




COLLEGE READINESS OF FILIPINO K TO 12 GRADUATES: INSIGHTS FROM A CRITERION-REFERENCED TEST

 Maria Mamba¹

 Antonio Tamayao²

 Rudolf Vecaldo^{3*}

¹Associate Professor, College of Arts and Sciences, Cagayan State University, Carig Campus, Philippines.

Email: mariamamba@yahoo.com Tel: +639157044550

²Professor, College of Teacher Education, Cagayan State University, Andrews Campus, Philippines.

Email: toni_tamayao@yahoo.com Tel: +639175211198

³Associate Professor, College of Teacher Education, Cagayan State University, Andrews Campus, Philippines.

Email: rudolfvecaldo@gmail.com Tel: +639267609533



(+ Corresponding author)

ABSTRACT

Article History

Received: 17 June 2020

Revised: 29 July 2020

Accepted: 3 September 2020

Published: 21 September 2020

Keywords

College readiness

College readiness test

College admission test

Criterion-referenced measure

Concurrent validity.

The graduation of the first two batches of the Filipino senior high school (post-secondary) graduates calls for an examination of their college readiness since admission to tertiary education is one of the curricular exits of the K to 12 Program. Using the College Readiness Test (CRT) as a criterion-referenced measure, this study determined the college readiness of the K to 12 graduates based on the overall CRT results and specifically in its seven (7) learning areas namely English, Filipino, Literature, Mathematics, Science, Social Studies, and Humanities, which ought to be mastered in the K to 12 Program. The test of concurrent validity has proven that the CRT is a credible measure of college readiness in these learning areas. It has also ascertained this concurrent validity of the CRT in relation to a College Admission Test (CAT), which is a norm-referenced test that measures the college readiness of K to 12 graduates admitted in one public university in the north-eastern part of the Philippines. As a descriptive-correlational research and using 7,533 K to 12 graduates as respondents, it was found that overall, the K to 12 graduates were college-unready. They poorly performed in Science and Mathematics but manifested college readiness with languages and literature. Also, campus assignment plays a significant variable in explaining the differentials in the college readiness of the respondents. On the whole, the study offers manifold benefits for policy reforms along curriculum alignment, tertiary admissions, and transition interventions to improve the quality of the K to 12 graduates.

Contribution/Originality: This study is one of the first attempts to document the college readiness of Filipino K to 12 graduates as a response to the call of the Philippine Congress to examine the quality of the K to 12 graduates. This study is going to be an input for policy formulation among DepEd, CHED and HEIs along instructional delivery, curricular reforms, college admissions and retention, and intervention measures.

1. INTRODUCTION

College readiness generally refers to the ability of the high school graduates to be admitted to college and to succeed in foundation courses without remediation. It focuses on the knowledge and skills essential to successfully pursue college (Baber, Zamani-Gallaher, Stevenson, & Porter, 2019). In fact, it is an evolving educational concept with the following takeaways. First, it has been understood in diverse contexts such as, “best practices” and completion of entry level courses (Conley, 2007; Conley, Aspengren, Stout, & Veach, 2006) degree attainment

(Mijares, 2007) and range of outcomes (Porter & Polikoff, 2011). Second, it has been construed as the exploration and evaluation of multiple measures such as competency-based assessments, course rigor, grade point average, class rank, assessments, and index score (Anderson & Fulton, 2015) and other dimensions. Third, it has drawn the attention of various states to adopt college readiness standards with financial backing from both public and private institutions and funding agencies (Baber et al., 2019).

These takeaways of college readiness have led the K to 12 Program stakeholders to delve on how to adequately prepare students in transitioning from high school to higher education with the ultimate goal of succeeding in their chosen careers. Consequently, worldwide researches on college readiness reveal the necessity for the students to be prepared for college (Conley, 2007). In the western context, for example, Dann-Messier (2011) reports that over 93 million adults in the United States lack the basic literacy skills necessary to be successful and to advance in college and in the workplace. In Texas, a non-profit research and assessment organization indicates that only about a quarter of its high school graduates are prepared for college (Advancing Quality in Higher Education Reference Group, 2012). Recently, it was predicted from a Harvard University study that by 2018, 90 percent of all jobs in the United States would require some form of postsecondary education or training, yet, almost 40 percent of those registered in the postsecondary education, and practically 50 percent of the students from community college still needed at least one remedial course when they enroll for their postsecondary studies. Such findings clearly indicate the gap in the skills and knowledge of students that are necessary for postsecondary school and work environments (National Conference of State Legislatures, 2012).

