VALIDATION OF THE CLASSIFICATION BATTERY EXAM FOR INCOMING GRADE ONE PUPILS OF SAINT MARY’S UNIVERSITY GRADE SCHOOL, BAYOMBONG, NUEVA VIZCAYA

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Abstract

A test development and validation of a Filipino Emotional Intelligence Scale for High School Students
VALIDATION OF THE CLASSIFICATION BATTERY EXAM FOR INCOMING GRADE ONE PUPILS OF SAINT MARY’S UNIVERSITY GRADE SCHOOL, BAYOMBONG, NUEVA VIZCAYA

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ABSTRACT

This quantitative study aimed to establish the psychometric properties of the SMU Classification Battery Exam for Entering Grade 1 by correlating it to the pupil’s academic performance across all the subject areas and their General Weighted Average (GWA). Moreover, this study determined the individual reliability and predictive validity of the SLU NIS 1, SMU Reading Readiness Test and SMU Math Readiness Test and set norms for each test. This study utilized archival data from 303 entering grade one pupils of Saint Mary’s University Grade School from SY 2016-2017, SY 2017-2018, and SY 2018-2019. Reliability of the three tests yielded a Cronbach’s alpha ranging from .796 to .873 indicating good consistency. The correlations and multiple regression indicate that the SMU Classification Battery Exam is a good predictor of Academic Achievement in first grade. It is recommended that the three tests together with its updated norms will be used as the standardized classification exam for entering Grade 1 of Saint Mary’s University Grade School using the computed regression formula to predict the GWA of a Grade 1 pupil and will serve as basis for the sectioning of the pupils on who will be classified in the science section or in the academic curriculum.

Key Words: Psychometric properties, reliability, validity, norms, multiple regression, IQ, Reading Test, Math Test, Classification Exam

INTRODUCTION

The role of standardized admission tests has undergone considerable transformation over the past years. In history, tests were first used to identify slow learners in elementary, then later as a screening tool for individuals fit for the military, then tests became a useful tool to identify applicants qualified to enroll in tertiary academic institutions (Coballes, Costales and Bahni, 2013). Currently, tests are an important measure for admission in school not only for tertiary and secondary education but also in elementary schools.

Hughes (n.d.) mentioned that the primary reason why tests are important is because they are objective indicators of
pupil’s performance. The tests are designed to measure how well pupils learned the skills important to meet formal standards. In this regard, they are seemingly effective. Because the tests are written, administered, and scored in the same way regardless of pupil, school, or district, they can give a clear picture of how schools are meeting educational standards.

Classification tests are typically used in schools as a screening tool to classify to what section a pupil should go based on his skills and capabilities (Rosenberg, Westling and McLeskey, 2010).

In Saint Mary’s University Grade School (SMUGS), testing place a significant part in the admission of pupils. It is also one of the important services of the Guidance Office. Over the years, the school has been using the Saint Louis University Non-Verbal Intelligence Scale I (SLU NIS I) and teacher-made standardized reading and math readiness tests as classification exams for incoming Grade I pupils. The SLU NIS was made in 1986 while the reading test was made in 2004 and the math test was constructed in 1997.

The SLU NIS I was developed as part of the project of Saint Louis University Psychological Testing Center to replace old and foreign tests. It contains three subtests, namely, Embedded Figures, Classification, and Nonverbal Analogy. The test was standardized in a group of 397 norming grade one pupils and yielded a reliability of .89 and a validity of .608 (SLU, 1986).

On the other hand, the Reading Readiness Test measures perceptual skills, word identification skills, comprehension skills and study skills. It was standardized in a group of 125 kinder 2 pupils and yielded a reliability coefficient of 0.80 and concurrent validity with IQ scores obtained a correlation coefficient of 0.60 (Navarette, 2004).

While for the Math Readiness Test, it measures competencies namely, sorting and classifying, counting, number and algebraic thinking, and measurement. It has a reliability of 0.83 and was content validated by the mathematics teachers.

