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Editorial Note

This volume is special as it marks the shift of the Educational Measurement and Evaluation Review (EMER) from an annual publication to a biannual one. Consistent with the goals of the Philippine Educational Measurement and Evaluation Association (PEMEA), the EMER hopes to further promote practice and research in educational assessment in the country and beyond through continuous publication of empirical reports, literature reviews, and concepts papers that cut across a wide-array of relevant research themes. The first issue this year 2015 has four articles that represent the diversity of topics in educational measurement, evaluation, and psychometrics.

The article of Valladolid focuses on the development of measurement tools to identify public school students at-risk of reading difficulty. This study is relevant since it addresses the need for an alternative method to identify and help students who are at-risk of reading difficulty. The process used by Valladolid in the development of the assessment tools provides a good model for other researchers to adopt. Indeed, the development of assessment tools is a very worthy endeavor especially if designed for special target groups.

On the other hand, the article of Tan and colleagues focuses on the assessment of the trend on customs broker licensure performance. The authors found that the trend is unstable and fluctuating. After discussing factors that contribute to the trend, Tan et al. provided recommendations for improvement in the licensure examination. This study reminds us that the analysis of high-stakes assessments (e. g. board exams) has strong practical implications and may shape policy and practice in schools.

Meanwhile, the article of Magno and Lizada discusses the need to describe and explain the important features of formative assessment in the classroom. The authors formulated nine principles that may guide teachers in the conduct of formative assessment in their classrooms. Such guide is important for teachers as the need to ascertain that correct assessment practices are being observed in the classroom is part of the accountability of all educators.

Finally, the article of Gadiana and David presents a brief report on the psychometric analysis of the Locus-of-Hope Scale. Using Rasch analysis, Gadiana and David provided additional evidence that the scale is reliable, valid, and capable of precise measurement. Indeed, validation of existing measures should incorporate the use of Rasch and Item-Response Theory (IRT) models as these models may provide information that cannot be provided by analysis based on the Classical Test Theory (CCT).

Dr. Adonis David
The Editor



Development and Validation of Curriculum-Based Measurement (CBM) for Identifying Students with Reading Difficulties

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Abstract

The role of classroom teachers in the early detection of learning difficulty/disability in school children cannot be ignored. When it comes to young children's literacy learning, there is substantial consensus that the teacher is the primary assessment agent (Johnston & Rogers, 2002). But classroom teachers also have a lot of responsibilities in school. As such, they need an assessment and identification approach that they can easily employ. Progress monitoring is one of the feasible and practicable methods in identifying students at-risk. Progress monitoring is a set of assessment procedures for determining the extent to which students are benefiting from classroom instruction and for monitoring effectiveness of curriculum (Johnson, Mellard, Fuchs, & McKnight, 2006). It makes use of Curriculum-Based Measurement (CBM), which has been demonstrated by research to effectively gather student performance data to support a wide range of educational decisions, such as screening to identify students with learning disability, evaluating referral interventions, and determining eligibility for and placement in remedial and special education programs (Deno, 2003). This study aimed to develop and validate a set of curriculum-based measurement (CBM) tools to identify students at-risk of reading difficulty in public schools. This study is relevant since the Philippine public school system is in dire need for an alternative method to identify and help students who are at-risk of reading difficulty that is not only valid and relevant, but also cost-effective, teacher-driven, and easily-implemented. The development and validation of CBMs for this study followed the following stages: (1) definition of criterion and performance standards (i.e., "what to measure?"), (2) development of CBM-ORF passages (i.e., "how to measure?"), and (3) assessment of the reliability and validity of the CBM (i.e., how technically adequate are the measures?).

Keywords: curriculum-based measurement, reading disability, test development

Introduction

Early intervention has been shown to help students overcome their reading difficulties and catch up with their peers faster. Citing research studies by the National Institute of Child Health & Human Development, National Institutes of Health, Lyon (2003) stressed that children, particularly kindergarten and elementary school students who have reading problems "can overcome their difficulties and can learn to read at average or above levels, but only if they are identified early and provided with systematic, explicit, and intensive instruction" (p.18).

The role of classroom teachers in the early detection of learning difficulty/disability in school children cannot be ignored. When it comes to young children's literacy learning, there is substantial consensus that the teacher is the primary assessment agent (Johnston & Rogers, 2002). But classroom teachers also have a lot of responsibilities in school. As such, they need an assessment and identification approach that they can easily employ. Progress monitoring is one of the feasible and practicable methods in identifying students at-risk. It makes use of Curriculum-Based Measurement (CBM), which has been demonstrated by research to effectively gather student performance data to support a wide range of educational decisions, such as screening to identify students with learning disability, evaluating referral interventions, and determining eligibility for and placement in remedial and special education programs (Deno, 2003).

This study aimed to develop and validate a set of curriculum-based measurements (CBM) that can be used by public school teachers in identifying students at-risk of reading difficulty.

The Concept of Curriculum-Based Measurement

Curriculum-Based Measurement (CBM) is a set of methods for indexing academic competence and progress that teachers could use efficiently and would produce accurate, meaningful information with which to index standing and growth of students (Deno, Fuchs, Marston, & Shin, 2001, p.508; Fuchs & Fuchs, 1997, p.3). It can be used to screen and identify at-risk students, evaluate pre-referral interventions, determine eligibility for and placement in remedial and special education programs, evaluate instruction, and evaluate reintegration and inclusion of students in mainstream programs (Deno, 2003).

According to Deno (2003), CBM is technically adequate, time efficient, and easy to use. It includes standard measurement tasks, set specifications for the selection of materials to be included in the assessment, and standardized sample duration, administration, student directions, and scoring procedures. In CBM, performance is repeatedly sampled across time, such that students respond to different but equivalent stimulus materials. On the other hand, Shinn (2002) characterized CBM as a set of DIBS or dynamic indicators of basic skills. It is *dynamic* since its measures are sensitive to the short-term effects of instructional interventions, designed as *indicators* of overall performance in an academic area, and intended to quantify student performance only in the *basic skills* areas of reading, spelling, mathematics, and writing, and not in other content area courses.

A CBM score can be viewed as a performance indicator since it produces a broad dispersion of scores across individuals of the same age (inter-individual differences) as well as across different time periods and different interventions for a given student (intra-individual improvement). As such, CBM simultaneously yields information about relative standing as well as change (Deno, Fuchs, Marston, & Shin, 2001).

In the area of reading difficulty, the most common components in the CBM-Reading include word identification fluency (WIF), phonological awareness, and letter knowledge for Grade 1 and WIF and oral reading fluency (ORF) for Grades 2 and 3 (Johnson, Pool, & Carter, n.d.). CBM-ORF focuses on two of the three components of fluency: rate and accuracy. Fluency rate is based on the number of correct words per minute (WCPM) and computed by subtracting the number of errors from the total number of words read. Errors include skipped words, mispronounced words, word substitutions, words in the wrong order, and struggling that lasts for 3-5 seconds. On the other hand, accuracy is computed by dividing CWPW by the total number of words read and multiplying the result by 100.

Stages in the Development of CBM-Reading

In the course of conducting their CBM research program, the University of Minnesota Institute for Research on Learning Disabilities (IRLD) addressed three key questions in developing CBM procedures: 1) “What are the outcome tasks on which performance should be measured? (What to measure?”), 2) “How must the measurement activities be structured to produce technically adequate data?” (“How to measure”), and 3) Can the data be used to improve educational programs?” (How to use”). The questions were answered through systematic examination of three key issues relevant to each - the technical adequacy of the measures, the treatment validity or utility of the measures, and the logistical feasibility of the measures (Deno, 2003, p.4).

Given the above requirements, the development of CBMs may follow the following stages: (1) definition of criterion and performance standards (i.e., “what to measure?”), (2) development of CBM-ORF passages (i.e., “how to measure?”), and (3) assessment of the reliability and validity of the CBM (i.e., how technically adequate are the measures?).

Definition of Criterion and Performance Standards. According to Jenkins (2003), inasmuch as the immediate goal of screening is identifying students at risk for unsatisfactory outcomes, screening hinges on the selection of criterion measures and performance levels on those measures. Two decisions go into establishing a criterion. The first is deciding on a suitable measure (i.e., content standard); the second is deciding the performance level (i.e., performance standard) that distinguishes between adequate and inadequate skill. The choice of criterion measures and performance standard is critical because students performing satisfactory on one criterion may perform unsatisfactorily on a different criterion measure. Furthermore, for screening instruments to be useful, they must be sensitive to the skills that pertain at successive stages and grade-levels. They cannot adequately mark individual differences unless they are sensitive to the different skills and performance standards emphasized and required at different grade levels.

With regard to Philippine school setting, it is important to review the curriculum contents and the expected competencies per grade level to identify the standards set by the Department of Education. In 2010, the education department has outlined the expected competencies in all academic subjects in elementary education. The Basic Education Curriculum: Philippine Elementary Learning Competencies (PELC) for English is a listing of expectations in the four phases of Communication Arts – listening, speaking, reading, and writing (Department of Education, 2010). The expected outcomes for each phase are stated in behavioral terms. Reading involves skills in getting meaning from the printed page and includes skills for vocabulary development and levels of comprehension. In PELC-Reading, grade 2 students are expected to “read critically and fluently in correct thought units, texts for information and entertainment and respond properly to environmental prints like signs, posters, commands, and requests” (Department of Education, 2010, p.2). On the other hand, the content standards for Grade 2 competencies in English in the K-12 Basic Education Curriculum include oral language, grammar, vocabulary development, listening comprehension, attitude towards language, literature and literacy, and study skills (Department of Education, 2012).

Furthermore, to get a more comprehensive view of the expected reading skills and competencies per grade level, a review of research conducted abroad is worth considering, such as those carried out by the National Reading Panel. The National Reading Panel identified five critical areas for effective reading instruction. These include phonemic awareness (i.e., the ability to hear and manipulate individual sounds in spoken words), phonics (i.e. knowledge of the relationship between letters and sounds in spoken language), fluency (i.e., the ability to read text accurately, quickly, with expression, and with correct phrasing), vocabulary (i.e., knowledge of words required to communicate and comprehend spoken and

written language), and text comprehension (i.e., the ability to obtain and construct meaning from written language (RAND Reading Study Group, as cited in Waterford Institute, n.d.).