In the Philippines, the Department of Education (DepEd) graduated its first batch of senior high school graduates in 2018 after it had re-engineered its basic education from 10 to 12 years of schooling. However, there is a need to examine the college readiness of these graduates because some studies show alarming picture of the K to 12 students' performance. For instance, the Program for International Student Assessment (PISA) report revealed that the Philippines ranked 79th in reading skills with an average of 340 points against Organization for Economic Co-operation and Development (OECD) average of 487 points. Worse, Filipino students obtained low ratings in mathematics and science with 353 points and 357 points against 489 points by OECD (Paris, 2019). Furthermore, Philippine Institute for Development Studies (2020) reported that some Filipino senior high school students failed to develop basic literacy and numeracy skills particularly English language skills making student having difficulty in producing research outputs. In view of the foregoing findings, the Philippines government as part of its state responsibility called upon to ensure smooth transition of post-secondary students to tertiary levels. This is to continuously improve the educational standards and outcomes as a way of developing future quality human resource. As such, the Commission on Higher Education (CHED) came up with the College Readiness Standards (CRS) as the principal framework in ensuring quality and preparedness of post-secondary students to embark on tertiary education. It "consists of the combination of knowledge, skills, and reflective thinking necessary to participate and succeed – without remediation – in entry-level undergraduate courses in Higher Education Institutions (HEIs)" (Commission on Higher Education, 2011). Part of the readiness standards is the modification of the General Education Curriculum (GEC) which has the features of being liberal, learner-centered, inter/cross disciplinary, and context-based education (Commission on Higher Education, 2013).

Along access to quality higher education, the government also enforced the Republic Act No. 10931 generally known as the Universal Access to Quality Tertiary Education Act. This law provides free tuition and other school fees in State Universities and Colleges, Local Universities and Colleges, and State-Run Technical-Vocational Institutions (Porcalla, 2018). It also establishes the subsidy and loan programs for college students and reinforces the Unified Student Financial Assistance System (UniFAST) for tertiary education. With the enactment of this law, many K to 12 graduates have decided to take tertiary education as an exit in the K to 12 programs. These graduates have opted to enroll in public HEIs because of the benefits accorded by the law. As the only public HEI in the locale

of the study, numerous students desired to be admitted in the academic programs offered by the respondent-university.

Since the Philippines had already produced its two batches of post-secondary or senior high school graduates, there is now an urgent call to measure the college readiness of the K to 12 graduates vis-à-vis the CRS. So far, the only available measure is the Basic Education Exit Assessment (BEEA) for graduating senior high school students. However, results of the examination is utilized only for DepEd's feedback mechanism and not necessarily used as data for admitting students to college. In line with this, public and private HEIs administer their own admission tests, which are either self-made or purchased standardized paper and pencil tests. In effect, these tests measure varied competencies that may not be consistent with the competencies set by the CRS.

It is in the foregoing premises that this study was anchored on four (4) purposes. One is to address the dearth of empirical research on college readiness (Lee, 2012) to inform policy makers and curriculum implementers especially in the Philippines context. Second is to examine empirically the college readiness of the Filipino K to 12 graduates using the College Readiness Test (CRT) as a criterion-referenced tool. Third is to conceptualize research-based policy inputs that ensure smooth transition of K to 12 graduates from basic to tertiary education as well as tertiary admissions and transition interventions. Fourth is to examine the concurrent validity of the CRT as a measure of college readiness vis-à-vis a public university admission test, which is a norm-referenced measure.

Specifically, the study sought to (1) determine the college readiness of K to 12 graduates as revealed by the CRT results; (2) assess the college readiness of the K to 12 graduates in the seven (7) learning areas of the CRT; (3) determine the differentials in the college readiness of the K to 12 graduates by campus assignment; and (4) ascertain the concurrent validity of the CRT in relation to a College Admission Test (CAT).

2. LITERATURE REVIEW

2.1. Measures of College Readiness Abroad and in the Philippines

College readiness as an evolving concept is measured in various ways (Anderson & Fulton, 2015; Camara, 2013; Furgol, Fina, & Welch, 2011; Porter & Polikoff, 2011). In western countries, the usual measure is the State Accountability Tests (SAT) (Scott-Clayton, 2012). These are state-wide summative assessments, which are based on the Common Core State Standards (Flory & Sun, 2017; Welch & Dunbar, 2011). The items require both strategic skills (logical reasoning, critical thinking, and formulating a plan) and extended thinking skills (investigating a problem and synthesizing information). They also examine the congruence of the academic content the students have learned with the expected state standards (Miller & Happel, 2011).

Another common measure is the Grade Point Average (GPA), which is required as a criterion in most college applications (Bahr, 2009; Sanchez, 2013). According to Farrington et al. (2012) the measure of GPA includes more than academic knowledge as it incorporates perseverance, compliance, and time management. It is also indicative of students' ability to collaborate with others, to communicate their ideas, and even to create products.