The individual tests are used as basis for the classification of incoming grade one pupils on who will be placed in the science curriculum and in the academic curriculum. The determination of the pupils’ section is based on their general average in kindergarten and the results of their classification exams. The breakdown of the percentages for the sectioning is as follows, 30% of kindergarten grade, 40% weighted SLU NIS I score, 15% weighted reading readiness score, and 15% weighted math
readiness score. Pupils are ranked according to their combined grades and test results and top 35 pupils are placed in the science curriculum while the remaining pupils are placed in the academic curriculum (SMUGS Handbook, 2015).

It has been observed that this classification method causes some dilemma with regards to sectioning. First to mention is the inclusion of kindergarten grades in the sectioning of the pupils since not all schools have the same grading system as that of SMUGS. Also, the existing tests have not undergone local reliability and validation studies which are important principles in educational assessment.

Supporting Professionalism in Admissions (SPA, 2011) stated that quality tests should be fairly and professionally administered and be readily available and accessible to those who require it in a timely way. They must contain minimum bias in test questions such that it is valid for test takers of all backgrounds and most importantly, they must have rigorous validity and reliability testing and thus be supported by statistical and research evidence. Further, exploration of the psychometric properties of a test is imperative to assure the integrity of its results.

**Predictive Validity of Classification Tests and School Performance**

Many studies have proven that classification tests are correlated with pupil’s academic performance and can predict later academic success.

In the study of Zyl 2011, the research found that there is a highly significant correlation between school readiness scores and Grade 1 performance. This implies that school readiness does influence school performance in a highly significant way. It also indicates that school readiness forms an important basis for school performance. Duncan et al. (2007) used six longitudinal data sets in their study of school readiness and later achievement. Across all six studies, the strongest predictors of later achievement are school-entry math, reading, and attention skills. The meta-analysis of the results show that early math skills have the greatest predictive power, followed by reading and then attention skills.

Another longitudinal study by Wilson (2014) on school readiness and later achievement reveals that early academic skills are the strongest predictors of later performance on both standardized tests and grades. Early mathematics skills were more strongly predictive of later math achievement than early reading skills, but also of total
achievement and grades. Visual-perceptual and visual-motor skills also showed consistently strong predictive relationships with later achievement especially in math.

Christensen (2011) showed that three of the school-entry measures predicted subsequent academic success and these are early reading, early math and attention skills, with early math skills being most consistently predictive. Early academic skills appear to be the strongest predictor of consequent scholastic success. Linder, Ramey and Zambak (2013) found in their study that in general, literature relating to predictors of success in early childhood literacy was more prevalent than literature relating to early childhood mathematics.

Meanwhile, studies of Pimentel (2002) and Morgan (2009) both found that attendance to preschool contributes to pupil’s mental, social, and emotional readiness. Pimentel specified that Nursery/Kindergarten experience contributes more to the mental, emotional and school readiness than Day Care experience. On the other hand, Morgan in her study found that pupils who attended preparatory classes manifested academic readiness in cognitive sensory discrimination and classification skills more than the pupils who had Day Care education. In terms of readiness in numeracy skills, results showed that the pupils who had preparatory education were more academically ready in terms of numeracy skills than the pupils who had day care education. With regards to reading readiness skills, the pupils who had preparatory education were more academically ready than pupils who had Day Care classes. In conclusion, the early childhood education of the pupils posed a significant difference in their academic readiness. The preparatory education was found to have greatly prepared the pupils while Day Care education could not give the required academic readiness to the pupils.

DiAntonio (2008) studied the predictive validity of the Gates-MacGinitie Reading Test and the New Jersey Assessment of Skills and Knowledge at the 4th, 5th and 6th grade levels and found that one can predict the level of performance on the New Jersey ASK to some degree using scores acquired on the Gates-MacGinitie Reading Test. The results showed that overall, if a student scored lower an entire grade level or less, there is a probability of that student to fail in the New Jersey Assessment of Skills and Knowledge Language Literacy. However, the results suggested that a student who scored an entire grade level above or higher on the Gates-MacGinitie Reading Test was likely to obtain a passing score on the New Jersey
Assessment of Skills and Knowledge Language Literacy.

Aggasid (1988) developed and validated a Mathematics Achievement Test for Grade 1 Pupils in the Division of Nueva Vizcaya and stated that having a mathematics test ready for use would be easy to pre-assess the learners’ needs at the beginning of the school year. Concepts that are to be learned first would be given emphasis in the teaching process especially to slow pupils. The result of her study also shows a very high positive correlation between the Mathematics test scores and the Mathematics final grades which was significant at p=.05 and even at .01 level. The pupils who had grades in Mathematics got high scores in the Mathematics Achievement Test.