Development of CBM-ORF Passages. According to Jenkins (2003), for screening measures to be useful, they must be sensitive to the skills that pertain to successive stages and grade-levels. Measures or tests cannot adequately mark individual differences unless they are sensitive to the different skills emphasized at different grade levels.

Two types of performance have been used in CBM-Reading: some emphasizing accuracy while others, emphasizing fluency. Accuracy measures distinguish students according to the number or percent of correct responses on tasks (i.e., knowledge) while fluency measures distinguish students according to the number of correct responses per minute (i.e., knowledge and speed of processing) (Jenkins, 2003). The number of correct word choices per minute is the primary metric (Shinn, 2002).

Fuchs and Fuchs (2011) identified the correct CBM task for students who are developing at a typical rate in reading: Letter Sound Fluency (or Phoneme Segmentation Fluency) for Kindergarten, Word identification Fluency for Grade 1, Passage Reading Fluency for Grades 2-3, and Maze Fluency for Grades 4-6. DIBELS also make use of oral reading fluency (ORF) passages for Grade 2 students. Speece and Case (2001) in their study on the identification and classification of Grade 2 students with reading disability also made use of ORFs.

Establishment of the Technical Adequacy of the CBM-ORF and CBM-WIF.

Different forms of reliability and validity indices have been used to establish the technical adequacy of curriculum-based measurement. Reliability measures included test-retest and alternate form while the criterion validity was measured by correlating the scores on the CBM measures with teacher ratings and norm-referenced tests of reading and mathematics ability (Foegen, Lembke, Klein, Lind, & Jiban, 2008; Jiban, Deno, & Foegen, 2009; Lembke & Foegen, 2005; Lembke, Foegen, Whittaker, Hampton, & Jiban, 2008).

Objectives of the Study

The study sought to develop and validate Curriculum-Based Measures (CBM)-Reading that are fitted to the context of the Philippine public school system and based on the Philippine Basic Education Curriculum (2010), K-12 Curriculum Guide (2012), and the National Reading Panel standards.

Method

The development of CBMs for this study followed the following stages: (1) definition of criterion and performance standards, (2) development of CBM-ORF passages, and (3) assessment of the reliability and validity of the CBM.

Table 1 presents the activities conducted in the CBM development and validation. Sources of data, sampling design, data gathering procedures, and data analysis are described specific to each stage.

Table 1

Activities Conducted During Phase I: Development of CBM-Reading

Stages	Activities
Definition of Criterion and Performance Standards	Review of the following: <ul style="list-style-type: none"> • Basic Education Curriculum: Philippine Elementary Learning Competencies (PELC) for English • K-12 Curriculum Guide – English (Grades 1 to 3 and Grades 7-10) • Five Critical Components of the National Reading Panel

<i>Cont. Table 1</i>	<p>Content validation of curriculum map by US-based reading expert</p> <p>Use of the following performance standards:</p> <ul style="list-style-type: none"> • Actual performance level and growth rate after 8 weeks of progress monitoring • Expected performance levels (i.e., performance goal and DIBELS' criteria of ≥ 26 CWPM) and expected growth rates (i.e., 1.1 growth rate and 2.0 ambitious growth rate) after 8 weeks of progress monitoring
Development of CBM-ORF Passages	<p>Development of 30 ORF passages based on following sources:</p> <ul style="list-style-type: none"> • textbooks used by Grades 1 and 2 students • commercially-available storybooks, and • grade level-appropriate reading passages available on websites <p>Content analysis of 30 ORFs by 60 Grades 1-3 public school teachers</p> <p>Pretesting of ORF passages to 10 Grades 1-4 public and private students</p> <p>Subjecting of 30 passages to Spache Readability Test</p> <p>Selection of appropriate ORF passages, i.e., only those rated highly by teachers, can be read accurately and fluently by students, and with appropriate readability level</p> <p>Addition of six more ORF passages</p> <p>Revision and finalization of ORF passages</p> <p>Development of two sets of Word Identification Fluency (WIF) List based on Dolch Basic Sight Word List</p>
Establishment of Technical Adequacy of ORF and WIF	<p>Conduct of the following reliability tests:</p> <ul style="list-style-type: none"> • test-retest reliability • alternate-form reliability <p>Subjecting ORFs and WIFs to criterion validity test by:</p> <ul style="list-style-type: none"> • correlating students' CBM scores with teacher ratings

Results

The following presents the development of the CBM Oral Reading Fluency (ORF) and Word Identification Fluency (WIF) tests as well as the establishment of their reliability and validity.

Development of Curriculum-Based Measurement

Definition of Criterion and Performance Standards. The criteria or standards used were primarily based on two sources: (1) Basic Education Curriculum: Philippine Elementary Learning Competencies (PELC) for English (Department of Education, 2010), and (2) K-12 Curriculum Guide – English (Grades 1 to 3 and Grades 7-10) (Department of Education, 2012). The national guidelines (i.e., National Reading Panel's 5 components) and key state standards for reading instruction in the US that were adopted by the Waterford Early Reading Program were also reviewed to guide in the identification of reading standards for Grade 2 students. Based on these three sources, a curriculum map for Grade 2-ORF that spells out the expected skills and competencies was developed. A US-based reading expert then content-validated the curriculum map to determine its applicability and appropriateness to Grade 2 students' expected reading skills.

With regard to performance standards, two criteria were used as benchmarks: (1) actual performance level and growth rate, and (2) expected performance level (i.e., performance goal and DIBELS criteria of ≥ 26 CWPM) and expected growth rate (i.e., growth rate of 1.1 and ambitious growth rate of 2.0) after 8 weeks of progress monitoring (Table 2).

Development of CBM-ORF Passages and CBM-WIF Lists. A total of 30 ORF passages, which were appropriate over the first grading period, were developed. The passages were drawn from multiple sources: textbooks used by Grades 1 and 2 students both in Philippine private and public schools, commercially-available storybooks, and grade level-appropriate reading passages available on websites. Reading materials that were not

curriculum-related were also included since most current CBMs, such as the DIBELS, are generic and cover contents that were drawn from sources other than any specific school's curriculum.

The 30 prototype ORF passages were subjected for review by 60 Grades 1-3 public school teachers from Luzon who had a summer training program for multi-grade teachers. The teachers were asked to validate the reading passages based on five criteria: efficiency, accuracy, specificity, effectiveness, and sensitivity, using a 3-point rating scale.

Table 2
Criteria and Measures Used for Performance Standards

Performance Standards	Criteria	Measures
Actual Performance Level	Performance level at the end of 8-week progress monitoring	Correct words per minute (CWPM) on ORF or WIF
	Actual growth rate	CWPM on Week8 – CWPM on Week1 7 (weeks)
Expected Performance Level	Performance goal at the end of 8-week progress monitoring	ambitious growth rate (i.e., 2.0) X number of weeks (e.g., 8 weeks) + original performance level
	Expected growth rate	1.1 words per week growth
	Ambitious growth rate	2.0 words per week growth

Furthermore, the same passages were pre-tested to 10 Grades 1-4 public and private students to determine the readability and appropriateness of the reading passages and were tested for readability using the Spache Readability Formula. Only those that were rated highly and endorsed by the teachers, those that can be read accurately and fluently by the students, and those with appropriate readability level were selected. Furthermore, six more ORFs were drawn from the textbooks and reading program websites. Since it was observed that public school students had difficulty in reading some of the prototype ORF passages as compared with those from private schools, the prototype ORF passages were revised. A readability test, using the Spache Readability Formula, was again run on all the revised ORFs. ORF passages with 1.5 to 2.4 reading level (i.e., equivalent to Grade 2 level) were chosen.

Another type of CBM, namely the Word Identification Fluency (WIF) list was developed for Grade 2 students who do not have reading fluency skills. While WIF is normally used to monitor students' overall progress in reading at first grade, Fuchs and Fuchs (2011) suggested that "if the student reads fewer than 10 correct words in 1 minute, use the CBM word identification fluency measure instead of CBM PRF or CBM Maze Fluency for progress monitoring" (p.11). A total of 150 words were randomly chosen from the Dolch Basic Sight Word List (Shanker & Ekwall, 1998), from which two (2) sets of CBM-WIF with 50 words each were developed.

Validation of the CBM-ORF Passage and WIF List

To determine the technical adequacy of the CBMs, their reliability and validity indices were determined. Test-retest and alternate-form reliability were conducted for only three of the ORF passages and one WIF. Test-retest was based on the scores (i.e., CWPM) of 54 Grade 2 students. On the other hand, the alternate-form reliability was determined by correlating the three ORFs and WIF that were administered during the first day or the next testing session. This was done since according to Daniel (2010), "for a speeded measure such as oral reading fluency, which is scored on the number of words read correctly in 1 minute,

reliability must be based on scores from independent administrations... The ideal type of reliability study ... is one in which scores on parallel (alternate) forms are obtained on the same day or within a span of no more than 2 weeks.” (p. 1). Results in Table 3 present the reliability and validity coefficients of ORF and WIF as well as the criterion validity coefficient of the CBM-Reading.

Table 3
Test-Retest and Alternate Form Reliability and Criterion Validity of the CBM-Reading

Reliability/Validity	CBM	Reliability Coefficients
Test-Retest	ORF 1 (N=53)	0.98
	ORF 2 (N=44)	0.96
	ORF 3 (N=38)	0.98
	WIF (N=30)	0.92
Alternate-Form	ORF1 vs. ORF 2	0.98
	ORF1 vs. ORF 3	0.98
	ORF2 vs. ORF3	0.99
	ORF1 vs. WIF	0.64
	ORF2 vs. WIF	0.62
	ORF3 vs. WIF	0.59
Criterion Validity	CBM-Reading vs. Teacher Rating	0.58

The three ORF passages and the WIF list exhibited very high test-retest reliability, as shown by reliability coefficients of more than .90. This indicates that these CBM measures exceeded the acceptable reliability coefficient, indicating their ability to produce consistent results over time. Likewise, the correlations among the three ORF passages were very high, also surpassing the .90 mark. This indicates that the three passages were very similar. On the other hand, correlations between ORF passages and WIF list were moderate, ranging from .59 to .64.

The results were consistent with those found in the literature. Since the 1980's, studies conducted have “concluded that test-retest reliability coefficients of CBM reading ranged from .82 to .97 with most estimates being above .90... (and) parallel form reliability ... from .84 to .96, with most correlations above .90” (“Historical Background”, n.d., , p. 1).