Moreover, the course requirements or completion is another index of college readiness (Roderick, Nagaoka, & Coca, 2009). Students are required to complete a certain number of courses prior to graduation. This includes mathematics, science, social studies, arts, health, physical education, and foreign language. To validate such readiness, districts may require students to fulfill requirements for earning a high school diploma (Ahmad, Raj Segaran, & Md Sapry, 2020; Barnett, Fay, Bork, & Weiss, 2013).

Considering that examinations are crucial assessment tools (Camara, 2013) the graduation exit exams are viewed as gauge for college readiness (Barnett et al., 2013). These examinations ascertain the minimum level of academic competency as a pre-requisite for graduation. Unsuccessful examinees are not allowed to receive their high school diploma.

On one hand, the college entrance examination is the most popular type of readiness assessment as it is commonly used in colleges and universities. Passing marks in this assessment provides indications that students

will likely succeed specific courses in higher education (Hurwitz, Smith, Niu, & Howell, 2015). Also, results from this assessment are used to place students into non-credit remedial courses at a college or university (Maruyama, 2012).

In the Philippines, readiness among learners in various key grade levels is gauged based on the Policy Guidelines on the National Assessment of Student Learning for the K to 12 Basic Education Program (Department of Education, 2016). As such, among SHS students, exit assessment in Grade 12 is administered to determine whether they meet the learning standards of the SHS curriculum and prior to their entrance to SHS, a career assessment is administered to them in Grade 9 to determine their aptitudes and occupational interests for career guidance. However, it is unclear if these examinations actually measure college readiness of the Filipino K to 12 graduates. Accordingly, public and private HEIs administer their own admission tests and other arbitrary measures to determine the college readiness of their incoming first year college students. It is not certain, though, if all these measures capture the competencies defined in the CRS.

2.2. The College Readiness Test (CRT): A Criterion-Referenced Tool in Measuring K to 12 Graduates' Effective Transition to College in the Philippines

Since the K to 12 Program is a new education reform in the Philippines, the construct on college readiness is a new phenomenon that is given emphasis in basic and higher education. This scenario paved the way for the creation of a framework called the College Readiness Standards (CRS) because effective transition in college is viewed as an accountability of the basic education institutions to produce high school graduates who are ready for tertiary education. Despite the presence of this framework, there was no available standardized test measuring the preparedness of SHS graduates to hurdle tertiary education. The absence of a college readiness test creates a gap in examining the alignment of the students' competencies in their preparation for college life. Consequently, HEIs employ different means of measuring the preparedness of students in admitting them in their various programs. As Magno and Piosang (2016) opined, there are two major implications of the transition from SHS to college in the field of assessment: (1) HEIs and schools offering Grade 12 need to diagnose readiness based on the given competencies of the college readiness framework; and (2) Entrance exams need to be built using the CRS.

Premised on the foregoing contexts, a designed CRT was crafted and validated, which is one of the few, if not, the first attempts to measure such construct. The CRT was made possible through the DARE TO K to 12 Research Project (Commission on Higher Education, 2019). As claimed by Tamayao et al. (2020) the CRT addresses the need for a tool that is congruent with the CRS and that resolves the varied and arbitrary indices employed by HEIs to measure the preparedness of Filipino K to 12 graduates to enter in college.

Specifically, the designed and validated CRT is a criterion-referenced, which measures the college readiness of K to 12 graduates along their achievement in the content and performance standards in English, Literature, Filipino, Mathematics, Science, Social Science, and Humanities subjects. It measures the knowledge, skills, and critical thinking of K to 12 graduates and identifies who among them could be admitted in college and could pass the GEC without remediation.

2.3. Conceptual Framework

The college readiness construct in this study is understood in the following contexts: (a) the K to 12 graduates' advancement and mastery of the essential entry competencies defined in the CRS; (b) their ability to be admitted in college; and (c) their successful passing of the GEC without remediation. The competencies defined in the CRS consist of content standards (what students are expected to know) and performance standards (what students are expected to demonstrate). These are embodied in seven (7) learning areas namely; English, Filipino, Literature, Mathematics, Science, Social Studies, and Humanities, which must have been mastered in the K to 12 Program from kindergarten to Grade 12. As stipulated by Commission on Higher Education (2011) the CRS intends to "remove

the remedial character of entry-level college courses and to allow higher learning institutions to tighten the focus of their undergraduate curricula, as well as to conform to international standards.”