Pilis as cited by Aggasid (1988) conducted a study which revealed that the preschool children when they enter grade 1 already possess some mathematical abilities and concepts, particularly in rote and rational counting by 1’s to 24, 10’s to 20, and 5’s to 15, in addition and subtraction with sums and minuend not exceeding six with or without use of objects, in reproducing and identifying sets of objects or knowledge of the values of various Philippine coins of low denomination particularly 5 and 10 centavos. Majority of the preschool children also possess a few concepts of color and mathematical terms that express quantitative relationship. Long and short objects were also easily recognized by them. The preschool children have meager abilities and concepts in reading number symbols 1 to 10, and in telling time.

Balut (1987) constructed and validated a reading achievement test in her study of measuring the English reading performance of grade 1 pupils for the public schools of Nueva Vizcaya. For its validation, 373 pupils took the trial test. For the purpose of establishing the reliability coefficient of the test, 180 pupils took the final test. Her study shows that pupils who got high in the achievement test were the ones who had high marks in their final grades in English. Achievement test scores correlated significantly with the English grades. Balut made some recommendations for the use of her test. One of them was that feedbacks from administration of the test would provide the teacher appropriate guidance for the pupils as well as a class.

Navarrete (2004) also developed a reading readiness test for incoming grade 1 pupils. In her study, item analysis results reveal that the reading readiness test has negligible number of faulty items while a good number of items have non-plausible options. The concurrent validity result shows
that the reading readiness test is valid and that reliability analysis show that overall, the test is reliable. About 125 Kinder-2 pupils participated in the study.

Another predictive validity study was conducted by Basilio and Tayaban (2012), wherein they explored the relationship between the Saint Mary’s University High School Classification Test and Academic Performance and the National Achievement Test. Results showed that SMUHS Classification test has a significant positive correlation with academic performance. It was also found that SMUHS Classification Test is predictive of students’ academic performance in the first year and the NAT results in the second year.

Coballes, Costales, and Bahni (2013) also conducted a predictive validity study wherein they established the predictive validity of the Saint Mary’s University CAAT Form B and they found that the CAAT-B is highly correlated with grades lending adequate support that IQ is a predictor of academic performance in first academic year of college.

The main focus of this study is to examine the relationship of SMU Classification Battery Exams to Academic Performance and to determine the predictive validity of the SMU Classification Battery Exams.

**Purpose of the Study**

The main objective of this study is to validate the SMU Classification Battery Exam for Entering Grade 1 by correlating it to the pupils’ academic performance across all the subject areas and their general weighted average (GWA). Specifically, the study aims to (1) determine the psychometric properties (reliability, predictive validity, norms) of Saint Louis University Nonverbal Intelligence Scale 1, SMU Reading Readiness Test for Entering Grade 1, and SMU Math Readiness for Entering Grade 1, and (2) identify items to be revised in each of the tests and make suggested revisions.

**METHODS**

**Participants**

A total of 303 kindergarten pupils (incoming grade 1) of Saint Mary’s University Preschool and Grade School were the participants of the study. Specifically, (N=100) for SY 2016-2017, (N=89) for SY 2017-2018, and (N=114) for SY 2018-2019 respectively. These archival data came from the last three school years before the COVID-19 pandemic since the testing services were paused during these years.
Research Design

This study used quantitative descriptive method, particularly the correlation and multiple regression technique to explore relationships among variables and to establish reliability and validity.

Research Environment

This study was conducted in Saint Mary’s University Preschool and Grade School. The school is envisioned as a cradle of excellent basic education transforming pupils to be excellent and innovative and who have genuine passion for Christ’s mission. The school is committed to develop in pupils the basic knowledge, skills, habits, attitudes and values necessary to prepare them for secondary education and to make them efficient and intelligent citizens in a democratic society instilled with Gospel values. In June 2016, the SMU Grade School was granted level III re-accredited status by the Philippine Accrediting Association of Schools, Colleges and Universities (PAASCU).