The criterion validity CBM-Reading was measured by correlating the students' CWPM on the CBM-Reading with their class advisers' ratings of their reading proficiency using the Teacher Rating Scale on Student Reading Competencies. Fifty (50) of the initial pool of sample of 54 students who have complete data were included in the analysis. A correlation coefficient computed was .58, indicating moderate correlation between teacher ratings and CBM scores. This result was again consistent with those found in the literature. Hamilton and Shinn (2003) indicated that previous studies reported “moderately strong correlations between teacher judgment and the criterion reading measure – ranging from .41 to .86 (median $r = .73$)” (p.2).

Conclusion and Recommendations

The Philippine public school system is in dire need of assessment method to identify at-risk students, particularly students who are at-risk of reading difficulties/disabilities. Coming up with an identification methods that is applicable and valid in the public school setting is warranted since it was reported that in SY 2003-2004, only one-sixth to one-third of pupils in the City Schools Division of Manila could read independently at the desired grade level, with over one-third of the graduates identified as “frustrated” readers and another third as “instructional readers” by the end of the elementary cycle, both of which were below the desired reading level (Schools Division of Manila, as cited in Luz, 2007).

It is shown in this study that the use of Curriculum-Based Measurement (CBM) is applicable to the Philippine public classrooms. It is a feasible/viable, reliable, and valid

assessment method to identify students at-risk of reading difficulty. CBM is feasible since it can be used efficiently by the teachers, inexpensive, and administered many times in different but parallel forms during the school year (Shinn, 1989). This approach also resembles the classroom assessment and evaluation practices in Philippine classrooms. This also does not make use of foreign-made standardized intelligence and achievement tests, which are very expensive and believed to be inapplicable to the Filipino milieu. CBM is reliable since it can produce consistent results over time as shown in the test-retest reliability coefficients. It also showed high alternate-form reliability. CBM is a valid screening and identification tool since the measures included in the CBM are based on sound theoretical framework, on the expected competencies as defined by the Department of Education, and on the required developmental tasks for each level. It also exhibited criterion-related validity as it showed moderate correlation with teacher ratings.

While this study has shown the practical implications and the technical adequacy of CBM for use in the Philippine public school, more research need to be conducted, involving more schools, different grade levels, other subjects areas. Predictive validity of CBM also needs to be established by using various criterion measures of achievement.

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Trend of Customs Broker Licensure Examination of the Philippines

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Abstract

This study analyzes the trend of the board examination performance in Customs Brokers Licensure Exam amongst schools in the Philippines. The research method used in this study was a quantitative trend analysis to objectively determine the passing percentage of the schools in Customs Brokers Licensure Examination. The findings and results of the study provide a clear picture of the schools' performance revealing that there was a fluctuation pattern between schools' performances on Customs Brokers Licensure Examination.

Keywords: Customs Brokers Licensure Examination, trend analysis, school performance

Introduction

Licensure examination plays a vital role in determining the performance of the school in terms of the quality of education they possess. This eventually guarantees the efficiency and effectiveness of the schools on the degree courses they normally offered. Generally, it will indicate higher standard of performance of instructional system and reflects the schools' efficiency as well as the intellectual capacity of the students' performance of the school if they consistently perform well in board examination. It entails quality education standards and used as guidance and preference by enrolling students in choosing and selecting schools that best suit to what the global professional market needs. This study explores on a four-year trend analysis of school performance in the Customs Brokers' Licensure Examination in the Philippines.

The Licensure Examination for Customs Brokers is given by the Professional Regulation Commission to those qualified individuals desiring to join the ranks of licensed customs brokers and eventually engage in the practice of customs brokerage. Given only once a year, the board examination now consists of four (4) subjects namely: tariff laws and international trade agreement; warehousing; transportation and cargo handling operations; customs laws and implementing rules and regulations; and practical computation of customs duties and taxes and other charges. This was made pursuant to the Professional Regulatory Board for Customs Brokers (PRBCB) Resolution No. 1 series of 2007 (Llorando, 2010). Moreover, Commission on Higher Education (CHED) Memorandum Order No. 11 states that Bachelor of Science in Customs Administration aims to prepare individuals to meet the requirements of professional customs brokers in the Philippines. It seeks to develop customs brokers who are competent and knowledgeable in the import and export operations. After completion of the Proceeding of the Global Summit on Education program and passing the

licensure examination, the graduates can pursue a career in customs brokerage and related professions (Regalario, 2008).

The examination is given to test the graduates' knowledge, progress, skills, and qualifications in a particular profession. The customs broker examination is a valuable way to determine whether an individual has an exhaustive understanding of all import regulations (Tucker, 2010). Being a customs broker, he/she must possess the expertise in import and export. Expertise means, the knowledge of entry procedure, documentary requirements, and customs valuation, (Delaney, 2010). Therefore, the schools play a vital role in producing quality graduates in admission to the licensure examination. So it is very important to look into the performance of each school offering Customs Administration Program. The analysis of the licensure examination gives indications to be globally competitive professionals especially in the field of Bachelor of Science in Customs Administration in the Philippines (Nambio, 2004).

The gaps in knowledge based on the schools performance on Customs Brokers Licensure Examination in the Philippines include: (1) No precise selection process as required for the qualification of applicants to take the licensure examination. Strict selection process such as passing a mock board examination before taking the exam will give higher passing percentage. (Students cannot be prevented to take the board exams, but those taking without preparation and considered "suicidal" has high percentage of failure.); (2) No adequate preparations before taking the licensure examinations. Adequate preparations for the licensure examination help examinees in mastering the scope of examinations and increase their chance of passing such as enrolling in a review center; (3) No sufficient monitoring system on the performance of schools and review centers. There must be a proper monitoring and supervision on the performance of schools and review centers to meet the required standards with regard to its teaching instruction and facilities. Schools can recommend to their students what course of action to take, whether to enrol in a recommended review center or within the review course offered by the school. (4) Less training and development seminar to further develop the skills and knowledge of customs administration students to be globally competitive and have better career opportunities. (5) No harmonized school curriculum for the Bachelor of Science in Customs Administration program. Harmonization of school curriculum is essential for it affects the theoretically-based knowledge and fictional visions of the students.

CHED has issued standard curriculum or minimum requirement for this degree under CHED memo 11-S2005. Minimum units on general education courses; Business Core; Customs Core; Tariff Core; PE/NSSTP totalling 138 units. However, each colleges offer different curriculum which suit their own customs administration program. To compound some matters, schools may differ on total units required on this particular degree and offered subjects that may not be the same. Should a student wishes to transfer, some of their subjects taken may not be credited for the simple reason that such subjects may have different descriptive titles even if such program is the same. Total units required will also differ. CHED put up a minimum requirements and sample program of study but enhancement and harmonization should be the responsibility of the Professional Regulation Board for Customs Broker as mandated by RA no. 9280, otherwise known as Customs Broker Act of 2004. As of the present, there was no action by the board and the harmonization and projected change in the curriculum due to modernization and ASEAN integration has not been instituted. CHED Memo no. 11 issued in the year 2005 as a guide is still used as a sole reference to customs administration program.

It is important that the knowledge gaps must be addressed by the schools and the government. On the part of the schools, it must have an adequate facilities and resources, qualified customs administration faculty, and reliable review centers to tie-up with, to attain high-passing percentage. Moreover, on part of the government, strict regulations should be implemented before allowing a certain school to offer Customs Administration Program, by not allowing those schools and review centers that were non-compliant. This study aims to further improve the school's performance in the Licensure Examination for Customs Broker.

(1) Schools. The results of this study will provide the schools the necessary tools to improve its customs administration program and its performance in the licensure examination. (2) Government. The results of this study also serve as indicators for the government to properly assess and evaluate the performance of the schools whether to continue or discontinue its Customs Administration Program. (3) The researchers. The results will personally contribute in the foundation of knowledge and clearer view of information in behalf of the school where the researchers are currently enrolled. It will help the researchers to persevere in the licensure examination and eventually lift up the level of performance of our school. (4) Future researchers. The results of this study will be beneficial for future researchers as basis for their reference and help them innovate and conceptualize new techniques and strategies in data analysis.

Conceptual Framework

This study is anchored on the theory of Tucker (2010) that explains that Customs Brokers Licensure Examination is a written examination for measuring the skill, knowledge, intelligence, capacities, and aptitudes of an individual in granting licenses especially to practice customs broker profession. It is also a procedure of submitting a statement to such conditions as will lead to its acceptance or rejection. The Bachelor of Science in Customs Administration graduates must understand and pass the Customs Broker Licensure Examination to prove that they have the expertise in the entry procedure, requisite document as on imports and exports, classification, valuation, rates of duty and applicable taxes and other charges for imported and exported articles (Delaney, 2010).

A licensure examination is a big help to determine easily the factors and elements in measuring the ability, capability and performance of a school. It will give directly a clearer picture on the schools' individual national passing percentage based on their standings right after the examination. It will also spot a trend or pattern that will be an important indicator in forecasting analysis and results that can lead to beneficial actions on schools and students improvement, curriculum building, upgrading of facilities, sufficient conduction of self-improvement seminars and on-the-job trainings in order to be well-prepared examinee and to stay globally competitive.

Customs Broker Licensure Examination in the Philippines is an annual event held once on the month of October which is conducted by the Professional Regulatory Board for Customs Brokers. The "board" shall have the authority to conduct the licensure examination under the supervision and administration by the Professional Regulation Commission (PRC).

CHED maintains a standard for Higher Education Institutions (HEI) to get at least 50 % passing percentage based on the National Passing percentage for three consecutive years for board courses. Failure to do so will not just be a shame to the institution, but a cause for sanctions which could result to termination of license to offer such degree program. The advantage of attracting students is an added advantage to the schools if such schools' graduates have performed consistently well in the board examination.

In order to identify and understand the trend, the results of the customs broker licensure examination for the years 2009, 2010, 2011, and 2012 must be taken. An analysis on its yearly performance showing the regional and national results must be revealed in order to get the trend or pattern. Once pattern is established, the researchers can now proceed on analyzing the findings which can be the basis in recommending proposals of action.

Trend Analysis is the practice of collecting information and attempting to spot a pattern, or trend, in the information. According to Calmorin (2007), an analysis describes the part of an object: kind, quantity, and proportion. Although trend analysis is often used to predict future events, it could be used to estimate uncertain events in the past, such as how many schools offering customs administration met the National Passing Percentage as set by CHED and based on data which schools could be predicted to continue to do so. Should a trend emerged, such as maintaining, increasing or decreasing in the passing average percentage

performance, then the important task of seeking what made them perform or fail should be investigated and of course, try to emulate or learn from their mistake to say the least and take such information to an advantage. The increase as well as the decrease in percentages shall be carefully observed and analyzed in order to arrive at a higher level of accuracy in understanding the pattern or trend.