Considering that the CRS focuses on the attainment of competencies, measuring college readiness using a criterion-referenced tool is appropriate and essential. Thus, the CRT is utilized in the study as a measure of college readiness. Results of the test can be used to track the progress of students who have been produced by the K to 12 programs. This is possible because the test items are aligned with the specific curriculum program objectives. The CRT used in this study has a desirable difficulty index, reasonably good discrimination index, and large functioning distractors. It is also reliable as it possesses inter-item consistency with features of being gender-fair and contextualized. However, further validation is imperative to establish its concurrent validity vis-à-vis a norm-referenced test like the CAT employed in the respondent-university.

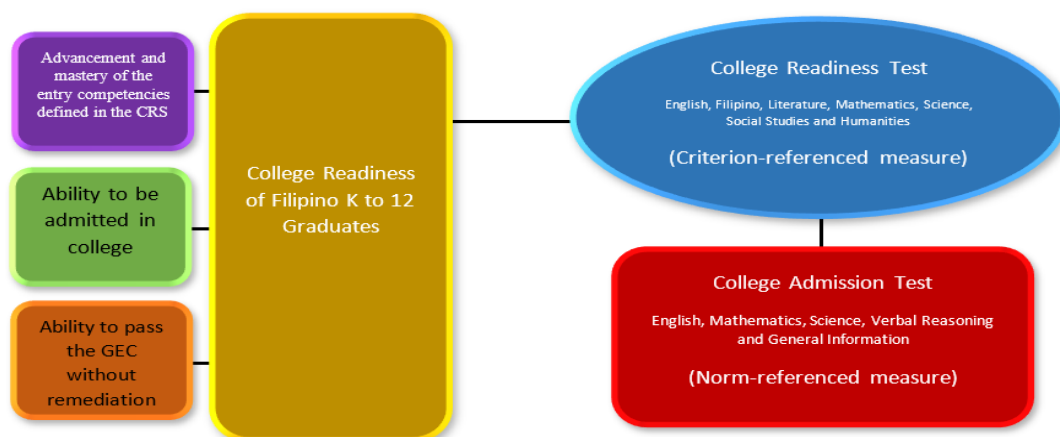


Figure-1. Schematic diagram of the conceptual framework.

Source: Research Paradigm (2020).

3. METHODOLOGY

3.1. Research Design

Descriptive-correlational research was employed in the study for two (2) reasons: First, it examined the college readiness of the K to 12 graduates enrolled in a public HEI in north-eastern Philippines. Second, it ascertained the concurrent validity of the CRT in relation to a College Admission Test. A descriptive correlational design was appropriately used when the study primarily described the variables and the associations between and among them but did not present any cause-effect relationship (Sousa, Driessnack, & Mendes, 2007; Williams, 2007).

3.2. Locale of the Study

The study was conducted in a public university in north-eastern Philippines. The university has eight (8) campuses, which are strategically located in a province. These campuses offer diverse academic programs that are congruent with the different tracks and strands of the K to 12 Program. Campus A is the seat of the university governance where the four (4) top performing and highly accredited academic programs (Medical Laboratory Science, Respiratory Therapy, Accountancy, and Teacher Education) are located and it ranks second in terms of student enrolment. Campus B has a niche program on fishery and marine biology. Campus C has the highest enrolment, budget, faculty population, and number of program offerings and it is located in a regional center. Campuses D and H are situated in the coastal municipalities with niche programs on agriculture and criminology. Campuses E and G offer agricultural programs focused on animal husbandry while Campus F has the smallest land area and student-faculty population with industrial technology as its banner program.

3.3. Respondents and Sampling Procedure

Out of the 8,601 first-year student population for the School Year 2019-2020 in the respondent-university, 7,533 (88%) were chosen as respondents of the study because they were K to 12 graduates. The twelve (12) percent were not included in the study because they were either graduates of Alternative Learning System (ALS) or Revised Basic Education Curriculum (RBEC) who are also considered student returnees. All the first year K to 12 graduates were included in the study distributed in the eight (8) campuses as follows:

Table-1. Distribution of the respondents according to campus.

Campus	Number of Respondents
A	1,625
B	1,079
C	2,716
D	444
E	308
F	213
G	446
H	702
Total	7,533

Source: DARE TO K to 12 database (2020).

3.4. Research Instrument

The CRT was designed and validated by the Project Research Team of the Discovery and Applied Research and Extension Trans/interdisciplinary Opportunities (DARE TO) Research Grant. It consisted of 200 items measuring the learning competencies defined in the CRS. It covered seven (7) learning areas, namely, English, Filipino, Literature, Mathematics, Science, Social Studies, and Humanities. Each learning area was composed of 28 to 30 items of which thirty-percent (30%) measured content standards (knowledge and comprehension) and seventy-percent (70%) measured performance standards (application, analysis, evaluation, testing assumptions, hypotheses, and relevant information). Moreover, it had a difficulty index of 0.64, discrimination index of 0.22, distractor efficiency of 68.91%, and inter-item consistency of $r=0.796$.

