control	Datu Pingiaman ES	20	20
	control	Molina ES	20	21
	control	Datu Dumpao ES	49	48
	control	Paglas ES	36	31
	control	Matalam Farm ES	66	72
Cotabato	study	Sinawingan ES	60	69
	study	Katidtuan ES	64	56
	study	Saguing ES	109	113
	study	Dalipe ES	64	65
	control	Cocal ES	28	23
	control	Osias ES	35	35
	control	Malasila ES	92	91
	control	Lika ES	99	98
South Cotabato	study	Dumadalig ES	59	57
	study	Ambalgan ES	85	74
	study	Koronadal Proper ES	146	175
	control	San Felipe ES	59	63
	control	Teresita ES	32	37
	control	Silway 8 ES	149	141
Total			1674	1623

Table 4. Distribution of test takers by type of school

	Grade 5	N	Grade 6	n		Total
Study	59.1	989	58.1	943	58.6	1932
Control	40.9	685	41.9	680	41.4	1365
Total	100.0	1674	100.0	1623	100.0	3297

RESULTS:

Prior to taking the test, pupils filled in a questionnaire on background information about themselves. Results from these questionnaires provide us a picture of some basic characteristics about grade 5 and 6 pupils in the three provinces. We present the descriptive results broken down by province and tabulated separately for grades 5 and 6.

GRADE 5

A. Background characteristics:

A total of 1674 grade 5 pupils took the test, 989 (59 per cent) from the study schools, 685 (41 per cent) from the control schools. However, while all of them filled up the questionnaire prior to the test, we noted during the data processing that there were some gaps in the information that they provided thus leading to some missing data. As the number of respondents with missing information did not add up to a significant proportion of total respondents we proceeded with the data analysis and dropped cases with missing information for the variable being described. Missing information is the reason why, despite a total of 1674 grade 5 respondents, the number of cases in tables are likely to be less than 1674. We also noted during the administration of the self-filled questionnaire that pupils in some of the schools needed a lot of coaching from their teacher on how to fill in the questionnaire. Furthermore, a number of Maguindanao students expressed difficulty in giving information on their birth dates claiming they did not know when they were born. This problem seemed confined to Maguindanao, none of this difficulty was observed in respondents from Cotabato and South Cotabato.

Table 5 shows a description of the grade 5 pupils based on selected background characteristics: gender, age, number of siblings, mother and father's education, mother and father's occupation and past school performance (ever repeated a grade and for grade repeaters, what grade/s was repeated). The rightmost value in each table indicates the level of significance of the chi square statistic that tests for the significance of differences in distribution across categories of a given background characteristic by province. Over all, the

table shows that there are significant differences in pupil characteristics across the three provinces. The only characteristic with no significant difference is gender distribution.

In general there were more girls than boys in each of the three provinces. The ratio of boys to girls is roughly equivalent to the sex ratio in these age groups at the national level and indicates that, using this simple indicator there is no apparent gender bias in school attendance. In terms of age, we present percent distributions across given age because there were peculiarities in some of the data that may render a measure like the mean uninterpretable when used for all. For example, pupils from Cotabato and South Cotabato had an age distribution that clustered around age 11, the normative age for a grade 5 pupil. For pupils in these provinces, their given age is probably their true age. However, pupils from Maguindanao had a more dispersed age distribution with no clear clustering at age 11. More of the Maguindanao respondents also either did not fill in their birthdates or gave improbable years of birth. This finding was not unexpected given what we observed during the test administration when many pupils claimed they did not know their birth dates. Conscious of this situation, we plan to request for school records to verify the age of students in the Maguindanao schools so that we can use the age variable meaningfully in later analysis.

In terms of grade repetition, Maguindanao students were more likely to have ever repeated a grade; in fact more than half (53.7 per cent) of the Maguindanao pupils reported they repeated a grade compared with 13.5 per cent and 24.6 per cent in Cotabato and South Cotabato respectively. In all three provinces the most commonly repeated grade was grade 1. In fact, for all areas taken together half of those who ever repeated a grad, repeated grade 1. This proportion was higher in Maguindanao with 6 out of every 10 repeaters repeating grade 1. Finally, about 1 in 10 repeaters in Cotabato repeated more than one grade.

In terms of family-related characteristics, Maguindanao pupils came from significantly larger families reporting a mean of about 5 siblings (4.95), significantly higher than the average number of siblings in either Cotabato (4.34) or South Cotabato (4.36). Including the

respondent therefore, the mean number of children among our respondents in Maguindanao is about 6, and about 5 in Cotabato and South Cotabato. Compared with the national average of 3.5 children, the grade 5 respondents definitely come from families that are much larger than the national average.

In terms of their mother's education as reported by the respondents, the mothers in Maguindanao had the lowest level of educational attainment as a group compared with mothers from Cotabato and South Cotabato with about 13 per cent reported by their children as having no schooling compared with only 1 per cent in the two other provinces. Only Maguindanao mothers were reported as having attended Arabic schooling. About a fourth of Maguindanao respondents did not know their mother's educational attainment, three times more the percentage in Cotabato and South Cotabato. The profile of father's education is similar with mother's education although the levels vary. As with mothers, Maguindanao fathers in general have a lower level of education compared with fathers in the two other provinces although the proportion with no schooling is lower than that of Maguindanao mothers. As with their mothers, a higher proportion of respondents in the Maguindanao schools did not know their father's educational attainment.

As to occupation, a higher proportion of Maguindanao mothers were reported by their children to have an occupation compared with Cotabato and South Cotabato. The highest proportion of mothers reported to have no occupation or are nonworking is in South Cotabato. More Maguindanao mothers are reported to be in farming/fishing and in business; there are more mothers in Cotabato and South Cotabato in services/sales. Maguindanao and South Cotabato had about the same proportion of mothers who are OFWs (about 5 per cent). As to father's occupation, the highest proportion who are reported to have no occupation are in Maguindanao although the figures are not high (4 per cent for Maguindanao, 3 per cent for South Cotabato). The most commonly reported occupation of fathers in all three provinces is farming/fishing followed by trade/skilled work in Cotabato and South Cotabato, while in Maguindanao the second most common occupation is as police/barangay police/CVO. There

are also more fathers in Maguindanao in the Armed Forces of the Philippines. The proportion of fathers who are OFWs is lower at 1 per cent compared with mothers (4 per cent).

B. Test results:

Table 6a presents the mean scores of grade 5 pupils in the three subjects across the three provinces. All differences are highly significant (p < .000) and shows that Maguindanao schools scored lower than the two other provinces in all subjects. Cotabato schools had the highest scores of the three.