This study concentrates on a 4-year trend analysis of Customs Brokers Licensure Examination from the year 2009 to 2012. In order to understand the pattern or trend of the schools' performance, monitoring on a yearly basis must be done. The performance of the schools in each region as well as the national passing percentage must be monitored and presented in order to better facilitate understanding of the trend. The importance of understanding the performance per region is crucial in order to track as to what specific field do most of the schools excel or fail. This can be a basis for a more comprehensive study to improve on the weak areas. Likewise, this can also be the basis in identifying its strength.

The yearly performance of the schools and the regional and national results will give a practical understanding on the development of a significant change that occurred during the year 2009 to 2012. It sorts to view the reason of the line inconsistency of a 4-year Customs Brokers Licensure Examination which schools reached the national passing percentage every year.

The trend on the four-year study shall be understood after having thoroughly analyzed the data. This shall be used in understanding how the schools per region are performing yearly. With this, HEIs offering the customs administration program can now benchmark on the best practices of the performing schools. Likewise, they can also benchmark on improving the deficiencies and lapses of the stakeholders involved; students, higher education institutions, and the PRC.

Objectives

The main objective of this study is to determine the performance of schools offering Customs administration in Brokers Licensure Examination and find any pattern or trend that might render useful in elevating or assisting to progressively improve examinee's collective performance. This study specifically aims to discover the trend of the annual performance of schools within the regional classification for year 2009, 2010, 2011, and 2012.

Method

The researchers adopted a quantitative trend analysis approach, which typically concentrates on measuring or counting and involves collecting and analyzing numerical data. Data mining is employed in this research; hence, there is no actual gathering of data using a self-made questionnaire. The main tools in the gathering and collection of the data of the study were the records already available from the internet specifically retrieved from the official gazette of Professional Regulatory Commission website that has the authority on the releasing and posting of the licensure examinations. Data mining was applied by the researchers and made a record review of the schools that consecutively took the Customs Broker Licensure Examination from 2009 to 2012. All schools offering BSCA and whose graduates took the Customs Broker Licensure Examination in the 4-year time were included. First, the researchers identify schools' performance by its region; its annual national performance on Customs Brokers Licensure Examination from 2009 to 2012 and the national passing percentage of the schools. The data gathered were then presented, analyzed and interpreted. The researchers used the trend analysis method which is able to collect information and attempts to spot a pattern or a change and development of a line in terms of school performance in Customs Broker Licensure Examination.

Results and Discussion

This part presents the performance of the thirty-one selected schools on a per region basis that consecutively took the Customs Brokers' Licensure Examination from the year 2009 to 2012. To give a vivid picture of the performance of the selected thirty-one schools in the Customs Broker Licensure Examination, the mode of presentation has been done with the aid of tables and graphs. In this manner, the reader could readily see actual figures in details. With these data on hand, it would be easy to make certain comparisons and outright evaluation of the thirty-one schools that performed-well or need improvement.

On a per region basis, Region IX as seen in Graphs 1-4 had posted a significant declining trend that gives rise to many questions on the determinants and causes which possibly affect the performance of the schools. Next are Regions IV, VII and NCR which posted remarkable increase throughout the period as seen in Graphs 1-4. Increase in trend signifies that schools from these regions exerted more effort and adopted intensive improvement techniques on student's development and formulation of an effective review program that suits the need of every student. Lastly, regions that denote the fluctuating pattern include regions III, VI, XI, and XII, which vary from the number of examinees and number of passers. This fluctuation of line denotes an unstable movement throughout the period.

The Customs Broker Licensure Examination was generally fluctuating for the period 2009-2012 as seen in Graph 5. However, in terms of passing percentage from year to year, the 2009-2010 licensure examination fluctuation in the performance of the schools is evident. Schools whose average rating is low predominantly improved the next year but those who have fared well dipped in the next year exam. The 2010-2011 results however gave us a picture of improvement on most of the schools in their marks. On per region basis, Region VI had generally posted significant increase in percentage throughout the period. It pictures out that they have the best schools pertaining to the program Bachelor of Science in Customs Administration. The schools from Region XII and NCR are getting a good flow throughout the period. Lastly, the region that landed a bad flow of results is the Region VII. It is shown that although its average NPP is slightly improving, the average still falls below the national passing percentage.

The result of trend analysis showed the significant factors affecting the trend performance in the whole regions of the Philippines. These factors are student's interest, quality and competency of teachers, improvement of curriculum, closure of non-performing schools, number of examinees, and better selection program of review centers specializing in Customs Administration.

As to direction and degree of their relationship on the students interest, quality and competency of teachers and improvement of curriculum are positively related (Viray, 1970). According to Lambert (1975), there is a relative endowment of having a good performance of the students between teachers morale and schools leader behaviour. On the other hand closure of non-performing schools, number of examinees, and better selection program of review centers are negatively related with the trend performance. This means that the lower number of examinees and poor selection program of review centers, the higher probability of schools not to perform well that will result to closures (Robles, 1996).

Different schools have different admission policies. Some have pre-qualification examination before acceptance. Some have open admission with selective retention while others just admit anyone who wants to enrol. High academic standard is every school's perennial goals; however, the economic and financial considerations are also factors to reckon with. An academic institution cannot maintain a class with a few numbers of students especially when it is far below the break-even point. Moreover, the remedial or intervention expense for the academe with poor performing students might prove costly too. Albeit all these considerations, the standard to maintain the National Passing Percentage required is a mandate.

Table 1
School's performance in Customs Brokers' Licensure Examination

FIRST-TIME TAKERS					
	YEAR	2009	2010	2011	2012
	National Passing Percentage (NPP %) for particular year	(33.81%)	(29.71%)	(41%)	(40%)
REGION	SCHOOLS	School Passing % in particular year			
III	School A	75	30	0	0
	School B	50	58.33	40.74	57.14
IV	School C	47	68.75	94.74	81.82
	School D	0	50	20	0
	School E	45	48.94	36.07	68.75
	School F	7	0	25	14.89
VI	School G	12	9.09	50	50
	School H	17	50	0	0
	School I	75	50	0	100
	School J	35	55.17	40.91	36.36
VII	School K	0	0	0	0
	School L	50	45.45	33.33	50
	School M	0	14.29	33.33	50
	School N	33	21.95	36.67	40.63
	School O	0	28.57	50	43.75
	School P	39	20.69	25	20
IX	School Q	8	20	33.33	30.43
	School R	50	66.67	33.33	28.57
XI	School S	67	66.67	62.5	69.23
	School T	10	25	0	33.33
	School U	48	21.74	38.89	31.15
XII	School V	80	50	100	75
XII	School W	100	33.33	0	0
NCR	School X	47	35.29	54.29	81.25
	School Y	47	40	55	52.27
	School Z	75	12.5	22.22	66.67
	School Aa	100	33.33	33.33	14.29
	School Bb	60	45.71	61.36	58.14
	School Cc	33	32.19	39.68	42.34
	School Dd	20	31.58	26	32.69
	School Ee	39	48.48	56.1	46.15
TOTAL Number of Schools Passed		19	20	9	17

The above table shows the overall performance of schools in Region 3, 4, 6, 7, 9, 11, 12, and NCR. These are the regions offering Customs Administration Program. The above table shows that during the 2009 Board Examination 19/31 or 61.29% schools got above the National Passing Percentage (NPP). It also shows that on the year 2010, 20/31 or 64.52% of the schools got above NPP. Moreover in the 2011 only 9/31 or 29% schools were able to reach the NPP and on 2012 17/31 or 54.84% reached above NPP.

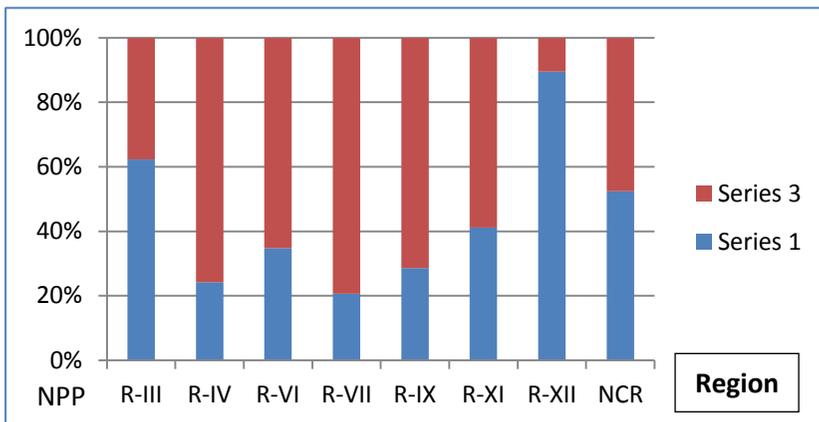


Figure 1. Average National Passing Percentage of Schools per Region in 2009

This graph shows that Region XII got the highest average NPP of 90%. Then second to the highest is Region III with 62.5% average NPP and then followed by the National Capital Region with 52.62% average NPP. During this year 2/19 schools garnered 100%, one is from Region XII and the other is from the National Capital Region as seen in Table 1. Of all the Regions offering Customs Administration Program, Region VII got the lowest average NPP with 20.33%. And also 11 out of 31 schools failed to obtain a National Passing Percentage which in-fact 4/11 of the said schools got a ZERO passing percentage as shown in Table 1. Thus, the rest of the schools need improvements and enhancements on the Bachelor of Science in Customs Administration Program they implemented. Choosing and selecting review programs will generally address the needs of the students to perform well on the Customs Brokers Licensure Examination.