The CRT was administered by the researchers with the assistance of at least 25 university faculty members, 8 guidance counselors, and 8 psychometricians. The test administration was scheduled and conducted for each campus. There was a 100% response rate because the university officials provided enabling environment for the respondents to take the CRT such as proper scheduling and conduct of brief orientation.

The data on CAT were obtained from the University Admissions Office of the respondent-university. The CAT is a norm-referenced test developed by experts in Psychological Assessment and Evaluation of the University of Philippines. It measures the aptitude of K to 12 graduates necessary in pursuing a baccalaureate degree. As such, it has been used by the respondent-university as a tool to determine the college readiness of incoming first year students for the past two (2) academic years. It consisted of 300 items with five (5) subtests, namely, English, Mathematics, Science, Verbal Reasoning, and General Information. It had an index of difficulty ranging from .21 to .34 and inter-item consistency of .89.

3.5. Data Analysis

The descriptive statistics was employed to analyze the college readiness scores of the respondents across campuses and learning areas. The college-ready students were those who obtained at least 100 correct responses out of the 200 items in the CRT. Meanwhile, students were considered college-ready in a specific subtest (learning area) if they obtained at least 50% of its total items (Tamayao et al., 2020). Moreover, One-way ANOVA was used to examine the differentials in measuring the college readiness per campus and the Tukey Post Hoc Test was employed in determining which among the campuses significantly differed in the respondents' college readiness.

Lastly, Pearson r and Simple Linear Regression were used to ascertain the concurrent validity of the CRT in relation to CAT.

3.6. Ethical Considerations

The ethical standards and protocols were adhered to in conducting the study. Permission was sought from the concerned authorities of the university. The free and prior informed consent of the student-respondents was also obtained prior to the conduct of the study. Moreover, guidelines in test administration, checking, and scoring were strictly observed to ensure the credibility and trustworthiness of the data.

4. RESULTS

4.1. College Readiness of the K to 12 Graduates as Revealed by the CRT Results

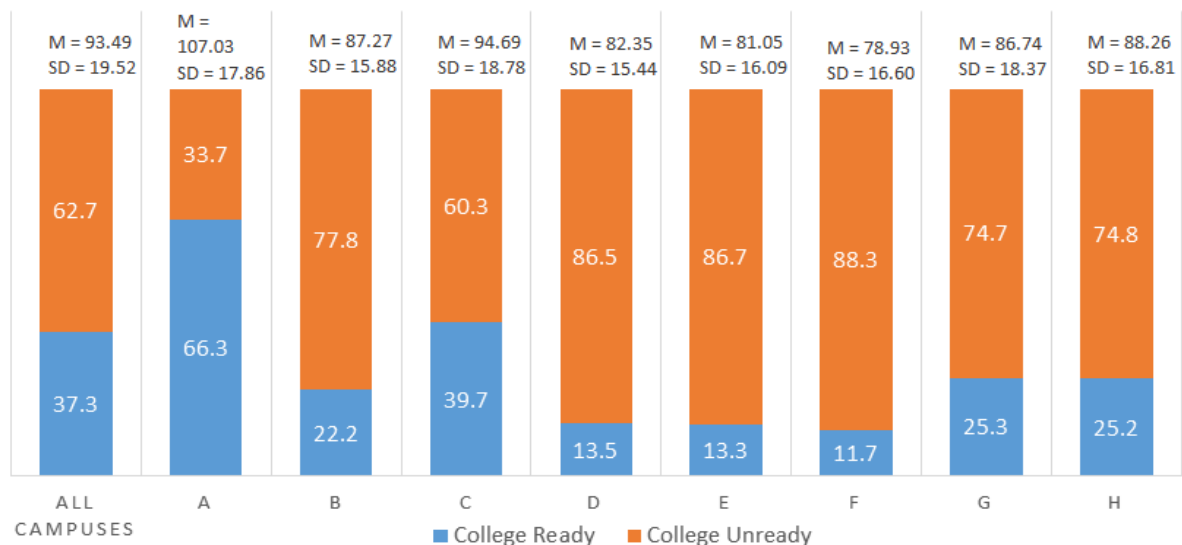


Figure-2. Graph showing the percentage of the college-ready and college-unready k to 12 graduates.

Source: DARE TO K to 12 database (2020).

Figure 2 reveals that the respondent-university admitted more college-unready (4,722 or 62.7%) SHS graduates than the college-ready (2,811 or 37.3%) ones. The general mean score of all campuses in the CRT is 93.49, which is below the passing score of 100. This finding signifies that only 2/5 of its first-year students are prepared for college. These are the students who manifest advancement and mastery of the entry competencies defined in the CRS, have the potential to be admitted in college, and have higher tendency to pass the GEC without remediation.