Instrument

This study utilized the Saint Mary’s University Classification Battery Exam for Incoming Grade 1 Pupils. This includes the Saint Louis University Nonverbal Intelligence Scale 1 (SLU NIS 1), SMU Reading Readiness Test for Entering Grade 1, and SMU Math Readiness Test for Entering Grade 1.

Saint Louis University Nonverbal Intelligence Scale 1 (SLU NIS1)

The SLU NIS 1 is a group of test for Grade one pupils. It was originally constructed for the pupils of Saint Louis University Elementary Laboratory School and those who wish to transfer to the same school. This test was constructed as part of the project of Saint Louis University Psychological Testing Center to replace old and foreign tests. Though, this test was originally intended for the use of SLU-ELS, it is assumed that the test is a workable instrument also in schools having populations like that of SLU-ELS.

The SLU NIS 1 is a test consisting of 3 subtests, namely, Embedded Figures, Classification and Nonverbal Analogy. The Embedded Figures subtest contains items which try to measure field-independence of the examinees. The task is to look for a figure inside a more complex design. The Classification subtest contains items wherein the subject must choose from among five choices one that is different from the rest. This measures the examinee’s ability to discern characteristics common to a set of
pictures. In the Nonverbal Analogy, the child is asked to see relationships and apply this kind of relationship to a new situation.

It was standardized in a group of (N=397) norming Grade 1 pupils in SLU and yielded a reliability of .89 and a predictive validity with grades of .608.

**Saint Mary’s University Reading Readiness Test for Entering Grade 1**

This is a 40-item teacher-made test made by Navarrete (2004) as her Master’s thesis. It measures perceptual skills, word identification skills, comprehension skills and study skills. It was standardized in a group of (N=125) Kinder 2 pupils. It has a reliability coefficient of 0.80 which is an acceptable value for a test to be considered as reliable. For the validity of the test, concurrent validity with IQ scores obtained a correlation coefficient of r=0.60. Thus, the test was considered as a valid measure. Content validation was also done wherein teachers who were experts in early childhood education were tapped to review the items.

**Saint Mary’s University Math Readiness Test for Entering Grade 1**

The test consists of 40 items covering basic knowledge in mathematics particularly sorting and classifying, counting, number and algebraic thinking, and measurement. This test can be administered by group or individually. The test can be finished by the pupils in 1 hour. It is a teacher-made test with a reliability coefficient of 0.83 which is an acceptable coefficient for a test to be considered reliable. Content validity of the test was examined by the Mathematics teachers.

**Data Gathering Procedure**

The preliminary step in this study was securing the list of officially enrolled Grade 1 pupils from SY 2016-2017, SY 2017-2018, and SY 2018-2019 from the Office of the Principal. The next step was obtaining the grades of the officially enrolled pupils using their permanent records available at the Registrar Office. The data gathering procedure was finalized by getting the IQ scores, Reading Readiness scores, and Math Readiness scores from the Guidance and Testing Office. The final data set used code numbers to represent the names to protect the confidentiality of the data.

**Data Analysis**

The researcher used the Statistical Packages for Social Sciences (SPSS) version 16 in analyzing the data. Preliminary data screening was done to check the normality. Outliers were found upon exploring the data, for Reading there were two outliers which are case #72 and case #184. Raw scores were
replaced by the mean (M=29.4). For Math, there were nine outliers which are case #184, case #301, case #72, case #257, case #303, case #278, case #179, case #185, and case #247. These were replaced by the mean (M=33.17).

Statistical techniques to explore relationships among variables was used particularly correlation and multiple regression. T-tests and One-way analysis of variance were also used to compare groups.

To determine the psychometric properties of the tests, correlation using Cronbach’s alpha was used to establish the reliability coefficients. For the predictive validity of the tests, multiple regression technique was used using GWA as the factor. To compute for the norms of the tests, raw scores, means and standard deviations were used to obtain the deviation IQ, reading quotient, and math quotient.

Further item analysis was conducted to suggest possible improvements for the tests. Item difficulty and item discrimination indices were computed using the upper 27% of the group and lower 27% of the group. Distractor analysis was also done for the options of items with poor discrimination indices.