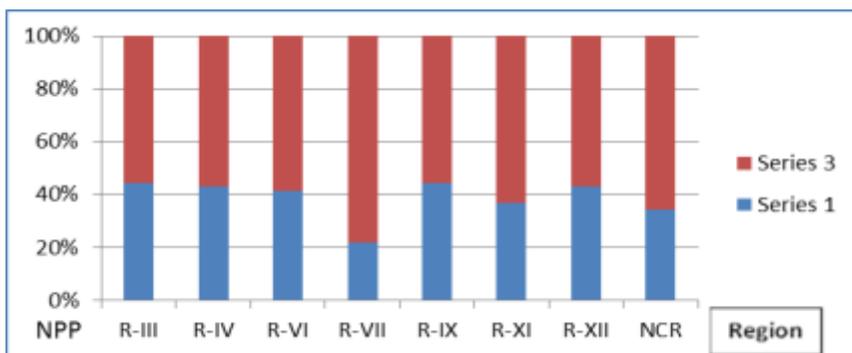


Figure 2. Average National Passing Percentage of Schools per Region in 2010

The Region who got the highest average NPP is Region III with 44.17% as shown in the above graph, followed by Region IX 43.35% and Region IV with 41.92%. Still during this year, Region VII is the one that got the lowest average NPP with 21.82%. This time 11/31 schools failed to reach above the NPP in which 2/11 schools got ZERO passing percentage as seen in Table 1. This is a significant event and year that pursues school administrators to strive more for excellence and deliver more qualified customs administration students who will bear the pride and honour of the school in passing the Customs Brokers Licensure Examination and it can gain the trust and confidence of the public who seek the guidance in choosing a better and quality schools.

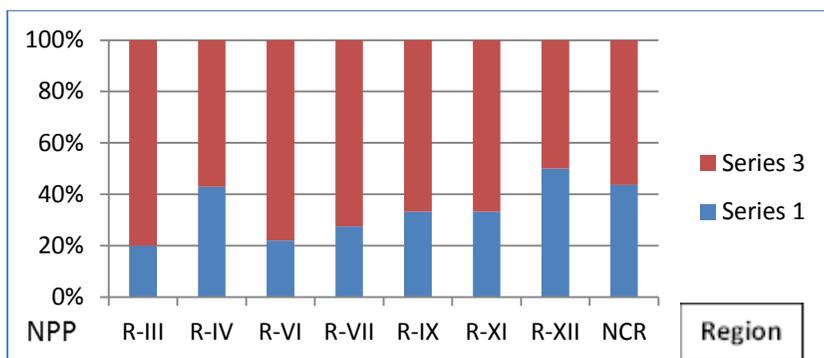


Figure 3. Average National Passing Percentage of Schools per Region in 2011

The above table shows that Region XII got the highest average NPP with 50%, closely followed by Region III and NCR that got 43.95% and 43.50%, respectively. The school that got the highest NPP is from Region III with 94.74% as seen in Table 1. This year is very detrimental for it only got 29% or 9/31 schools that were able to reach above NPP. The decline was more than twice comparing to last year's result as seen in Graph 5. The results also showed that 6/22 schools that were not able reach the NPP got ZERO%. This school is from Region III, 2 from Region VI, 1 from Region VII, 1 from Region XI and Region XII as seen in Table 1.

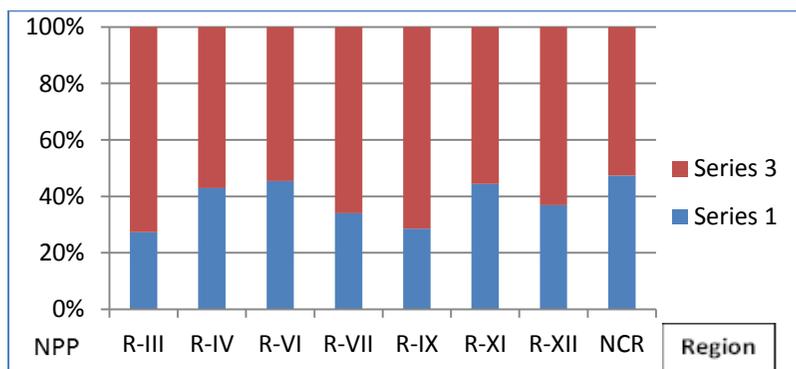


Figure 4. Average National Passing Percentage of Schools per Region in 2012

It can be clearly seen in the graph above that the Region who got the highest average NPP is the NCR with 49.23%, followed by Region VI with 46.59% and Region XI with 44.57%. The Region that got the lowest average NPP is Region III with 28.57%. The school that got the highest NPP is from Region VI with 100% NPP as seen in Table 1. This year 17/31 schools offering Customs Administration Program reached the above NPP but nevertheless 5/14 schools that failed to reach the NPP got ZERO%.

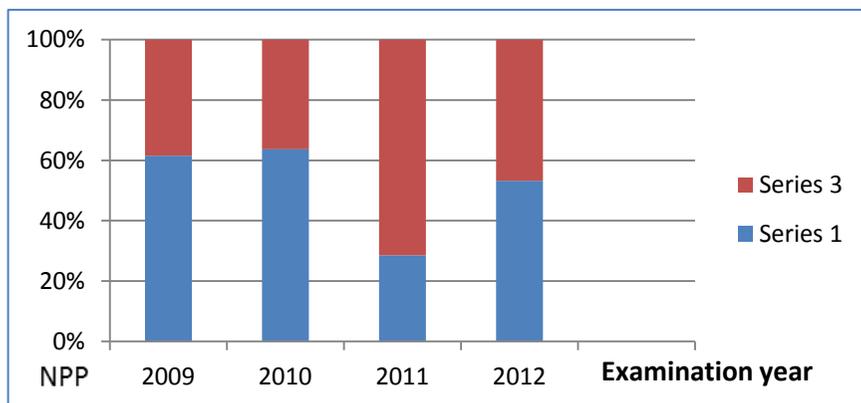


Figure 5. Average National Passing Percentage per Year

Generally, there is a high and low pattern which means fluctuating. Starting from the year 2009, a slight upward pattern on the year 2010 can be observed. On the succeeding year 2011, there is an abrupt downward movement that indicates a slowdown of the performance and then an upward pattern again on the following year of 2012.

Based on the findings of this study, the trend in the performance on the Customs Broker Licensure Examination is unstable and fluctuating and this pattern is self-similar and repeated from the institutional to the regional and national levels. Thus, it implies an irregular variation of the trend that results into a so-called mirror-effect from the regional to nationwide performance on the subsequent years 2009 to 2012.

Consequently, factors affecting this pattern include poor program on Bachelor of Science in Customs Administration, unsatisfactory students qualification for admission on Bachelor of Science in Customs Administration course, insufficient of training and experience of customs brokers as an academician, and lastly pressured on the ruling of the government for closure of non-performing schools.

The school performance on Customs Broker Licensure Examination of almost all regions denotes a similar fluctuation pattern particularly on regions situated on Luzon and Visayas. The rise and fall of the linear pattern gives emphasis that from the year 2009-2012 Customs Broker Licensure Examination, schools of the different regions almost have the same trends. These similarities of trends were due to the number of examinees from different regions who took the licensure examination that affects the rise and fall pattern.

The school performance on Customs Broker Licensure Examination of the regional performance only reflects the nationwide performance of the schools because there were repetitions on the trends and linear patterns. Regional trend from the year 2009-2012 entirely affect the fluctuating pattern as shown in Figure 1 above.

Conclusion

The trend on Customs Broker Licensure Examination varies depending on the performances of the students as well as the school. The students' interest plays a crucial role in passing any examination that will factor out the probability and possibilities in achieving a good result in any examination. Students' active participation will be the basic formation in nurturing the skills, abilities, and knowledge as it will give the students a special attention on mental aspects, the mental aspect which relates to the total emotional and intellectual response of an individual to external reality. Another factor to catch the students' interest is the quality and competency of the teachers in handling the subject field. It is a way of the students to measure the intellectual capabilities of a teacher and it will determine the chances of getting good scores or a high-rating performance in any given examinations. To top it all, intervention of the school administration as well as the prayers, support, and love of the family will be an added factor in performing well in the examination. Though this factor, it will boost the trust and confidence of our individual ego and even help us in our desire and eagerness to succeed.

Recommendations

To better improve performance on Customs Broker Licensure Examination especially on those schools whose performance is declining, the researchers have formulated the following recommendations:

School curriculum must improve. The curriculum of the school that offers Bachelor of Science in Customs Administration program must base on the subject areas on the scope of examinations stated in Tariff and Customs Code of the Philippines, Section 15, and Article III of R.A. No. 9280 in order to increase the passing percentage in the Customs Broker Licensure Examination (TCCP, 2010).

Recruit and select qualified students. Schools that offer Bachelor of Science in Customs Administration courses must have a flow of recruitment and selection process. Recruitment and selection process will focus on the students' qualifications. **Before admission**, the students must have a good moral character; a high school average of 85 or above, must have passed the entrance exam given by the Bachelor of Science in Customs Administration department coordinator, and belongs to a top students list. **After admission**, they must maintain grades of 2.0 to 2.5; take an admission test for the next year level for the assessment and evaluation of the subject knowledge (Smith, 1978).

Closure of non-performing schools. Schools who offer BSCA courses must actively participate in the yearly Customs Broker Licensure Examination, and produce number of examinees and passers. For those schools that produce less number of examinees and no passers for two consecutive years must close their Customs Administration Program because they are not capable of giving their students the exact knowledge and learning to make them a successful Custom Broker (Barker, 2013).

Hire qualified and competitive instructor. To qualify, as an instructor of Customs Administration must pass the Licensure Board Examination and must have a right knowledge of the Tariff and Customs Law. He/she shall have the heart and the welfare of the students, inculcating to them a deep interest in their studies, exposing them to meaningful experience in life, and instilling in their young minds the ideas of honour, justice, and morality (Khurshid, 2008).

Formulate better review program. Taking board exam is not that easy. It needs effort and time. Before taking the Customs Broker licensure examination, the candidate must undergo a review program that could give a candidate an overview to the scopes of the examinations in order to have a better chance or else it could affect the school performance if the candidate would not perform well in the examination. A better review program taken by the candidates will give more chances of getting higher passing percentage. This will give honour to the school (Llorando, 2006).

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Features of Classroom Formative Assessment

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Abstract

The present report addresses the need to describe and explain the important features of formative assessment when used with instruction. There are nine principles that explain both theory and practice in the conduct of formative assessment inside the classroom. These nine principles serve as a set of expectations to help teachers ascertain better practice of formative assessment when teaching. These nine principles include: (1) Formative assessment works along with the perspectives of assessment “for” and “as” learning; (2) Formative assessment is embedded with instruction; (3) Helping the students focus on the learning goal; (4) Diagnostic assessment on the target competency serves the function of formative assessment; (5) Formative assessment moves from determining discreet skills to integrated skills; (6) Using continuous and multiple forms of assessment; (7) Feedback practices using assessment results; (8) Working out with students to reach the learning goal; and (9) Deciding to move instruction to the next competency.