Table 6b meanwhile shows the test results by province this time adding type of school as an additional layer for comparison. Taking all cases together (the first panel in table 6b), results show that overall the difference in mean scores between pupils from the study and the control schools are statistically significant for English and Math but not for Science. For English and Math the means of the control group are higher.

Testing separately by province, table 6b shows that the significant differences in the overall scores are mostly attributable to South Cotabato where the mean scores of students in the control group was 2 points higher than the study group in English and Math and 1 point higher in Science. In contrast, within Maguindanao, there was no significant difference between study and controls while in Cotabato the only significant difference is in Science with the mean score of study schools recorded as less than 1 point higher than the controls.

The test results by school are presented in table 6c. In Maguindanao, Paglas Elementary School had the highest score in English, Molina Elementary School in Math and Making Elementary School in Science. For Cotabato, the highest scorers were Sinawingan Elementary School (English and Math) and Saguing Elementary School (Science)- both text2teach schools while for South Cotabato these were Teresita Elementary School (English), Silway Elementary School (Math and Science)- both control schools.

GRADE 6

A. Background characteristics:

A total of 1623 pupils took the tests, 943 (58 per cent) from the study schools and 680 (42 per cent) from the control schools. Compared with grade 5 pupils, there were fewer cases with missing information per characteristic. In general, the profile of grade 6 pupils does not radically differ from that of the grade 5 pupils. As with the grade 5 data, all differences per characteristic by province were significant except for gender. This similarity in findings is not unexpected as both groups come from the same geographic areas and are only differentiated by their grade level (table 7).

On the whole, females outnumber males in each province. The age distribution clusters around age 12, the normative age at this grade level. As with the grade 5 responses, we need to validate birth dates from school records in Maguindanao to resolve unrealistic age reports resulting from the pupils' not knowing their exact birthdates. The average number of siblings is also higher in Maguindanao while the combined average for the three provinces (5.27 children) is higher than the national average (3.5 children).

The overall pattern in grade repetition is similar with that at grade 5. The proportion who ever repeated a grade is likewise highest in Maguindanao and lowest in Cotabato. The one notable difference is that unlike the grade 5 respondents , the most frequently repeated grades in Maguindanao among grade 6 respondents are 1 and 2 (at 41 per cent and 45 per cent of repeaters, respectively).

In terms of parents' education, Maguindanao mothers also have lower educational attainment with more of them reported as having no schooling; half had elementary schooling and below. Cotabato had the highest proportion of mothers who are high school graduates. Compared with the grade 5 pupils, very few in Maguindanao reported their mother as having gone thru Arabic school (less than 1 per cent vs. 5 per cent for grade 5). Finally fewer respondents from Maguindanao said they did not know their mother's education. The

education profile of fathers closely resembles that of mothers with Maguindanao fathers having a lower level of educational attainment as a group.

Parents' occupation also shows a predominance of work in farming/fishing among fathers in the three provinces and among mothers in Maguindanao. More mothers than fathers are reported to be OFWs in all provinces with Maguindanao mothers having the highest proportion in this occupational category of the three. Maguindanao fathers have the highest proportion in such security-related work as barangay police/CVO.

B. <u>Test results:</u>
As shown in table 8a Cotabato schools again scored significantly higher of the three provinces in all subject areas. Differentiated into study and control schools table 8b shows that overall, the difference between study and control schools is significant for English and Science with control schools having a higher mean in these subjects. The difference for Science is not statistically significant.

On a within province comparison (table 8b), the study schools in Maguindanao have a higher mean score in English and the difference is significant but not so for Math and Science although the pattern is for the mean of the study schools to be slightly higher than the controls. For Cotabato, the difference between study and controls is significant for Math but not for Science or English. As with Maguindanao, the study schools have slightly higher mean scores than control schools in all subjects. For South Cotabato, the contrast between study and controls is more evident and confirmed further by highly significant p- levels ($p \leq .001$). In this province, the means for the controls in English and Math are almost three points higher than for the study respondents and 1 point higher in Science.

Broken down further into specific schools, table shows that some schools that scored high at grade 5 also did at grade 6. In Maguindanao, Paglas Elementary School recorded the highest mean in grade 6 English as it did with the grade 5 test. Making Elementary School had the highest mean score in Math while Layug and Making scored highest in Science. However,

compared with Cotabato and South Cotabato, these scores are generally lower. For Cotabato, Sinawingan Elementary School had the highest mean for English and Science while Saguing Elementary School is the topnotcher for Math. Both are study schools. In South Cotabato, San Felipe Elementary School scored the highest in English; Silway Elementary School topped Math and Dumadalig Elementary School was the highest for Science. San Felipe and Silway are controls.

Other observations:

While conducting the exam, the field team members noted that in Maguindanao the testing time took much shorter than the two hours we allotted. In some the pupils finished in under an hour. We observed that the pupils did not really read the questions and were obviously guessing. This observation was further bolstered in the data encoding when many answer sheets showed signs of guessing (crisscrossing, parallel answers, double answers for an item).

Table 5. Descriptives for   Grade 5   respondents

Sex	Maguindanao	Cotabato	South Cotabato	Total	N	Sig.
Female	57.12	52.73	53.58	54.50	883	0.300
Male	42.88	47.27	46.42	45.50	739	
Total	100.00	100.00	100.00	100.00	100.00	
N	555	550	530		1635	
Age						
no info	7.54	3.12	0.95	3.93	64	0.000
< 10	3.41	1.47	0.38	1.78	29	
> 16	0.00	0.18	0.19	0.12	2	
10	13.29	24.59	21.14	19.61	319	
11	28.37	45.69	45.90	39.83	648	
12	21.18	14.86	15.43	17.21	280	
13	14.18	6.42	9.14	9.96	162	
14	7.90	2.75	4.19	4.98	81	
15	2.69	0.92	2.10	1.91	31	
16	1.44	0.00	0.57	0.68	11	
Total	100.00	100.00	100.00	100.00		
N	557	545	525		1627	
Number of siblings						
Mean	4.95	4.34	4.36	4.56		0.000
s.d.	2.616	2.761	2.588	2.670		
N	557	543	521	1621		
Minimum	0	0	0	0		
Maximum	13	16	12	16		
Ever repeated a grade						
Yes	52.38	18.90	26.06	25.56	412	0.000
No	47.62	81.10	73.94	74.44	1200	
Total	100.00	100.00	100.00	100.00		
N	525	545	545		1615	
Repeated grade						
grade 1	40.50	35.51	52.45	42.72	226	0.000
grade 2	44.80	11.21	6.29	27.60	146	
grade 3	1.79	3.74	4.90	3.02	16	
grade 4	3.23	4.67	4.20	3.78	20	
grade 5	2.15	10.28	4.20	4.35	23	
grade 6	0.72	7.48	2.10	2.46	13	
>1 grade	0.00	3.74	2.80	1.51	8	
No information	6.81	23.36	23.08	14.56		
Total	100.00	100.00	100.00	100.00		
N	279	107	143		529	