A careful perusal of the data shows that Campus A has the most number of college-ready students (1,078 or 66.3%) while Campus F has the least number (25 or 11.7%). The total mean score in the CRT for Campus A is 107.03 while all other campuses have a total mean score lower than the passing score. This signifies that Campus A is the only campus having the most number of potential students to succeed in college. Meanwhile, Campus F has also the lowest total mean score in the CRT (78.93) which calls for the greatest and most urgent instructional attention among the campuses.

4.2. College Readiness of the K to 12 Graduates in the Seven (7) Learning Areas of the CRT

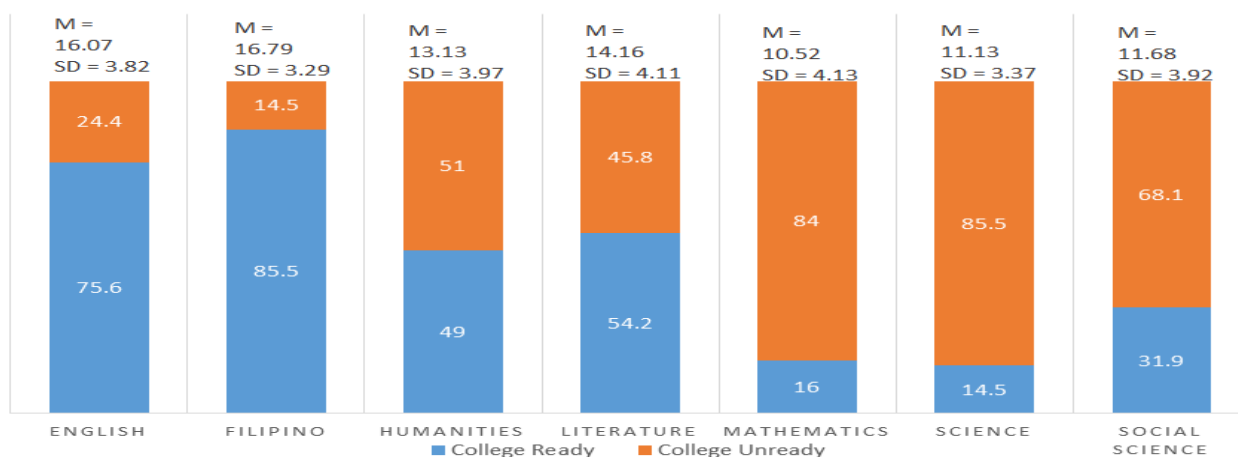


Figure-3. Graph showing the percentage of the college-ready and college-unready K to 12 graduates per learning area. Source: DARE TO K to 12 database (2020).

Figure 3 presents that the K to 12 graduates are college-ready along languages particularly Filipino (6,440 or 85.5%), English (5,696 or 75.6%), and Literature (4,084 or 54.2%). Out of 28-items for each of these three learning areas, the general mean scores for Filipino, English, and Literature are 16.8, 16.07, and 14.16, respectively. The college readiness of these students in language and literature subjects implies that they show competence along content and performance defined in the CRS. These include grammar, reading comprehension, inferring from texts and passages, and interpreting literary pieces.

On the other hand, very few students are college-ready along Science (1,095 or 14.5%), Mathematics (1,208 or 16%), Social Studies (2, 406 or 31.9%), and Humanities (3,692 or 49%). The general mean scores of these learning areas are as follows: Science (11.13 out of 30 items), Mathematics (10.52 out of 30 items), Social Studies (11.68 out of 28 items), and Humanities (13.13 out of 28 items).

4.3. Differentials in the College Readiness of the K to 12 Graduates by Campus Assignment

Table-2. One-way ANOVA result of college readiness by campus assignment.

Parameters	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	531213.318	7	75887.617	244.118	.000
Within Groups	2339258.796	7525	310.865		
Total	2870472.114	7532			

Source: Statistical Package for Social Sciences (SPSS) version 23.

Table 2 shows a significant difference in the college readiness of the K to 12 graduates based on their campus assignment as revealed by the computed F-ratio of 244.12 (p< .01). Thus, campus assignment explains the differentials in the college readiness of the respondents.

Remarkably, result of the post hoc test revealed that the college readiness of students enrolled in Campuses A and C is higher as compared to their counterparts. This difference may be attributed to the fact that both campuses have the highest number of enrolment, program offerings, budgetary appropriation, and physical plant and facilities. Also, they have the top performing and highly accredited academic programs and they are located in the city.

4.4. Concurrent Validity of the CRT in Relation to CAT

Table-3. Correlation analysis between the subtests of CRT and CAT.