Keywords: Formative assessment, K to 12 assessment, classroom assessment, feedback practices

Introduction

One of the powerful ways of improving students learning that gained attention in educational reviews is formative assessment. Since Black (1993) and Black and William (1998) established the construct of formative assessment in scholarly reports, there has been several best practices that were documented. These reports explain how theory on formative assessment is translated into actual classroom practice. In 2001, Torrance and Pryor has started the argument in refining theory on formative assessment by looking at teachers’ action research documenting how assessment criteria and processes are communicated to students. Tarras (2005) has called for a guiding definition of formative assessment alongside with summative assessment. Some of these important reports that addressed issues on formative assessment at the start of the 21st century include Clark (2012a) who showed that formative assessment is an instructional process that builds lifelong learning competencies. In the same way, Heritage (2010) explained formative assessment as part of facilitating the learning process stemming from Vygotsky’s (1978) Zone of Proximal Development. Yorke (2003) has also emphasized formative assessment as a way of improving the instructional process in higher education. Clark (2012b) has also drawn a theory of formative assessment detailing how it builds students ability to self-regulate. In a similar fashion, Hudesman et al. (2013) has

investigated how classroom formative assessment together with metacognition improved students' achievement. The concept of formative assessment has been clarified from the 1990's until the early part of the 21st century. Empirical evidences need to be proposed to test how effective is formative assessment in the educational process. One of the recent developments in the practice of formative assessment is the emphasis on feedback and its power in improving students achievement. Tunstall and Gipps (1996) have made a typology on different kinds of teacher feedback as part of the formative assessment practice. Hattie and Timperley (2007) provided a conceptual analysis of feedback and reviewed several studies on its impact on students' performance. These studies at the onset of the 21st century have advanced the theory on formative assessment.

Another line of discussion on formative assessment is the translation of the theory and practice into national and educational policies (i. e. Eccleston & Pryor, 2003; DepEd order no. 8, s. 2015). A clear set of expectation needs to be outlined on formative assessment in order for educators to implement well the policies on formative assessment. This report addresses the need of educational practitioners especially those that are teaching within the K to 12 levels. A set of expectations that characterizes the practice of formative assessment is provided in this report. This set of practices follows the assumption that formative assessment is anchored on a theoretical framework within a socio-cultural theory emphasizing on the role of the teacher to facilitate students' learning. A second assumption is that there are various evidences specifying the power of formative assessment on reaching students' gains on achievement.

There are nine principles explained in this report describing the critical features of formative assessment. These nine critical features define how formative assessment was derived from various reviews and the present report presents these features to depict an overall practice of formative assessment.

1. Formative assessment works along with the perspectives of assessment “for” and “as” learning. Assessment begins with a change in perspective. Assessment is beyond the idea of recording, checking, marking, and grading students. Assessment should be seen beyond test papers and recognized as a set of practices that is more vital and functional in helping students learn better. Assessment “for” learning raises the idea that assessment is used to motivate students to learn further (Stiggins, 2002). Results of assessment, such as test scores and feedback using rubrics and checklists, should be used by teachers to help them direct their instruction on the learning needs of their students. Related to the previous point, assessment served two purposes. One is that it helps the teacher decide on the appropriate kind of instruction for the students. Second is that the students will benefit much from the instruction because it matches their specific needs. In the idea of assessment for learning, the teacher uses assessment in order to determine what the students know and do not know, what they can do and cannot do, and their misconceptions, and their confusions. The teacher then addresses these needs by providing information on what students do not know, more opportunities to practice what students cannot do, correct misconceptions, and clarify confusions.

On the other hand, assessment “as” learning ensures that students decide on ways to improve themselves by looking at their assessment results. When students start to take action on what they donot know and start to become strategic to attain their goals they become conscious and aware of their own learning and develop self-regulation (Clark, 2012b; Magno, 2009) and metacognition (Hudesman et al., 2013; Magno, 2010). Students become aware of their assessment results when they make a checklist of what they know and what they need to know, when they graph their progress, and when they maximize the use of portfolios to see their progress over time. The outcome of assessment “as” learning is twofold. First, it helps students to become strategic by thinking of a variety of learning strategies to attain their goal (self-regulation). Second, it assists students to become conscious on the conditions in which these strategies work best (metacognition) and ultimately students achieve improved performance.

2. Formative assessment is embedded with instruction. The idea of an effective assessment system that translates to students' achievement and other outcomes is when assessment is integrated with instruction. Assessment when it becomes part of instruction is positioned in every key part of the teaching and learning process such as before instruction, during instruction, and after instruction (McMillan, 2011). Assessment takes an active and important role before instruction. Assessment before instruction serves as a diagnostic assessment. There are two domains that can be determined in the diagnostic process. One is the prior knowledge of the learner which is also a summative assessment of the past lesson. This phase helps the teacher determine how strong is the connection between the past and prerequisite skills to the new lesson. In cases where students have not acquired the prerequisite skills yet, the teacher can decide to review the past lesson first before moving to the new lesson. Another is that diagnostic assessment determines if the students are already knowledgeable of the lesson or competencies that are about to be taught. In other words, diagnostic assessment can determine the existing schema of the learner for the new lesson that will be taught. When the learner could not demonstrate the schema required, the teacher can approach the lesson as introductory. If the schema is already advanced for the new lesson, the teacher can introduce advanced levels or move to the next lesson.

Assessment is also integrated during instruction. This is the kind of assessment that is done while teaching is ongoing. Conducting assessment while instruction is ongoing is described as a double helix model. Assessment and instruction become intertwined improving on each other. While presenting a lesson, the teacher stops at certain points in time to check for understanding and coping. The teacher stops after every small part of the presentation to ask questions, ask students to demonstrate the skills, conduct board work, monitoring during group work, and feedback during practices and performances. The formative assessment while instruction is ongoing allows the teacher to closely monitor the progress of the learner. The adjustment based on students needs include the pacing in the instruction whether it is appropriate for learners. The teacher continually improves the instruction based on the responses and answers of the students.

Formative assessment at the end of the lesson allows the teacher to see whether the objectives are already met by the students. If the students can demonstrate well the task, then the teacher uses the results to decide on the next step in the instructional process (Clark, 2012a).

3. Helping the students focus on the learning goal. Formative assessment starts when the goals that need to be learned is clear for both the students and the teacher. These goals may come in the form of learning competencies, skills, and standards that are prescribed in a national or international curriculum. These competencies are used as basis on the kind of assessment that needs to be conducted and the contents of the assessment. These goals may require competencies to be demonstrated using paper and pencil tasks or performance-based tasks. The goals also help the teacher create diagnostic assessment of students' schema. If the goal requires students to "classify matter that absorb water, sink, float, and decay" the diagnostic assessment should at least enable students to engage in a classification task in a paper -and -pencil task or written work.

The learning goals are important because it serves as the target for the teacher and the student on what need to be worked out. If the goal is to "solve word problems involving quadratic equation", and students during the diagnostic assessment showed difficulty on this task, the teacher starts to think of appropriate steps to help the students achieve this competency. On the other hand, the students become focused on what they need to do in attaining the competency.

Making students become aware of the competency can be done in a variety of ways. The teacher can directly tell the students before the start of the lesson on what they need to

learn, demonstrate, and be able to do. An advanced organizer is helpful to show the outline of what students need to learn for the lesson (Hudesman et al., 2013). The kind of questions and items asked in the diagnostic assessment can hint students on the lesson to be taken up. Asking the students create a concept map of what they know about the term is helpful in making student realize the big idea in the lesson (Hattie & Timperly, 2007). Students can also accomplish a checklist containing the subtopics and specific competencies to be learned. These strategies help students realize the goals of learning. The goals help them focus to think about ways on how to reach them (Yorke, 2003).

4. Diagnostic assessment on the target competency serves the function of formative assessment. Diagnostic assessment is generally provided before instruction is provided to determine if students already have an existing schema and prior knowledge on the target competency (Parhomenko, 2014). If the target competency is for learners to determine the place value of digits up to thousands place, a set of digits are provided where one digit is underlined and they will identify the place value. This task is given to the learners before instruction. The work is later checked if students can identify the place value. In the same way, if the teacher wanted to determine students existing understanding of photosynthesis, the teacher can ask students to list sentences about how photosynthesis works. If a physical education teacher aims to diagnose students' ability to serve a shuttlecock in badminton, learners are asked to demonstrate the serving before instruction. The responses in diagnostic assessment raises concerns that include misconceptions, misinterpretations, confusions, difficulties in demonstrating the skill or a schema that is not yet developed. In the perspective of Vygotsky's zone of proximal development, this is the learner's stage of actual development (van Geert, 1998).

Given the difficulties, the teacher is given information on how to approach instruction in order to clarify confusions, correct misconceptions, teach skills that are not yet known, and provide opportunities to practice tasks that need enhancement. The diagnostic assessment helps the teacher focus instruction where corrective feedback is necessary for students with misconceptions about photosynthesis. Clarification on place value is provided for students who still cannot identify. More time to practice serving the shuttlecock is provided by the physical education teacher for learners who still have difficulty. Instruction anchored on diagnostic assessment is tailored to the needs of the learners addressing their difficulties. In rare cases, students might have gained the necessary competencies as shown by the diagnostic assessment. In such cases, further and lengthy instruction may not be necessary anymore and the teacher can decide to just provide a review and then move on to the next lesson. Further assessment needs to be conducted later on to determine if students have progressed on the target competency.

5. Formative assessment moves from determining discrete skills to integrated skills. Formative assessment involves a gradual process from determining students' ability to demonstrate single skills to integrated skills. When students need further scaffolding on a skill, the teacher starts by assessing single discrete skills (Torrance & Pryor, 2001). For example, in the English language subject, students are assessed if they can determine whether the noun agrees with the verb. When students have attained mastery on this skill, the teacher can ask the students to write an essay where the sentences show proper subject and verb agreement. At this stage, the student is assessed on two things: one is their ability to write the paragraph and second is their ability to use verbs that agrees with the subject in the paragraph. A two stage assessment is conducted in order to help the student master each skill first before they are assessed on multiple skills. The two -stage process of assessment eases the cognitive load of the student when two skills are already required and assessed (Sweeler, 1994).