Table 7. Descriptives for Grade 6 respondents

Sex	Maguindanao	Cotabato	South Cotabato	Total	N	sig.
Female	55.7	52.4	55.3	54.4	883	0.482
Male	44.3	47.6	44.7	45.6	739	
Total	100.0	100.0	100.0	100.0	100.00	
N	526	550	546		1622	
Age						
no info	0.4	0.7	0.6	0.6	9	0.000
< 10	6.1	0.4	0.6	2.3	37	
> 16	0.2	2.7	0.6	1.2	19	
10	1.3	1.6	0.2	1.0	17	
11	12.4	25.1	18.2	18.6	302	
12	29.1	47.3	46.7	41.2	667	
13	27.6	13.5	16.2	19.0	307	
14	15.0	6.2	9.6	10.2	165	
15	6.3	1.1	5.7	4.3	70	
16	1.7	1.5	1.8	1.7	27	
Total	100.0	100.0	100.0	100.0		
N	526	550	544		1620	
Number of siblings						
Mean	4.65	3.92	4.25	4.27		0.000
	2.486	2.405	2.506	2.482		
N	517	546	545	1608		
Minimum	0	0	0	0		
Maximum	14	11	12	14		
Ever repeated a grade						
Yes	53.4	19.6	26.2	32.8	529	0.000
No	46.6	80.4	73.8	67.2	1083	
Total	100.0	100.0	100.0	100.0		
N	522	545	545		1612	
Repeated grade						
grade 1	40.50	35.51	52.45	42.72	226	0.000
grade 2	44.80	11.21	6.29	27.60	146	
grade 3	1.79	3.74	4.90	3.02	16	
grade 4	3.23	4.67	4.20	3.78	20	
grade 5	2.15	10.28	4.20	4.35	23	
grade 6	0.72	7.48	2.10	2.46	13	
>1 grade	0.00	3.74	2.80	1.51	8	
No information	6.81	23.36	23.08	14.56		
Total	100.00	100.00	100.00	100.00		
N	279	107	143		529	

Table 6a. Mean grade 5 pre-test scores by province and subject

Subject*	Maguindanao			Cotabato			South Cotabato			Total		
	Mean	s.d.	N	Mean	s.d	N	Mean	s.d.	N	Mean	s.d.	N
English	13.27	3.612	593	15.49	4.024	551	14.99	3.786	530	14.55	3.924	1674
Math	12.69	3.229	593	14.07	4.321	551	13.52	4.306	530	13.41	4.002	1674
Science	12.32	3.398	593	13.99	3.799	551	13.92	3.666	530	13.37	3.701	1674

*All differences are significant; $p < .000$

Table.6b.   Mean grade 5 pretest scores by province,subject and type of school

		Type	Mean	s.d.	Sig.	Minimum	Maximum	N
All	English	control	14.90	3.99	0.0022	1	27	685
		study	14.30	3.86		1	30	989
	Math	control	13.89	4.21	0.0000	0	37	685
		study	13.07	3.82		0	37	989
	Science	control	13.52	3.78	n.s.	2	27	685
		study	13.27	3.65		1	30	989
Maguindanao	English	control	13.19	3.68	n.s.	1	22	191
		study	13.31	3.58		1	24	402
	Math	control	12.60	3.21	n.s.	3	21	191
		study	12.73	3.24		1	23	402
	Science	control	12.10	3.52	n.s	2	21	191
		study	12.42	3.34		1	21	402
Cotabato	English	control	15.35	3.96	n.s	6	26	254
		study	15.61	4.09		5	30	297
	Math	control	14.37	4.22	n.s	6	29	254
		study	13.82	4.39		0	31	297
	Science	control	13.59	3.55	0.0213	5	26	254
		study	14.33	3.97		6	30	297
South Cotabato	English	control	15.78	3.87	0.0000	5	27	240
		study	14.33	3.60		6	30	290
	Math	control	14.40	4.68	0.0000	0	37	240
		study	12.78	3.83		3	37	290
	Science	control	14.58	3.85	0.0001	4	27	240
		study	13.37	3.42		6	24	290

n.s. – not significant

Table6c.   Mean grade 5 pretest scores by province,subject and school

Province	School			English	Math	Science
Maguindanao	Tanuel ES		Mean	12.71	12.48	12.35
			s.d.	3.06	3.57	3.41
			N	62	62	62
	Making ES		Mean	14.00	12.88	12.91
			s.d.	3.60	3.05	3.31
			N	126	126	126
	Datu Sangki ES		Mean	13.13	12.90	12.27
			s.d.	3.51	3.23	2.82
			N	108	108	108
	Malangit ES		Mean	13.00	12.41	11.51
			s.d.	3.99	3.07	3.61
			N	41	41	41
	Layug ES (Mamasabulod)		Mean	13.06	12.60	12.32
			s.d.	3.74	3.44	3.85
			N	65	65	65
	Datu Pingiaman ES		Mean	12.95	13.4	12.15
			s.d.	3.90	3.38	3.39
			N	20	20	20
	Molina ES		Mean	13.7	13.95	12.8
			s.d.	3.20	3.73	3.83
			N	20	20	20
	Datu Dumpao ES		Mean	12.29	12.12	11.67
			s.d.	3.46	3.05	3.63
			N	49	49	49
	Paglas ES		Mean	14.75	12.22	12.39
			s.d.	3.42	3.42	3.56
			N	36	36	36
	Matalam Farm ES		Mean	12.94	12.50	12.05
			s.d.	3.87	2.94	3.43
			N	66	66	66