**RESULTS AND ANALYSIS**

**Reliability Analysis**

Cohen and Swerdlik (2009) explain that a test should show evidence that it is reliable. Reliability refers to the extent to which measurements are consistent or repeatable and the extent to which measurements differ from occasions as a function of measurement error. There are several procedures for establishing reliability such as test-retest, parallel-forms, split-half and internal consistency via Cronbach alpha. For the analysis of the reliability of the SMU Classification Battery Exam, Cronbach alpha was used.

*Table 1. Summary of the Reliability Coefficients Using Cronbach’s Alpha for the SLU NIS 1, Reading Readiness Test and Math Readiness Test*

<table>
<thead>
<tr>
<th>Test</th>
<th>Cronbach’s alpha</th>
<th>No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLU NIS 1</td>
<td>.873</td>
<td>60</td>
</tr>
<tr>
<td>Reading Readiness</td>
<td>.813</td>
<td>40</td>
</tr>
<tr>
<td>Math Readiness</td>
<td>.796</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 1 shows the summary of reliability coefficient of the three tests namely Saint Louis University Nonverbal Intelligence Scale (SLU NIS 1), Reading Readiness and Math Readiness. The reliability coefficients
of the tests range from .796 to .873. Cohen (2009) explains that coefficient alpha for ability tests should be at least .70 to .90 so this standard is met by the tests. Howitt and Cramer (2014) also stated that alpha value of about 0.7 approximately or larger indicates that a scale has satisfactory reliability.

Buenaflor (2012) on the other hand mentioned that the degree of reliability may be interpreted using the test for significance of the relationship by using the parameters, 0.81-1.00 (very high), 0.61-0.80 (high), 0.41-0.60 (moderate), 0.21-0.40 (low) and, 0.00-0.20 (very low).

Reliability coefficients obtained in this study are somehow close to some of the reliabilities of other standardized tests. For instance, for test of cognitive ability, the Kaufman Assessment Battery for Children, Second Edition (KABC-II) in rural South Africa obtained reliability coefficients ranging from .78-.96 across all the scale indexes and subtests (Mitchell, 2015).

Another one is the Process Assessment of the Learner-Second Edition (PAL-II) which is an individual or group administered instrument designed to assess the cognitive processes involved in academic tasks in kindergarten through sixth grade. Reliability coefficients for this test ranged from .70 to .98 (Peterson et.al, 2010).

The Reynolds Intellectual Assessment Scales is also designed to measure general intelligence of ages 3 to 94 years has a test-retest reliability coefficients ranging from .83 to .91 (Reynolds et al., 2003).

Meanwhile, The Wide Range Achievement Test-Fourth Edition is designed to provide a quick, simple, psychometrically sound assessment of academic skills. The test has overall high levels of internal consistency ranging from .92 to .98. Alternate-form reliability is at moderate level ranging from .82 to .88 (Wilkinson & Robertson, 2006).

In addition, The Woodcock-Johnson Tests of Cognitive Ability-Third Edition is also a set of tests administered individually which assesses an extensive range of intellectual and cognitive abilities for children from two years old and adults up to and over the age of 90. Median reliability reports coefficients of .80, with higher median reliability scores for clustered items .90 or higher (Navarro, 2010).

The original reliability value of the Saint Louis University Nonverbal Intelligence Scale (SLU NIS 1) is .89 as stated in the SLU NIS 1 Manual (1986).

For the area of Reading and English literacy, the Preschool Language Scale is one of the standardized tests used to identify
children with a language disorder and is suitable for children between birth and age 6 and has a test-retest reliability coefficients ranging from .82 to .95 for subscale scores and from .90 to .97 for the total language score (Volden et al., 2011).

The Test of Early Reading Ability-Third Edition (TERA-3) is also used to directly measure reading ability of young children ages 3-8 years. Reliability measures of this test are in the .90 range.

It is also important to note that the original reliability coefficient of the Reading Readiness Test is 0.80 as stated by Navarrete (2004).

For Mathematics assessment, the KeyMath-3 Diagnostic Assessment intended for ages 4-21 years old measures three general mathematics content areas which are basic concepts, operations, and applications have reliability coefficients ranging from .80-.90 using split-half method (Rosli, 2011).

Another is the Test of Early Mathematics Ability-Third Edition (TEMA-3) intended to identify the level of mathematical ability of children aged 3-8 years. Reliability coefficients of the test ranged from .82-.97 (Ginsburg & Baroody, 2006).