Variables	Correlation Coefficient	Prob.	Statistical Inference
CRTEnglish x CATEnglish	0.563	0.000	Highly significant
CRTEnglish x CATGeneral Information	0.501	0.000	Highly significant
CRTEnglish CATVerbal Information	0.491	0.000	Highly significant
CRTLiterature x CATEnglish	0.651	0.000	Highly significant
CRTFilipino x CAT English	0.410	0.000	Highly significant
CRTScience x CATScience	0.462	0.000	Highly significant
CRTMathematics x CATMathematics	0.494	0.000	Highly significant
CRTSocial Science x CATGenInfo	0.532	0.000	Highly significant
CRTHumanities x CATGen Info	0.497	0.000	Highly significant
CRT Overall Scores x CAT Overall Scores	0.800	0.000	Highly significant

Note: df= 7532

Source: Statistical Package for Social Sciences (SPSS) version 23.

Overall, [Table 3](#) presents a highly significant correlation between the CRT and CAT. This significant positive correlation reveals that K to 12 graduates who scored high in the CRT also obtained high scores in the CAT. Notably, every subtest scores in both tests yielded a consistently high significant correlation which perhaps indicates two things: (1) congruence in terms of content and performance being assessed by the respective items of the tests; and (2) performance from the CRT effects performance in the CAT and vice versa. The congruence of the two (2) tests in content and performance indicates that the CRT as a criterion-referenced measure can contribute to the increase in the performance of the K to 12 graduates in passing the CAT, which is a norm-referenced measure. This result satisfies what research experts claim that the higher the degree of correspondence in function between the two tests, the more concurrent validity gets established ([Allen, 2017](#); [Glen, 2015](#); [Lin & Yao, 2014](#)). These indicators are further verified in a regression analysis shown in [Table 4](#).

Table-4. Regression parameters on the CAT scores of the students.

Predictors	Adjusted R ²	B Coefficient	Std. Error	t-ratio	Sig.
Constant		25.076	.713	35.160	.000
CRT Score	0.640	.864	.007	115.674	.000

Note: F-regression (df = 1/7531) = 13380.392 p = 0.000

Source: Statistical Package for Social Sciences (SPSS) version 23.

The calculation reveals that 64 percent of the differences in the CAT scores of the examinees could be explained by their performance in the CRT. For every unit increase in the CRT scores, the CAT score increases by 0.864 point (almost one point). This finding suggests that there is almost one-to-one correspondence between getting a correct score in CRT and likely a correct score in the CAT.

5. DISCUSSION

Using a criterion-referenced tool, results showed that the respondent-university has admitted more college-unready K to 12 graduates. This implies that the admitted K to 12 graduates lacked the essential competencies defined in the CRS particularly in Science and Mathematics. Such university scenario presents a microcosm of the nation-wide picture of K to 12 students who poorly performed in Science and Mathematics based on international assessments such as Trends in International Mathematics and Science Study (TIMSS) ([Balagtas, Garcia, & Ngo, 2019](#)) and PISA ([Paris, 2019](#); [Ylagan, 2019](#)). Considering the promise of the K to 12 Program, the study reveals a sort of incongruence in the avowal of the DepED with its produce. The gap may be attributed to the prevailing condition that the K to 12 program implementation has not yet been perfected. In this respect, all stakeholders of the Program are still adjusting and are still refining the mechanisms to realize all its goals. As reported by [Gatdula](#)

(2018) loop holes abound with the initial implementation of the K to 12 Program. The shortcomings may be attributed to teacher inefficiency, inadequacy of learning resources, and lapses in the curriculum. Moreover, since the respondents constitute the second batch of the K to 12 graduates, they are mere recipients of the adjustment process, which may have influenced, directly or indirectly, their college readiness.

On a positive note, data from the study showed that the graduates manifested college readiness along languages and literature. This could be attributed to one of the foci of the K to 12 Program, which is to harness the effective communication skills of the students in all their academic activities and learning areas (Psychological Association of the Philippines, 2013). However, in a recent report of Philippine Institute for Development Studies (2020) it claimed that some Filipino SHS lacked literacy and English competencies, which now runs counter to the findings of the present study. Nonetheless, caution is necessary on this ground since data of the present study came only from the result of CRT, which is a multiple choice type of test that does not measure actual performance in oral and written tasks.

Remarkably, campus assignment plays a significant variable in explaining the differentials in the college readiness of the respondents of this study. The study reveals that big campuses have more attractive power for college-ready students in view of the following reasons: (a) they have diversified academic programs providing a wide array of career options; (b) they maintain flagship programs; (c) they are located in the city where big SHS feeder-schools are strategically located; (d) they sustain high performance in most of the programs; (e) they obtain higher budgetary allocation from the university; and (f) they have pool of faculty having higher professional qualifications and academic ranks.