Table 6c (Cont.).   Mean grade 5 pretest scores by province,subject and school

Province	School		English	Math	Science
	Sinawingan ES	Mean	16.40	15.18	15.08
		s.d.	4.09	4.42	3.35
		N	60	60	60
Cotabato	Katidtuan ES	Mean	16.25	14.41	13.67
		s.d.	3.67	3.73	3.34
		N	64	64	64
	Saguing ES	Mean	15.60	13.79	15.84
		s.d.	4.42	4.59	4.08
		N	109	109	109
	Dalipe ES	Mean	14.23	12.00	11.72
		s.d.	3.60	4.10	3.45
		N	64	64	64
	Cocal ES	Mean	15.5	13.32	13.11
		s.d.	3.11	3.14	3.42
		N	28	28	28
	Osias ES	Mean	13.91	13.80	13.29
		s.d.	3.18	2.82	2.79
		N	35	35	35
	Malasila ES	Mean	15.85	14.99	13.51
		s.d.	4.45	4.60	3.48
		N	92	92	92
	Lika ES	Mean	15.34	14.28	13.90
		s.d.	3.85	4.49	3.90
		N	99	99	99
	Dumadalig ES	Mean	14.63	13.32	13.49
		s.d.	3.83	3.62	3.48
		N	59	59	59
South Cotabato	Ambalgan ES	Mean	14.42	12.32	13.65
		s.d.	2.86	3.27	3.22
		N	85	85	85
	Koronadal Proper ES	Mean	14.16	12.83	13.16
		s.d.	3.89	4.18	3.51
		N	146	146	146
	San Felipe ES	Mean	14.88	12.92	14.20
		s.d.	3.54	3.91	3.14
		N	59	59	59
	Teresita ES	Mean	16.78	14.41	15.47
		s.d.	4.06	4.57	3.80
		N	32	32	32
	Silway 8 ES	Mean	15.92	14.99	14.54
		s.d.	3.90	4.87	4.10
		N	149	149	149
All		**Mean**	**14.55**	**13.41**	**13.37**
		s.d.	**3.92**	**4.00**	**3.70**
		N	**1674**	**1674**	**1674**

Table 8a. Mean grade 6 pre-test scores by province and subject

Subject*	Maguindanao			Cotabato			South Cotabato			Total		
	Mean	s.d	N	Mean	s.d	N	Mean	s.d	N	Mean	s.d	N
English	14.86	4.505	526	19.13	5.37	550	18.23	4.935	547	17.44	5.280	1623
Math	12.65	3.290	526	16.04	4.98	550	15.44	4.504	547	14.74	4.571	1623
Science	12.72	3.518	526	15.96	4.55	550	14.73	4.382	547	14.50	4.386	1623

*All differences are significant; p < .000

Table 8b. Mean grade 6 pretest scores by province, subject and type of school

		Type	Mean	s.d.	Sig.	Minimum	Maximum	N
	English	control	17.79	5.49	*0.0250*	1	33	680
All		study	17.19	5.11		0	34	943
	Math	control	15.14	4.69	*0.0026*	3	36	680
		study	14.45	4.46		1	39	943
	Science	control	14.65	4.43	n.s.	3	32	680
		study	14.39	4.35		4	31	943
	English	control	14.27	4.27	*0.0227*	1	26	192
Maguindanao		study	15.19	4.61		0	33	334
	Math	control	12.43	3.48	n.s.	3	21	192
		study	12.77	3.17		1	20	334
	Science	control	12.53	3.49	n.s.	3	21	192
		study	12.84	3.54		4	24	334
	English	control	18.70	5.35	n.s	7	32	247
Cotabato		study	19.50	5.36		7	34	303
	Math	control	15.43	4.13	*0.0089*	6	29	247
		study	16.54	5.54		7	39	303
	Science	control	15.55	4.38	n.s.	5	29	247
		study	16.30	4.66		7	31	303
	English	control	19.69	5.19	*0.0000*	6	33	241
South		study	17.09	4.41		8	29	306
Cotabato	Math	control	17.00	5.07	*0.0000*	8	36	241
		study	14.21	3.56		6	25	306
	Science	control	15.43	4.60	*0.0009*	5	32	241
		study	14.18	4.13		5	28	306

Table 8c. Mean grade 6 pretest scores by province, subject and school

Province	School			English	Math	Science
Maguindanao	Tanuel ES	Mean		13.49	11.98	11.80
		s.d.		4.47	3.85	3.06
		N		45	45	45
	Making ES	Mean		17.06	13.34	13.63
		s.d.		4.59	3.21	3.41
		N		127	127	127
	Datu Sangki ES	Mean		13.38	12.68	11.94
		s.d.		4.52	3.12	3.69
		N		79	79	79
	Malangit ES	Mean		14.70	12.13	11.97
		s.d.		3.58	2.39	2.57
		N		30	30	30
	Layug ES (Mamasabulod)	Mean		15.15	12.58	13.64
		s.d.		3.74	2.73	3.89
		N		53	53	53
	Datu Pingiaman ES	Mean		13.20	13.20	12.40
		s.d.		2.91	3.91	3.30
		N		20	20	20
	Molina ES	Mean		15.24	13.10	12.62
		s.d.		2.47	3.14	3.57
		N		21	21	21
	Datu Dumpao ES	Mean		13.19	12.38	12.69
		s.d.		2.73	3.29	3.70
		N		48	48	48
	Paglas ES	Mean		19.45	12.58	13.35
		s.d.		3.66	3.55	3.41
		N		31	31	31
	Matalam Farm ES	Mean		12.76	12.00	12.08
		s.d.		4.37	3.57	3.43
		N		72	72	72

APPENDIX A

Item analysis

Item Statistics
English 5

Item Number	Proportion with correct answer	Std. Deviation	N
1	.23	.420	93
2	.11	.311	93
3	.28	.451	93
4	.33	.474	93
5	.30	.461	93
6	.38	.487	93
7	.18	.389	93
8	.39	.490	93
9	.29	.456	93
10	.41	.494	93
11	.42	.496	93
12	.15	.360	93
13	.56	.499	93
14	.39	.490	93
15	.49	.503	93
16	.46	.501	93
17	.42	.496	93
18	.20	.405	93
19	.66	.478	93
20	.91	.282	93
21	.46	.501	93
22	.73	.446	93
23	.29	.456	93
24	.31	.466	93
25	.15	.360	93
26	.75	.434	93
27	.56	.499	93
28	.82	.389	93
29	.13	.337	93
30	.38	.487	93
31	.43	.498	93
32	.18	.389	93
33	.41	.494	93
34	.30	.461	93
35	.19	.397	93
36	.33	.474	93
37	.42	.496	93
38	.15	.360	93
39	.27	.446	93
40	.26	.440	93
41	.84	.370	93
42	.24	.427	93
43	.74	.440	93
44	.16	.370	93
45	.61	.490	93
46	.69	.466	93
47	.65	.481	93
48	.68	.470	93
49	.16	.370	93
50	.29	.456	93