In summary, the reliability of the tests in the SMU Classification Battery Exam for Entering Grade 1 are comparable to other standardized tests.

Predictive Validity Analysis

The validity of a scale refers to the degree to which it measures what it is supposed to measure (Pallant, 2001; Cohen & Swerdlik, 2009; Buenaflor, 2012). Cohen and Swerdlik (2009) mentioned that validity is a judgment based on evidence about the appropriateness of inferences drawn from test scores. There are different types of validity that are being used and one of it is the predictive validity.

Predictive validity is a type of criterion-related validity that gives an index of the degree to which a test score predicts some criterion measure. In this study, the three tests in the SMU Classification Battery Exam were correlated with the final grades at the end of Grade one.

Generally, all subjects and GWA correlated significantly to the SMU Classification Battery Exam scores. The SLU NIS 1 had a moderate, positive, significant correlation with the General Weighted Average (GWA), $[r=.450, N=303, \text{Sig.}=.000]$. A moderate, positive, significant correlation between Reading scores and final English grades was also obtained, $[r=.428, N=303. \text{Sig.}=.000]$. There is also a significant moderate positive correlation found between
final Math grades and Math scores, \( r = .488, N = 114, \text{Sig.} = .000 \) In addition, total performance scores (TPS) in the exam also correlated significantly with the GWA, \( r = .606, N = 303, \text{Sig.} = .000 \) and the correlation is positive and large (Cohen as cited in Pallant, 2011).

The total performance score (TPS) was computed using the formula: \( RQ(.50) + MQ(.30) + IQ(.20) \) wherein RQ is the Reading Quotient, MQ is the Math Quotient, and IQ is the Intelligence Quotient.

In effect, the three tests taken independently, are significant positive moderate predictors of grades. SLU NIS 1 IQ accounts for 20% of the variance in GWA while Reading accounts for 18% and Math accounts for 24% in GWA. It should be noted that this percent of variance explained is when each prediction test is used independent of the other tests.

Furthermore, table 13 shows that the three tests in the Classification Battery also have significant positive moderate correlations with the specific subjects. For instance, SLU NIS 1 correlated with Science grade \( r = .512 \), MAPEH grade \( r = .508 \), Filipino grade \( r = .456 \), CL grade \( r = .455 \), MTB grade \( r = .450 \), Computer grade \( r = .402 \), Math grade \( r = .364 \), AP grade \( r = .357 \), and English grade \( r = .342 \).

Reading Readiness on the other hand correlated significantly with Science grade \( r = .675 \), Filipino grade \( r = .560 \), MAPEH grade \( r = .558 \), CL grade \( r = .550 \), MTB grade \( r = .507 \), Computer grade \( r = .458 \), Math grade \( r = .416 \), and AP grade \( r = .394 \).

For Math Readiness, it is correlated with AP grade \( r = .643 \), Science grade \( r = .626 \), Filipino grade \( r = .626 \), MTB grade \( r = .626 \), CL grade \( r = .587 \), MAPEH grade \( r = .575 \), English grade \( r = .502 \), Math grade \( r = .488 \), and Computer grade \( r = .476 \).

Lastly, total performance scores (TPS) correlated with Science grade \( r = .715 \), MAPEH grade \( r = .629 \), Filipino grade \( r = .626 \), CL grade \( r = .622 \), MTB grade \( r = .573 \), Math grade \( r = .480 \), AP grade \( r = .462 \), Computer grade \( r = .449 \), and English grade \( r = .441 \).

There is also inter-correlation among the tests. SLU NIS 1 correlated with Reading test \( r = .542 \) and Math test \( r = .541 \). Reading test correlated also with Math test \( r = .702 \).

In addition, it was also observed that pupils who scored high in the SMU Classification Battery Exam for Entering Grade 1 were also the same pupils who belong to the top performing pupils in their classes. This is also evidence to prove that generally, the SMU Classification Battery
Exam for Entering Grade 1 predicts academic performance in first grade.