6. Using continuous and multiple forms of assessment. Formative assessment gives the teacher accurate information about students' level of competency if the process is done several times. When the teacher initially assesses the students' competency and found that there is still a certain number of students who could not do the task, it informs them that the lesson needs re-teaching and the strategy needs to be taught in a different way. After re-teaching, the teacher needs to conduct another round of assessment in order to determine if learning took place. The round of re-teaching and re-assessing continues until majority or all of the students are able to meet the competency of the same task needed. In this process, learning is ensured to take place. Various definitions of formative assessment include a focus on moving forward and making improvement on instruction (i. e. Black, 1993; Frey & Fisher, 2011; Stigler, 2010). Instruction improves if the teacher is continuously informed whether the learners are attaining the skill or not. An important aspect of formative assessment is the improvement of instruction because it is informed by several assessment results. Multiple assessments are necessary for two reasons. One is ensuring that skills are practiced and enhanced and to establish a reliable assessment of students competency (Turnstall & Gipps, 1996). If students have indeed mastered a competency, the mastery should be evidenced by consistent results from multiple sources of assessment.

7. Feedback practices should be alongside with the assessment results. There are several reviews and empirical reports supporting the power of feedback on improving students' performance (Tarras, 2005). Feedback is given directly to a student and the specific aspect of learning that needs to be improved is pointed out and addressed through feedback. When a child makes a mistake in a spelling of a word while writing a paragraph in the process of formative assessment, the teacher immediately provides the correctives enabling the child to revise and improve their work. Feedback comes in two forms according to its time implementation. First, performance or students' work needs to be demonstrated first then feedback follows (Hudson et al., 2013). This usually occurs when doing written seatwork and exercises with a large group of students. The work needs to be completed then checking and corrective feedback follows. When the teacher provides the correct answers during the checking, it serves as a corrective feedback for the student. For assessment tasks that are done as an assignment, the students bring the completed work in school. The completed work is brought to school and is then provided feedback. Feedback can come in the form of written comments, checking for mistakes, and verbal comments. For performance-based tasks, the learner completes the performance, then feedback is provided about the strong and weak points. The disadvantage of feedback after performance is losing the chance to immediately correct the work of the learner. If assessment will fulfill its role to help the learner improve their learning, then assessment should be functional to help the child attain the necessary criterion.

Another form of feedback is provided as a support to the learner while assessment task is ongoing (Clark, 2012b). This form of feedback happens while the students are accomplishing written seatwork like exercises and essays, the teacher can specifically point out what needs to be checked again, improved, revised, changed, or reworked. When a teacher notices incorrect solutions, procedures, and derived answers in solving mathematics word problems, the child is asked to check again his work. When there are deviations in the writing mechanics during essay writing in a language class, the inconsistency is pointed out and the learner is requested to revise. When there are misspelled words, these are pointed out to be immediately corrected. During performance-based tasks, the teacher can provide nonverbal cues as a form of feedback while the learner is delivering the performance. These nonverbal cues are meant to prevent the learner from getting low marks and to maintain the performance within the criteria. Nonverbal cues during performance-based tasks are used to feedback on loudness of voice, maintaining eye contact, movement in one's place, tone of voice, breathing, and others.

Feedback is provided during formative assessment to allow the child on focused revision (Hattie & Timperly, 2007). The result of formative assessment is not graded allowing the learner to make continuous improvement and revisions in one's work. After specific feedback is given in a written essay, the student rewrites the essay in another draft addressing the feedback provided. The rewritten work is an improved version of the essay which is closer to the target criteria and competency required. The cycle of feedback and revision in the formative assessment process continue until the learner moves closer to the standards. This aspect of formative assessment makes it powerful in explaining students' performance.

Feedback also makes it possible for assessment to be integrated with instruction. The process of feedback, revision, teaching, and reteaching are intertwined in order to scaffold the learner and to ensure that the competency is developed. Formative assessment will not serve its function to ensure learning if the feedback, revision, teaching, and re-teaching are absent in the process. The process also assumes that when feedback is provided, teaching is already ongoing.

Feedback is said to be powerful in ensuring the learning of students. The quality and type of feedback given by teachers to students is very important. For example, a positive feedback can increase the persistence of an individual with the at-hand that interests them (Deci, Koestner, & Ryan, 1999). Feedback is an important component which helps teachers make students' perform better. Feedback also helps students become self-regulated learners since it gives them an idea of what they could improve on. Asking for help is said to be one of many types of self-regulation which distinguishes that students who receive feedback perform better than those who didnot (Hattie & Timperley, 2007). Feedback also lessens the gap between the actual outcome by the student and the expected outcome by the teacher.

8. Working out with students to reach the learning goal. The ultimate goal of formative assessment is to bring the students towards learning by reaching the learning goal. Repetitive, continuous, and multiple assessments are provided in order to move the learner closer towards the goals. In between the assessment, further support is provided through teaching and re-teaching. The teacher needs to focus instruction on the target standard to help learners move toward the goal. This can be accomplished through intentional teaching (Clark, 2012a). In intentional teaching, time is devoted on teaching the necessary competencies found in a set of standards. In this approach, both instruction and assessment are focused on the goal that the learner needs to meet. In the same way, instruction and assessment are aligned with the necessary performance standards. The teacher continuously observes and monitors students' progress until they reach the goals.

The idea of teaching for learning and reaching the learning competency is explained in Vygotsky's zone of proximal development. In order to bridge the gap between what the child does not know to a child who knows, the child needs to socialize with a more expert learner, with learning resources, and with the physical environment (van Geert, 1998). The gap is eventually closed when the child starts to demonstrate skills and can accomplish the assessment tasks.

The learning goals are met as evidenced by acceptable level of standards in the summative assessment (Tarras, 2005). If the attainment of learning goals is shown in the summative assessment, the formative assessment, therefore, has fulfilled its role to scaffold students in their learning. If problem solving involving division of decimals are part of the summative assessment, the students need to be practiced in the same skill during the formative assessment. If the final performance is for students to demonstrate proper ways of disposing matter, examples and exercises needs to be provided on different ways of proper disposal. The processing of moving towards the learning goal is well-accomplished if the teacher and students are clear with the goal they need to meet and the tasks are directly aligned with the goals.

9. Deciding to move instruction to the next competency. The indicator that students are ready for the new lesson is when majority or all students can demonstrate the target competency (Yorke, 2003). If about three or two students are still having difficulty, the teacher can work out the task with them on a separate time. The final phases of reteaching and reassessing learners should indicate that progress is attained until such a time that the learners are ready to take the summative assessment. The continuous and multiple assessments should ensure that learners move closer towards the goal. The results of the final phase of the formative assessment or the summative assessment should help the teacher decide if students can move on to the next lesson.

The Value of Formative Assessment

The present report set out to explain two important points about formative assessment. First is how formative assessment can be used by educational practitioners in the K to 12 levels in facilitating better learning. The other is the power of formative assessment in the achievement of students in reaching their goals.

In describing formative assessment, it is also important to emphasize the value and application of instructional practices integrated with assessment in facilitating students' learning. The value of formative assessment can be seen for both teachers and learners. Since formative assessment is embedded with instruction, teachers can properly identify the areas of students' weakness (before instruction) and make the necessary intervention to improve their students learning. For the teachers, they can determine the necessary changes and improvement in the delivery of the lesson which can be later incorporated when re-teaching. Teachers can also make the necessary assessment on students learning to either advance in the levels of the lesson or move to the next competency. The teacher plays a central role in the practice of formative assessment (Black & William, 1998). The teacher serves as the mediator between the lesson and the learner. The teacher is there to reduce the error made by learners especially when the learners do not have a full grasp of the lesson. The feedback of the teacher is important in improving the performance of the students which in turn makes learning more effective.

Formative assessment not only helps the learner attain the target competency, learners also become aware of their own learning. Sadler (1989) concluded that formative assessment is important in developing students' capability to monitor the quality of their work. This means that the more students engage in formative assessment, the better they will get in being critical in judging their own work. Formative assessment is also important since students can do self-monitoring with competence (Magno & Lizada, 2014). The process of formative assessment facilitates self-regulated learning. Results of a study about self-regulation (Clark, 2012b) emphasized that students who are self-regulated have effective study habits, can manage time efficiently, and structure a productive working environment as part of their behavior. The feedback provided by the teacher allows students to process their work individually and evaluate their work on their own. When this happens they develop their capacity for metacognitive thinking (Clark, 2012b). In a study of self-regulated learners, Hudesman et al. (2013) found that students who are self-regulated learners showed significant academic progress as compared to those who were not. This finding leads us to the assertion that self-regulation and metacognition are important in developing effective learners. Both self-regulation and metacognition are products of effective formative assessment which adds to its value in the facilitating learning.

Formative assessment also opens the door in the interaction between the student and the teacher regarding the quality of work. This interaction is important because not only does the process improve communication, but more importantly, this creates a positive learning environment for the student in terms of learning. This interaction illustrates how the teacher and student can mutually benefit in formative assessment.

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Brief Report: Rasch Analysis of the Locus-of-Hope Scale

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Abstract

The Locus-of-Hope Scale (LHS) was developed as a measure of the locus-of-hope dimensions (Bernardo, 2010). The present study adds to the emerging literature on locus-of-hope by assessing the psychometric properties of the LHS using Rasch analysis. The results from the Rasch analyses of the four subscales of LHS provided evidence on the reliability, validity, and measurement precision of the LHS.

Keywords: locus-of-hope, Rasch analysis, reliability, validity, measurement precision

Introduction

An important framework in our understanding of hope is Snyder's hope theory (1994; 2000) which conceptualizes hope as a cognitive motivational system that enables a person to engage in goal-directed behaviour even in the face of obstacles. Snyder's hope theory defines hope as "the process of thinking about one's goals, along with the motivation to move toward those goals (agency), and the ways to achieve those goals (pathways)" (Snyder, 1995, p.355). The pathways and agency components of hope are assumed to be trait-like dispositions and are both regarded as necessary for hopeful thinking to occur in the pursuit of one's goals (Snyder et al., 2002). Recently, Bernardo (2010) extended Snyder's hope theory by proposing the *locus-of-hope* model whose core feature is the conceptualization of trait hope as having an *internal locus* and *external locus*. Bernardo (2010) argued that goal-directed agency and pathways may not necessarily be purely individualistic as they may also be grounded on other persons and external agents. Bernardo (2014) explained that the locus-of-hope model is consistent with the view that a conjoint model of agency may exist in many collectivist cultures that emphasizes the roles of other people in a person's goal attainment. Moreover, the locus-of-hope model (Bernardo, 2010; 2014) also identifies three distinct sub-dimensions for external locus of hope; *external locus-family* (hope is placed on one's family), *external locus-peers* (hope is placed on friends or peers), and *external locus-spiritual* (hope is placed on God or some superior spiritual being or force).