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
20.14	29.774	5.457	50

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.680	.661	50

Item Statistics
Science 5

Item	Proportion with correct answer	Std. Deviation	N
1	.62	.487	93
2	.34	.478	93
3	.27	.446	93
4	.25	.434	93
5	.33	.474	93
6	.51	.503	93
7	.45	.500	93
8	.78	.413	93
9	.52	.502	93
10	.37	.484	93
11	.23	.420	93
12	.26	.440	93
13	.41	.494	93
14	.40	.492	93
15	.31	.466	93
16	.19	.397	93
17	.37	.484	93
18	.39	.490	93
19	.59	.494	93
20	.10	.297	93
21	.40	.492	93
22	.52	.502	93
23	.35	.481	93
24	.17	.379	93
25	.06	.247	93
26	.43	.498	93
27	.22	.413	93
28	.20	.405	93
29	.39	.490	93
39	.35	.481	93
31	.34	.478	93
32	.61	.490	93
33	.28	.451	93
34	.31	.466	93
35	.35	.481	93
36	.31	.466	93
37	.16	.370	93
38	.12	.325	93
39	.39	.490	93
40	.41	.494	93
41	.37	.484	93
42	.35	.481	93
43	.41	.494	93
44	.16	.370	93
45	.54	.501	93
46	.29	.456	93
47	.20	.405	93
48	.29	.456	93
49	.25	.434	93
50	.37	.484	93

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
17.29	32.187	5.673	50

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.690	.680	50

Item Statistics
Mathematics 5

Item	Proportion with correct answer	Std. Deviation	N
1	.28	.451	93
2	.10	.297	93
3	.18	.389	93
4	.77	.420	93
5	.43	.498	93
6	.38	.487	93
7	.37	.484	93
8	.31	.466	93
9	.73	.446	93
10	.34	.478	93
11	.68	.470	93
12	.59	.494	93
13	.48	.502	93
14	.52	.502	93
15	.32	.470	93
16	.43	.498	93
17	.52	.502	93
18	.33	.474	93
19	.82	.389	93
20	.68	.470	93
21	.38	.487	93
22	.41	.494	93
23	.58	.496	93
24	.65	.481	93
25	.35	.481	93
26	.24	.427	93
27	.25	.434	93
28	.16	.370	93
29	.49	.503	93
30	.33	.474	93
31	.31	.466	93
32	.25	.434	93
33	.37	.484	93
34	.31	.466	93
35	.25	.434	93
36	.39	.490	93
37	.25	.434	93
38	.29	.456	93
39	.47	.502	93
40	.40	.492	93
41	.19	.397	93
42	.19	.397	93
43	.10	.297	93
44	.39	.490	93
45	.29	.456	93
46	.25	.434	93
47	.55	.500	93
48	.81	.397	93
49	.81	.397	93
50	.18	.389	93

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
20.13	43.548	6.599	50

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.777	.768	50

Item Statistics
English 6

Item	Proportion with correct answer	Std. Deviation	N
1	.58	.496	89
2	.78	.420	89
3	.58	.496	89
4	.45	.500	89
5	.72	.452	89
6	.33	.471	89
7	.44	.499	89
8	.64	.483	89
9	.25	.434	89
10	.73	.446	89
11	.72	.452	89
12	.45	.500	89
13	.65	.479	89
14	.54	.501	89
15	.28	.452	89
16	.54	.501	89
17	.51	.503	89
18	.11	.318	89
19	.26	.440	89
20	.18	.386	89
21	.28	.452	89
22	.54	.501	89
23	.55	.500	89
24	.52	.503	89
25	.47	.502	89
26	.46	.501	89
27	.40	.494	89
28	.34	.475	89
29	.69	.467	89
30	.25	.434	89
31	.93	.252	89
32	.74	.440	89
33	.58	.496	89
34	.52	.503	89
35	.64	.483	89
36	.38	.489	89
37	.44	.499	89
38	.21	.412	89
39	.18	.386	89
40	.54	.501	89
41	.25	.434	89
42	.36	.483	89
43	.36	.483	89
44	.54	.501	89
45	.17	.376	89
46	.21	.412	89
47	.29	.457	89
48	.40	.494	89
49	.47	.502	89
50	.10	.303	89

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
22.55	38.182	6.179	50

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.734	.717	50

Item Statistics
Science 6

Item	Proportion with correct answer	Std. Deviation	N
1	.84	.366	89
2	.17	.376	89
3	.35	.479	89
4	.87	.343	89
5	.35	.479	89
6	.35	.479	89
7	.42	.496	89
8	.45	.500	89
9	.19	.395	89
10	.71	.457	89
11	.62	.489	89
12	.53	.502	89
13	.46	.501	89
14	.40	.494	89
15	.70	.462	89
16	.16	.366	89
17	.71	.457	89
18	.54	.501	89
19	.26	.440	89
20	.38	.489	89
21	.48	.503	89
22	.49	.503	89
23	.44	.499	89
24	.18	.386	89
25	.39	.491	89
26	.21	.412	89
27	.64	.483	89
28	.29	.457	89
29	.38	.489	89
30	.39	.491	89
31	.20	.404	89
32	.33	.471	89
33	.15	.355	89
34	.45	.500	89
35	.04	.208	89
36	.35	.479	89
37	.44	.499	89
38	.27	.446	89
39	.51	.503	89
40	.29	.457	89
41	.28	.452	89
42	.26	.440	89
43	.42	.496	89
44	.37	.486	89
45	.45	.500	89
46	.47	.502	89
47	.58	.496	89
48	.48	.503	89
49	.61	.491	89
50	.49	.503	89

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
20.79	39.033	6.248	50

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.740	.719	50

Item Statistics
Mathematics 6

Item	Mean	Std. Deviation	N
1	.87	.343	89
2	.22	.420	89
3	.43	.497	89
4	.46	.501	89
5	.55	.500	89
6	.53	.502	89
7	.70	.462	89
8	.17	.376	89
9	.53	.502	89
10	.70	.462	89
11	.39	.491	89
12	.30	.462	89
13	.30	.462	89
14	.26	.440	89
15	.33	.471	89
16	.58	.496	89
17	.18	.386	89
18	.44	.499	89
19	.49	.503	89
20	.35	.479	89
21	.34	.475	89
22	.24	.427	89
23	.44	.499	89
24	.55	.500	89
25	.49	.503	89
26	.19	.395	89
27	.46	.501	89
28	.42	.496	89
29	.28	.452	89
30	.34	.475	89
31	.30	.462	89
32	.79	.412	89
33	.24	.427	89
34	.42	.496	89
35	.34	.475	89
36	.33	.471	89
37	.53	.502	89
38	.28	.452	89
39	.47	.502	89
40	.61	.491	89
41	.51	.503	89
42	.21	.412	89
43	.35	.479	89
44	.25	.434	89
45	.47	.502	89
46	.22	.420	89
47	.48	.503	89
48	.52	.503	89
49	.49	.503	89
50	.42	.496	89

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
20.73	49.836	7.059	50

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.794	.786	50

A Report on the Diagnostic Test for Teachers in the ELSA Text2Teach Schools in Maguindanao, Cotabato and South Cotabato

Background:

As part of the summative evaluation of the ELSA Text2teach Project in Mindanao the same set of tests in grades 5 and 6-level English, Math and Science administered to pupils in the study and control schools were given to teachers in the ELSA Text2teach schools in Maguindanao, Cotabato and South Cotabato. The objective of the testing was to gauge teacher competency in the skills and content areas of the subjects that they are expected to handle.