**Multiple Regression Analysis**

The data were subjected to a stepwise multiple regression analysis to ascertain what were the best predictors of General Weighted Average (GWA). A three variable model was indicated in which Reading have a $B$ weight of .071, Math a $B$ weight of .067 and IQ a $B$ weight of .037. Reading quotient was entered first and explained 28.9\% of the variance in GWA, $[F(1, 301) =122.243, p=.000]$. Math quotient was entered second and explained a further 6\%, $[F(2, 300) =81.816, p=.000]$. Lastly, IQ score was entered third and explained a further 2\%, $[F(3, 299) =58.020, p=.000]$. The three predictors combined correlation with GWA is 0.61 with 36.9\% variance explained.

The results imply that higher GWA was associated with higher Reading quotient, Math quotient and IQ scores. Each of the tests contributed something over and above the contributions of the other tests thus justifying their inclusion in the Classification Battery Exam.

The obtained validity value of 0.61 is comparable to other standardized tests. In the study of predictive validity of the Gates-MacGinitie Reading Test, correlation between it and New Jersey ASK Language Arts Literacy is .568 in the fourth grade, .718 in the fifth grade, and .816 in the sixth grade (DiAntonio, 2008).

In the validation study of the Reynolds Intellectual Assessment Scale, it was found that test correlates between .60 to .78 with the Wechsler Intelligence Scale for Children III (WISC-III) Full Scale IQ (Reynolds et.al, 2003).

Concurrent validity established in the original Reading Readiness Test by Navarette (2004) obtained a value of 0.60.

On the other hand, for the validity value of the Saint Louis University Nonverbal Intelligence Scale 1 (SLU NIS 1) it obtained validity coefficient of .608.

To predict the GWA of a Grade 1 pupil based on the SLU Classification Battery Exam, the regression formula is:

\[ GWA = 74.069 + 0.071 \text{(Reading Quotient)} + 0.067 \text{(Math Quotient)} + 0.037 \text{(SLU NIS IQ)} \]

**Norms of the SMU Classification Battery Exam**

The scores in a test have meaning when they are compared with the performance of a comparison group. This is called the norms of a test. Norms for intelligence tests are usually stated in deviation IQ points which have a mean of 100.
and a standard deviation of 15. The formula for deviation IQ is also adapted for the Reading Readiness Test and Math Readiness Test. The general formula for the norms for this tests is seen below (Cohen et. Al, 2007). This formula transforms each raw score into an IQ score, Reading quotient, and Math quotient.

\[
DIQ = \frac{\text{Raw Score} - \text{Mean}}{\text{Standard Deviation}} 
\]

DISCUSSION AND CONCLUSION

Based from the above discussion of findings, the researcher concludes that the SMU Classification Battery Exam for Entering Grade 1 is a reliable and valid classification measure for Grade 1 entrants. With the positive results, this study provided an invaluable contribution to the limited literature the university has on the current classification test.

Having significant results, it is highly recommended that the three tests together with its updated norms will be used as the standardized classification exam for entering Grade 1 of Saint Mary’s University Grade School.

It is also recommended that the obtained regression formula, GWA=74.069+.071(Reading Quotient) +.067(Math Quotient) +.037(SLU NIS IQ), will be used to predict the GWA of a Grade 1 pupil and will serve as basis for the sectioning of the pupils on who will be classified in the science section or in the academic curriculum.

For future researchers, it is recommended to do some revisions for the test particularly the SLU NIS 1 and Math Readiness test to obtain higher reliability coefficients. Content validation of experts for the revised items is also recommended.

Likewise, updating the norms for the Math Readiness Test is recommended since the population used in this study for Math is limited to 114 pupils. It is recommended to get an additional data in updating the norms for Math Readiness Test. Researchers can also explore other predictors that affect the academic performance of the pupils like socioeconomic status, prior schooling, exposure to media, parent’s education, home and school environment, and teacher factors.
REFERENCES


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APPENDICES

TEST MANUAL FOR THE SAINT MARY’S UNIVERSITY CLASSIFICATION
BATTERY EXAM FOR ENTERING GRADE 1

TEST 1: Saint Louis University Nonverbal Intelligence Scale 1 (SLU NIS 1)

Description and Purpose:

The SLU-NIS 1 is a test consisting of 3 subtests, namely, Embedded Figures, Classification and Nonverbal Analogy. The Embedded Figures subtest contains items which try to measure field-independence of the examinees. The task is to look for a figure inside a more complex design. The Classification subtest contains items wherein the subject has to choose from among five choices one that is different from the rest. This measures the examinee’s ability to discern characteristics common to a set of pictures. In the Nonverbal Analogy, the child is asked to see relationships and apply this kind of relationship to a new situation (SLU, 1986).