To empirically validate the locus-of-hope model, the Locus-of-Hope Scale (LHS) was developed by Bernardo (2010) as a measure of the locus-of-hope dimensions. In the LHS, there are four subscales corresponding to the four locus-of-hope dimensions. The LHS consists of 40 items and requires respondents to indicate how each item describes them using a Likert-type scale. The items in the internal locus-of-hope subscale were adapted from the

Dispositional Hope Scale (Snyder et al., 1991) which is a measure of hope as defined in Snyder's hope theory (1994; 2000). To be consistent with Snyder's theory and the original hope scale, each of the three external locus-of-hope subscales also has four items measuring agency and four items measuring pathways.

The psychometric validity of the LHS was examined in various studies and findings provided evidence that the LHS is a valid and reliable measure. For instance, results from confirmatory factor analysis (CFA) of the LHS using data from Filipino samples yielded acceptable factor loadings and goodness of fit indices (Bernardo, 2010; 2014). Measurement invariance of the LHS in terms of gender was also documented (Bernardo, 2014). There is also evidence for the cross-cultural validity of LHS as the instrument was deemed a valid measure of the locus-of-hope dimensions among a sample of college students from Macau and Hong Kong (Du, Bernardo, & Yeung, 2015). Nevertheless, the psychometric properties of the LHS have yet to be fully examined. There is actually no study yet on the psychometric validity of LHS other than studies using CFA or analysis of measurement models. Moreover, the reliability analysis of LHS using internal consistency measure (Cronbach alpha) yielded marginal reliability scores ($< .75$) on some of the subscales (e.g. Bernado, 2010; 2014; Du & King, 2013). Hence, there is a need to further examine the psychometric properties of the LHS. The purpose of the present study is to further validate the LHS through *Rasch analysis* using data from a sample of Filipino college students.

Method

Participants

Participants were 1,660 college students from a private university in Manila, Philippines. There were 1,055 female and 604 male participants (one participant did not indicate his/her gender). The participants ages range from 16 to 25 years old (Mean age = 18.69 years).

Measure

The Locus of Hope Scale (LHS) was used to measure the participants' locus-of-hope. The LHS has four subscales that correspond to the four locus-of-hope dimensions. Each subscale is measured by 8 items and the full scale contains 8 additional items that serve as filler items. Utilizing a 4-point Likert-type scale, participants indicated the extent to which each item describes them using a scale of 1 (*definitely false*) to 4 (*definitely true*). Sample items are: "I can think of many ways to get out of a problem (internal locus), "My parents find many ways to help me solve my problems" (external locus-parent), "My friends usually help me find many ways to get out of problematic situations" (external locus-peer), and "God always finds ways to help resolve my problems" (external locus-spiritual).

Procedure

The LHS was administered to the students during SY 2014-2015. One of the researchers and a number of assistants administered the LHS and a survey questionnaire for the students' demographic profile during regular classes. Informed consent was provided by the students prior to the data gathering.

Data analysis

Since the unidimensionality of each of the four locus-of-hope subscales is a prerequisite for the conduct of Rasch analysis, a series of principal component analysis (PCA) were conducted. Results of the PCA as evidenced in the number of extracted factors, variance

explained of the first factor, and the scree plot in each of the subscales provided support for the unidimensionality of the four locus-of-hope subscales. Rasch analysis was then performed for each of the locus-of-hope subscales using the Rasch Rating Scale Model (RRSM). Specifically, the software WINSTEPS was used to generate and examine the reliability, separation, threshold, item fit, and item difficulty estimates of the LHS.

Results and Discussion

Reliability

Rasch analysis yielded the following reliability estimates for the LHS subscales: Internal Locus-of-Hope (IL) = .99 (RMSE = .05); External Locus-of-Hope- Parent (ELPA) = .99 (RMSE = .06); External Locus-of-Hope- Peer (ELPE) = .99 (RMSE = .05); External Locus-of-Hope-Spiritual (ELSP) = .97 (RMSE = .07). The item reliability estimates indicate very high internal consistency for the items of each subscale. These reliability estimates are much larger than the reliability estimates measured through Cronbach alpha that were reported in studies which made use of the LHS (e.g. Bernardo, 2010; 2014; Du et al., 2015; Du & King, 2013). As seen in the RMSE values, the errors associated with the reliability estimates for all subscales are very low. For person reliability, the following are the obtained estimates: IL = .77 (RMSE = .73); ELPA = .84 (RMSE = .79); ELPE = .86 (.77); ELSP = .88 (RMSE = .86). The person reliability estimates indicate high internal consistency, except for IL which is reflective of moderate internal consistency. However, the errors associated with these estimates are high which suggests lack of measurement precision.

Separation

Item separation estimates for each of the four subscales indicate sufficient spread of items as evidenced by the following estimates: IL = 8.31; ELPA = 8.74; ELPE = 11.49; ELSP = 5.36. These estimates suggest that the persons who answered a subscale are able to efficiently separate the items used in that subscale (e.g. internal locus-of-hope). On the other hand, person separation estimates for each of the four subscales indicate acceptable spread: IL = 1.83; ELPA = 2.32; ELPE = 2.44; ELSP = 2.64. These estimates suggest that the items of a subscale are able to adequately separate the persons measured by the subscale.

Thresholds

Structure calibration or Rasch-Andrich threshold refers to the calibrated measure of transition between categories and it indicates how difficult it is to observe each category (Hart, Mueller, Royal, & Jones, 2013). There should be a monotonic increase in threshold values as category values increase. Hence, higher scale categories must reflect higher threshold values. As can be observed in Table 1, the threshold values increase as the category values increase and this is consistent across all subscales of the LHS. Moreover, the distances between threshold estimates are within the recommended distance of 1.4 to 5 (Linacre, 1999). These results provide evidence that the participants in the study were able to distinguish between categories of the response options.

Item Fit

Item fit statistics indicate the degree to which the data fits model expectations. INFIT and OUTFIT statistics can provide information on whether or not an item is noisy or may be producing calibrations that are not desirable for productive measurement (Hart et al., 2013). Table 2 shows the item fit statistics of the four locus-of-hope subscales. For rating

scales, item fit values ranging from 0.6 to 1.4 are considered desirable (Wright & Linacre, 1994). Using the aforementioned criteria, the INFIT and OUTFIT mean square statistics for all the items in all LHS subscales demonstrated fit or noise-free calibrations, except for Item 5 of the External Locus-Peer (ELPE) subscale. While the fit statistics of item 5 is not degrading to measurement as it is within reasonable range, the content of this item should be reviewed to assess how similar or different it is in comparison with the other items of the ELPE subscale.

Table 1
Threshold Estimates of the LHS Subscales

Subscale	Category*	Threshold
Internal Locus	1	NONE
	2	-3.00
	3	-0.47
	4	3.47
External Locus-Parent	1	NONE
	2	-3.89
	3	-0.23
	4	4.12
External Locus-Peer	1	NONE
	2	-3.60
	3	-0.54
	4	4.14
External Locus-Spiritual	1	NONE
	2	-4.18
	3	-0.39
	4	4.57

* 1 = definitely false; 2 = mostly false; 3 = mostly true; 4 = definitely true

Item Difficulty

Table 2 also displays the item difficulty estimates. In Rasch analysis of a rating scale, difficulty refers to the amount of ability or trait required for agreement with an item. An item with higher difficulty calibrations means a higher level of locus-of-hope dimension (e.g. external locus-parent) is required for participants to agree with that item. The results show that relatively high level of internal locus-of-hope is needed to agree with items 1, 23, and 30 whereas relatively high level of external locus-of-hope-parent is required to agree with items 16, 24, 32, and 39. Meanwhile, relatively high level of external locus-of-hope-peer is required for agreement with items 5, 26, and 38 and relatively high level of external locus-of-hope-spiritual is necessary for agreement with items 9, 17, 34, and 36. As observed, there is reasonable spread of item difficulty calibrations in all subscales. The adequate number of both easy and difficult items in each subscale means that the subscales can measure the locus-of-hope dimensions at either extreme (low and high level).

Table 2
Item Difficulty and Item Fit of the LHS Subscales

Subscale	Difficulty	INFIT MSNQ	OUTFIT MSNQ
Internal Locus			
Item 1	0.17	0.94	0.94
Item 6	-0.08	1.06	1.05
Item 14	-0.00	1.02	1.02
Item 20	-0.53	0.89	0.87
Item 23	0.81	1.02	1.05
Item 27	-0.22	0.89	0.87
Item 30	-0.51	1.21	1.22
Item 40	0.36	0.95	0.93
External Locus-Parent			
Item 3	-1.21	1.14	1.17
Item 7	-0.01	0.93	0.91
Item 11	-0.04	0.99	0.95
Item 16	0.26	0.96	0.93
Item 21	-0.09	1.21	1.24
Item 24	0.30	0.82	0.80
Item 32	0.22	0.92	0.91
Item 39	0.57	1.01	1.00
External Locus-Peer			
Item 5	1.12	1.54	1.58
Item 10	-1.08	1.23	1.22
Item 13	-0.50	0.91	0.85
Item 19	-0.03	0.94	0.90
Item 26	0.43	0.76	0.72
Item 33	-0.06	0.84	0.81
Item 35	-0.18	0.92	0.85
Item 38	0.30	0.79	0.76
External Locus-Spiritual			
Item 2	-0.24	1.08	1.07
Item 9	0.16	1.02	1.00
Item 15	-0.71	0.82	0.74
Item 17	0.59	1.25	1.25
Item 22	-0.31	0.93	0.87
Item 28	-0.03	0.85	0.81
Item 34	0.15	1.04	1.00
Item 36	0.39	0.95	0.90

Conclusion

The present study provides additional evidence on the reliability and validity of the LHS as a measure of the locus-of-hope dimensions and provides preliminary evidence on the measurement precision of LHS. In general, the results of the Rasch analysis show that the LHS has sound psychometric properties but may need further analysis especially on the item level. On the basis of the findings of this study, researchers and counselors are encouraged to use the LHS as a measure of the locus-of-hope dimensions.

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