Results:

A total of 98 teachers took the grade 5-level tests while 95 teachers took the grade 6-level tests. Tables 1 and 2 present the description of the two samples of teachers in terms of basic background characteristics. Because both samples were overwhelmingly female, we do not disaggregate by sex.

Table 1 shows that the teachers who took the grade 5 level tests were mostly BSE/BSEEd graduates; half did not have a major or specialization; most obtained their degrees from a private university/college. Their mean age is 43 years and the average years of teaching experience is 15.8 years. A high 75 per cent have either obtained Masters' degrees or earned Masters' units; about a quarter had a rank of Master Teacher. The majority handle a combination of subjects, a comparatively smaller proportion taught only one subject-either English, Math or Science. The highest proportion of teacher test takers came from Cotabato (39.8 per cent), followed by Maguindanao (34.7 per cent) and South Cotabato (25.5 per cent).

Table 1. Descriptives for Grade 5 teachers

		N	Percent
Province	Maguindanao	34	34.7
	Cotabato	39	39.8
	South Cotabato	25	25.5
Graduated from	State College/Univ	31	31.6
	Private College/Univ	64	65.3
	Both	3	3.1
Basic degree	BSE/BSEed/BEED	82	83.7
	BSE + others	5	5.1
	Other non BSE	11	11.2
Major/specialization	None	49	50.0
	Math	8	8.2
	Science	7	7.1
	English	3	3.1
	Others	31	31.6
Advanced degree	None	24	24.5
	With Masters units	47	48.0
	With Masters degree	27	27.6
Age	25-29	6	6.1
	30-39	34	34.7
	40-49	31	31.6
	50+	27	27.6
Mean age			43 years
s.d.			8.74
Range			25 to 61
Years of	0 to 5	12	12.2
teaching	6 to 10	20	20.4
	11 to 15	18	18.4
	16 to 20	20	20.4
	21 to 39	28	28.6
Mean years of teaching			15.83
s.d.			9.27
Rank	Master Teacher	24	24.5
	Teacher	74	75.5
Grade level taught	Grade 5	31	31.6
	Grade 6	45	45.9
	Multi grade	22	22.4
Subject taught	Mathematics	17	17.3
	English	14	14.3
	Science	12	12.2
	Combination	55	56.1
Total		**98**	**100.0**

Table 2 shows the descriptives for teachers who took the grade 6-level diagnostic tests. The characteristics of this sample does not differ much from the grade 5 test takers except for being slightly younger (mean age is 41 years), with slightly lower mean years of teaching experience (15 years). The proportion who taught a combination of subjects was lower while the proportion who taught multiple grades was slightly higher. There were more teachers in this sample who had earned either Master's units or Masters' degrees with two respondents having earned doctoral units.

Table 2. Descriptives for grade 6 teachers

Characteristic		N	Percent
Province	Maguindanao	20	21.1
	Cotabato	44	46.3
	South Cotabato	31	32.6
Graduated from	State College/Univ	36	37.9
	Private College/Univ	57	60.0
	Both	2	2.1
Basic degree	BSE/BSEed/BEED	57	60.0
	BSE + others	19	20.0
	Other non BSE	19	20.0
Major/specialization	None	31	32.6
	Math	10	10.5
	Science	4	4.2
	English	14	14.7
	Others	36	37.9
Advanced degree	None	14	14.7
	With Masters' units	46	48.4
	With Masters' degree	33	34.7
	With doctoral units	2	2.1
Age	20-29	10	10.5
	30-39	36	37.9
	40-49	30	31.6
	50+	19	20.0
Mean age			41.3
s.d.			8.59
Range			24 to 59
Years of teaching	1 to 5	14	14.7
	6 to 10	16	16.8
	10 to 15	26	27.4
	16 to 20	14	14.7
	21 to 36	25	26.3
Mean years of teaching			15.0
s.d.			8.68
Rank	Master Teacher	18	18.9
	Teacher	77	81.1
Grade level taught	Grade 5	31	32.6
	Grade 6	36	37.9
	Multi grade	28	29.5
Subject taught	Mathematics	20	21.1
	English	20	21.1
	Science	10	10.5
	Others/combination	45	47.4
Total		**95**	**100.0**

Tables 3 and 4 show the performance of the teachers in the diagnostic tests broken down by subject and selected teacher characteristics. Each table shows the mean score in the 50-item test and the specific p-value for the differences that reached at least the .05 level of significance. Over all teachers who took the grade 5 level test obtained a mean score of 36.1 points (72.2 per cent correct answers) in English, 37.5 points (75 per cent correct answers) in Math and 33.1 points (66.2 per cent correct answers) in Science while for teachers who took the grade 6-level test, the mean scores were 36.2 (72.4 per cent correct answers), 37.6 (75.2 per cent correct answers) and 32.6 points (65.2 per cent correct answers), respectively. At both grade levels, the teachers registered the highest mean scores in Math and the lowest in Science.

Looking at differences in mean scores across teacher- related characteristics, these differences were most striking across province. Teachers from Cotabato scored the highest in all three subjects while Maguindanao teachers scored the lowest- both at grade 5 and 6 levels. All differences are highly significant (see tables 3 and 4).

As to the other teacher characteristics, the differences in scores across type of college attended, basic degree major/specialization, age, years of teaching, rank grade level and subject taught were not significant in the grade 5-levels tests. However, having advanced training significantly increased mean scores for Math and Science but not for English. The pattern is somewhat different in the grade 6-level test with more teacher characteristics registering significant effects on mean scores. Aside from province, there was significant difference in mean scores in English, Math and Science across years of teaching. Those with the longest experience in teaching (21+ years) consistently scored the lowest. For Math, the highest scorers were those with fewer years of teaching experience (up to 10 years experience). Also, for Math, the youngest teachers registered the highest mean scores. Test participants who were handling grade 5 but took the grade 6 level test scored significantly lower than those who were teaching grade 6 or multigrade.