The test can be used for screening and/or classification purposes. Since the test has predictive validity, it can be used to determine who among the examinees are more likely than not to be able to cope with the academic work in school.

Author: Saint Louis University Psychological Testing Center

Age: 5 to 7 years old

Administration Time: 20 minutes

Scoring: For every correct answer the equivalent score is one point. There are three subtests in this test thus it produces three scores. These scores are added to come up with the total score. Raw scores are then converted to IQ scores to make it comparable. (see norm table for SLU NIS 1)

Reliability: The reliability of this test yielded a Cronbach’s alpha of .873 which indicates remarkable consistency.

Validity: Predictive validity with final grades in first grade shows significant moderate positive correlation (r=.450).

Norms: The test was standardized on a sample of 303 entering grade 1 pupils of Saint Mary’s University Grade School.
## Norm Table for SLU NIS 1

<table>
<thead>
<tr>
<th>Raw Score</th>
<th>IQ Score</th>
<th>Category</th>
<th>Raw Score</th>
<th>IQ Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>144</td>
<td>VS</td>
<td>30</td>
<td>96</td>
<td>A</td>
</tr>
<tr>
<td>59</td>
<td>143</td>
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Mean=32.70  SD=9.216  N=303

### Descriptions:

- 130 above – Very Superior (VS)
- 120-129 – Superior (S)
- 110-119 – Above Average (AA)
- 90-109 – Average (A)
- 80-89 – Below Average (BA)
- 70-79 – Poor (P)
- 0-69 – Very Poor (VP)
TEST 2: Reading Readiness Test

Description and Purpose:

The test is a 40-item teacher-made test that measures perceptual skills, word identification skills, comprehension skills and study skills.

Author: Caroline P. Navarrete

Age: 5 to 7 years old

Administration Time: 1 hour

Scoring: For every correct answer the equivalent score is one point. All the correct answers are added to come up with the total reading score. Raw scores are then converted to reading quotient to make it comparable. (see norm table for Reading Readiness Test)

Reliability: The reliability of this test yielded a Cronbach’s alpha of .813 which indicates good consistency.

Validity: Content validity was done by teachers who were experts in early childhood education. Predictive validity was also investigated by correlating it with English grades in first grade and it show significant moderate positive correlation (r=.428).

Norms: The test was standardized on a sample of 303 entering grade 1 pupils of Saint Mary’s University Grade School.
### Norm Table for Reading Readiness Test

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<th>Reading Quotient</th>
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Mean=29.52 SD=5.659 N=303

### Descriptions:

- **130 above – Very Superior (VS)**
- **120-129 – Superior (S)**
- **110-119 – Above Average (AA)**
- **90-109 – Average (A)**
- **80-89 – Below Average (BA)**
- **70-79 – Poor (P)**
- **0-69 – Very Poor (VP)**
TEST 3: Math Readiness Test  
Description and Purpose:
The test consists of 40 items covering basic knowledge in mathematics.  
Author: Kristine Ann L. Israel  
Age: 5 to 7 years old  
Administration Time: 1 hour  
Scoring: For every correct answer the equivalent score is one point. All the correct answers are added to come up with the total math score. Raw scores are then converted to math quotient to make it comparable. (see norm table for Math Readiness Test)  
Reliability: The reliability of this test yielded a Cronbach’s alpha of .796 which is an acceptable reliability value for ability tests.  
Validity: Content validity was done by the mathematics teachers. Predictive validity was also investigated by correlating it with Math grades in first grade and it show significant moderate positive correlation (r=.488).  
Norms: The test was standardized on a sample of 114 entering grade 1 pupils of Saint Mary’s University Grade School.
Norm Table for Math Readiness Test

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Mean=33.22 SD=3.928 N=114

Descriptions:

130 above – Very Superior (VS)
120-129 – Superior (S)
110-119 – Above Average (AA)
90-109 – Average (A)

80-89 – Below Average (BA)
70-79 – Poor (P)
0-69 – Very Poor (VP)