Table 3. Mean scores in grade 5 English, Math and Science by teacher characteristics

Characteristic		**English**	**Mathematics**	**Science**
Province	Maguindanao	31.3	32.5	27.5
	Cotabato	39.5	41.4	38.5
	South Cotabato	37.3	38.3	32.3
	p-value	*0.000*	*0.000*	*0.000*
Graduated from	State College/Univ	37.0	39.1	32.7
	Private College/Univ	35.4	36.5	32.8
	Both	40.0	43.7	42.3
	p-value	*n.s.*	*n.s.*	*n.s.*
Basic degree	BSE/BSEed/BEED	35.6	37.2	32.4
	BSE + others	37.6	39.8	38.4
	Other non BSE	39.2	38.7	35.9
	p-value	*n.s.*	*n.s.*	*n.s.*
Major	None	35.3	37.7	32.6
	Math	38.0	39.5	36.3
	Science	36.0	37.3	35.4
	English	41.7	42.0	34.3
	Others	36.2	36.3	32.4
	p-value	*n.s.*	*n.s.*	*n.s.*
Advanced degree	None	35.5	35.5	30.0
	With master's units	35.9	37.0	32.5
	With master's degree	36.8	40.2	36.9
	p-value	*n.s.*	*0.029*	*0.003*
Age	20-29	37.3	39.0	38.0
	30-39	36.2	37.9	33.4
	40-49	35.5	35.3	31.7
	50+	36.3	39.3	33.2
	p-value	*n.s.*	*n.s.*	*n.s.*
Years of teaching	0 to 5	36.4	38.4	35.4
	6 to 10	35.9	35.4	32.1
	11 to 15	37.8	39.7	33.5
	16 to 20	35.5	35.3	32.8
	21 to 39	35.4	38.9	32.7
	p-value	*n.s.*	*n.s.*	*n.s.*
Rank	Master Teacher	37.8	40.6	36.2
	Teacher	35.5	36.5	32.1
	p-value	*n.s.*	*0.007*	*0.019*
Grade level taught	Grade 5	37.0	37.9	34.9
	Grade 6	36.2	38.2	32.2
	Multi grade	34.6	35.7	32.2
	p-value	*n.s.*	*n.s.*	*n.s.*
Subject taught	Mathematics	36.7	40.6	33.8
	English	38.0	38.4	34.4
	Science	37.3	39.6	33.8
	Combination	35.1	35.9	32.4
	p-value	*n.s.*	*n.s.*	*n.s.*
TOTAL		**36.1**	**37.5**	**33.1**
N		98	98	98

Table 4. Mean scores in grade 6 English, Mathematics and Science by teacher characteristics

Characteristic		English	Mathematics	Science
Province	Maguindanao	29.7	29.3	24.4
	Cotabato	38.2	40.8	36.5
	South Cotabato	37.7	38.5	32.3
	p-value	*0.000*	*0.000*	*0.000*
Graduated from	State College/Univ	36.3	38.3	32.9
	Private College/Univ	36.1	37.0	32.2
	Both	40.0	41.5	39.5
	p-value	*n.s.*	*n.s.*	*n.s.*
Basic degree	BSE/BSEed/BEED	36.1	38.2	33.5
	BSE + others	36.6	34.3	29.5
	Other non BSE	36.2	37.4	31.1
	p-value	*n.s.*	*n.s.*	*n.s.*
Major	none	36.2	37.6	33.9
	math	35.3	37.5	33.7
	science	35.5	41.8	37.8
	english	39.3	38.4	32.6
	others	35.4	36.8	30.5
	p-value	*n.s.*	*n.s.*	*n.s.*
Age	20-29	35.6	41.4	33.6
	30-39	37.9	39.9	34.5
	40-49	35.0	34.9	31.3
	50+	35.3	35.5	30.4
	p-value	*n.s.*	*0.0232*	*n.s.*
Years of teaching	1 to 5	36.3	41.1	34.7
	6 to 10	38.7	42.4	35.4
	10 to 15	36.8	36.4	32.2
	16 to 20	38.4	38.4	34.5
	21 to 36	32.8	33.4	29.0
	p-value	*0.0134*	*0.0030*	*0.0370*
Advanced degree	None	36.8	35.5	33.2
	with master's units	35.7	36.3	31.0
	with master's degree	36.6	40.1	34.3
	with doctoral units	38.5	40.5	36.0
	p-value	*n.s.*	*n.s.*	*n.s.*
Rank	Master Teacher	37.0	39.9	33.6
	Teacher	36.0	37.1	32.4
	p-value	*n.s.*	*n.s.*	*n.s.*
Grade level taught	Grade 5	33.0	33.9	29.8
	Grade 6	37.6	39.4	34.9
	Multi grade	38.0	39.3	32.8
	p-value	*0.0013*	*0.0087*	*0.0213*
Subject taught	Mathematics	36.2	40.1	31.3
	English	37.8	35.3	32.1

Science	37.0	40.3	36.6
Combination	35.4	37.0	32.5
p-value	*n.s.*	*n.s.*	*n.s.*
Total	**36.2**	**37.6**	**32.6**
N	95	95	95

After looking at the bivariate relationship between each teacher characteristic and performance in the subsets of the diagnostic test, the next step in the analysis of the teacher performance was to perform multiple linear regression where we model the simultaneous effects of teacher characteristics on scores in the English, Math and Science tests. Prior to performing the regression analysis, we first recoded all the teacher characteristics into dummy variables, except for advanced degree which we treat as an interval level variable (1=no advanced degree, 2=with Masters' units, 3=with Masters' degree, 4=with doctoral units). We recoded age and years of teaching into dummy variables in order to capture which specific age group or category of years of teaching exerted an effect on scores. The reference category for each dummy variable are as follows:

Dummy Variable	**Reference category**
Cotabato Maguindanao	South Cotabato
Graduated from state university Graduated from private university	Both
Basic degree	Non-BSE
Major	Others
Age 20-29 Age 30-39 Age 40-49	50+
Years of teaching 0-5 6-10 11-15 16-20	21+
Master Teacher	Teacher
Teaching Grade 5 Teaching Grade 6	Teaching multigrade
Teaching English only Teaching Math only Teaching Science only	Combination

We did a stepwise procedure and report in tables 5 and 6 only the model with the significant predictors of scores in each of the subjects and grade levels. We also report R square for the specific model to indicate the proportion of variance accounted for by the given model.

Table 5a. Regression model predicting grade 5 English scores of teachers

	B	Std. Error	p-value
(Constant)	38.6094	0.6361	0.0000
Maguindanao	-7.3153	1.0800	0.0000
R square	*0.3234*		

Table 5b. Regression model predicting grade 5 Math scores of teachers

	B	Std. Error	p-value
(Constant)	39.0328	1.1032	0.0000
Maguindanao	-5.8741	1.3307	0.0000
Cotabato	2.5439	1.3072	0.0547
Age40	-3.5761	1.0992	0.0016
Master teacher	2.6731	1.2169	0.0305
R square	*0.4374*		

Table 5c. Regression model predicting grade 5 Science scores of teachers

	B	Std. Error	p-value
(Constant)	29.6700	1.3227	0.0000
Cotabato	5.1153	1.4427	0.0006
Maguindanao	-6.1031	1.4566	0.0001
Age20	5.9655	2.7269	0.0313
0 to 5	4.0759	2.0126	0.0458
Graduate studies	1.7483	0.7864	0.0287
Teaches grade 5	2.6149	1.2107	0.0334
R square	*0.5341*		

Results for the grade 5 test (tables 5a to 5c) shows that, taking all characteristics together, province was the only significant predictor of English scores. Specifically, being from Mindanao subtracted 7.3 points from one's predicted score in English, compared with the reference category (South Cotabato). There was no significant effect of being from Cotabato. For grade 5 Math scores, being from Maguindanao likewise shaved off points from one's predicted Math score (almost 6 points) while being from Cotabato added 2.5 points (significant at .055). Being a Master Teacher added about 2.7 points but being age 40-49 subtracted 3.6 points compared with the reference category of age 50+.

There are more significant predictors of Science grades compared with English and Math. As can be seen in table 5c, being from Maguindanao again resulted in shaving off points from one's predicted score in Science but being from Cotabato, being in the age group 20-29, having 1-5 years of teaching experience and graduate studies all have a positive effect on predicted Science scores.

For the grade 6 level test (tables 6a to 6c) there are two significant predictors of English score, being from Maguindanao and teaching grade 5. Both factors have a negative effect on predicted English score. For Math, being from Maguindanao takes away 9 points from one's predicted score (compared with the reference category South Cotabato). Being age 20-29 and 30-39 adds to predicted Math score (compared with being age 50+); being in the younger age group (20-29) in fact adds more points (7.9 vs. 3.2). Having 6-10 years teaching experience also adds to predicted math score as does teaching Math. Each incremental increase in having an advanced degree adds 2 points to one's predicted Math score. Teaching grade 5 on the other hand has a negative effect on predicted Math score. Again, being from Maguindanao has a negative effect on predicted Science score while being from Cotabato, having 1-5 years of teaching experience and teaching Science all have a significant positive effect on predicted Science score.

Table 6a. Regression model predicting grade 6 English scores of teachers

	B	Std. Error	p-value
(Constant)	39.1077	0.6442	0.0000
Maguindanao	-7.7175	1.2360	0.0000
Teaches grade 5	-3.8671	1.0747	0.0005

R square   *0.3781*

Table 6b. Regression model predicting grade 6 Math scores of teachers

	B	Std. Error	p-value
(Constant)	34.5972	1.6807	0.0000
Maguindanao	-9.0877	1.6236	0.0000
Age20	7.9111	2.1936	0.0005
Age30	3.1698	1.4175	0.0279
6 to 10	3.5121	1.7720	0.0506
Teaches grade 5	-3.5253	1.3784	0.0123
Teaches Math	3.4656	1.5913	0.0321
Graduate studies	2.1828	0.8894	0.0161

R square   *0.4554*

Table 6c. Regression model predicting grade 5 Science scores of teachers

	B	Std. Error	p-value
(Constant)	30.4918	1.1541	0.0000
Maguindanao	-7.2427	1.6770	0.0000
Cotabato	5.2146	1.3874	0.0003
0 to 5	4.0570	1.6749	0.0174
Teaches Science	5.7896	2.0052	0.0049

R square   *0.4303*

<u>Discussion:</u>

The diagnostic tests that we administered to two sample of teachers in Cotabato, Maguindanao and South Cotabato were the same diagnostic instruments that we used in the summative evaluation of pupil performance in grades 5 and 6 using a pre-test,post-test design. Test items were based on the competency framework for the respective grade level according to the Revised Basic Education Curriculum. Thus each test consisting of a 50-item multiple choice type of examination was designed to assess competencies that should have been acquired at the end of grade level 5 and 6.

Using the DepEd yardstick of 75 per cent mastery of subject content as a measure of acceptable performance for elementary pupils, the results of this diagnostic test shows that overall the scores of the teachers who took the tests fall short of this standard in English and Science at both grade levels (below 75 per cent mean correct answers) and just at the cut point for Math (75 per cent mean correct answers). The scores in Science tend to be the lowest The low mean performance of the aggregate sample is attributable mostly to the low scores of test participants from Maguindanao. Of the three provinces in the study, Cotabato teachers scored the highest and their mean scores in the three subjects are all above the 75 per cent passing mark (although they also scored lowest in Science). South Cotabato teachers are in between. The contrast in performance between Cotabato and Maguindanao is quite striking. For example, in grade 6 Math, the mean correct answers for Cotabato is 81.6 per cent; the comparable score for Maguindanao is 58.6 per cent while South Cotabato's mean correct answer is 77 per cent.

The regression analysis produced other notable findings such as the manifest negative effect of being older and having longer years of teaching experience on performance in Math and Science- at both grade levels. This finding implies that training older teachers to improve subject competency may be less effective than training the younger teachers and those with fewer years of experience. For grade 6 Math and Science, teaching the appropriate subject (Math or Science) compared with reaching a combination of subjects has a positive effect on scores.

There is a need to further pursue the ramifications of these findings especially their implications on future intervention strategies to improve teacher competency in handling their classes. Clearly when teachers themselves are unable to reach the acceptable standard of performance for the grade level the repercussions on teaching and learning in the classroom are immense. The fact that the teachers who participated in the diagnostic exams are teaching in the text2teach classes imply that further improvement of knowledge and skills, especially among Maguindanao teachers is called for. Perhaps improving competence in the English language is a good entry point. When teachers are unable to master the material they will teach because of a weakness in comprehending the language in which the material is presented, then some potential for effective teaching is already lost. For example, we repeatedly heard comments from the text2teach teachers during the pre- and the post test about their difficulty in comprehending the lessons in Science narrated in American-accented English. One suggestion we heard was to dub the Science lessons in Filipino-accented English, just like the Math and English lessons.

The relatively poor performance of Maguindanao text2teach teachers compared with the Cotabato and South Cotabato counterparts merit special attention especially in light of the equally poor performance of Maguindanao pupils at the pre-and post tests relative to pupils from the other provinces. What may work for Cotabato and South Cotabato to improve teacher competency may not be the best strategy for Maguindanao.