Finally, the CRT, having been proven to possess concurrent validity is an accurate tool to measure college readiness. Obtaining such technical merit of a test signifies that it is indeed a highly appropriate measure of the construct under study (Allen, 2017) and that when used for future research, it could render dependable findings (Stevens, 2009). Ultimately, the utilization of the CRT in HEIs can provide valuable data in crafting policy inputs for DepEd and CHED that are essential in ensuring the seamless and integral transition of K to 12 graduates to tertiary education.

6. CONCLUSION

The educational outcome pictured from the study presents that much is still desired for DepEd to improve the quality of its K to 12 graduates with special focus on the teaching of science and mathematics. Sadly, the educational outcome of Philippine basic education does not promise much in so far as the college readiness of its graduates is concerned. As Philippine HEIs become the next molders of these graduates, they experience major adjustments in providing effective student transition in college. An evident challenge is the disparity in the attractiveness of public HEIs in accommodating and admitting college-ready students. Public universities with bigger campuses have the ability to entice and admit more college-ready K to 12 graduates. Such a thing occurs because these campuses are accorded with higher budget, more and better infrastructure, facilities, equipment, faculty profile, academic programs, and accreditation status. Finally, the CRT is also a credible measure of college readiness and it is a potential tool for college admission. Its use offers manifold benefits for policy reforms along curriculum alignment, tertiary admissions, and transition interventions for the K to 12 graduates.

7. LIMITATIONS AND FUTURE STUDIES

This study was an initial attempt to investigate the college readiness of the 2nd batch of Filipino K to 12 graduates using the CRT, a criterion-referenced tool. Data emanated from a public HEI in the north-eastern part of the Philippines. The results hold true in so far as the admitted students in the respondent-university are concerned and with due consideration of their tracks, strands, and institutions where they graduated from. Contextually, college readiness was understood only as the ability of the students to manifest (a) advancement and mastery of the

entry competencies defined in the CRS, (b) the potential to be admitted in college, and (c) tendency to pass the GEC without remediation as indicated by the results in the CRT. Further, the criterion validity test undertaken by the CRT was limited only to concurrent validity.

Similar studies may be conducted to examine the college readiness of K to 12 graduates in an urban area. Also, the predictive validity of the CRT is hoped to be established in future by relating it with the rate of graduation and passing rate in the board examinations and other related eligibilities.

8. RECOMMENDATIONS

Results of the study are relevant, in many ways, to different levels of the Philippine educational system. Primarily, DepEd needs to strengthen its instructional quality in practically all learning areas most especially Science and Mathematics to boost the college readiness of the K to 12 graduates. Moreover, the study is useful for the HEIs without standardized CAT because the CRT may be used as an admission test for their incoming first year students. Without prejudice to the exercise of academic freedom, public and private HEIs need to be stricter with their admission policies, requirements, and standards to ensure admission of more college-ready students. Similarly, the public and private HEIs need to conceptualize their transition interventions to guarantee that the admitted college-unready students will experience smooth and effective tertiary academic experiences and success. Specifically, the public HEIs, in conformity with RA No. 10931, need to ensure the admission of college-ready K to 12 graduates since access to quality tertiary education is its commitment to the state. They, too, need to give greater attention to their smaller campuses to improve their ability in attracting more college-ready students.

Funding: This study was supported by CHED under the DARE TO Research Grant (Commission En Banc Resolution No. 187-2019).

Competing Interests: The authors declare that they have no competing interests.

Acknowledgement: All the authors were equally responsible in the conception, design, and completion of the study. On a personal note, the authors express their sincerest appreciation to CHED Commissioner Lilian de las Llagas and Cagayan State University President Urdujah A. Tejada for making this research possible. Special thanks are given to Prof. Marcelo Raquipo and the DARE TO Research staff for their technical assistance.

REFERENCES

- Advancing Quality in Higher Education Reference Group. (2012). Development of performance measures: Report of the advancing quality in higher education reference group. Retrieved from VOCED Plus : NCVER's International Tertiary education Research Data Base. Retrieved from: <https://www.voced.edu.au/content/ngv%3A51892>.
- Ahmad, A. R., Raj Segaran, V. A. G., & Md Sapry, H. R. (2020). Academic staff and industry revolution 4.0: Knowledge, innovation and learning factor. *Journal of Education and E-Learning Research*, 7(2), 190-194. Available at: <https://doi.org/10.20448/journal.509.2020.72.190.194>.
- Allen, M. (2017). *The SAGE encyclopedia of communication research methods*. Thousand Oaks, CA: SAGE Publications, Inc.
- Anderson, L., & Fulton, M. (2015). Multiple measures for college readiness. Education Commission of the States. Retrieved from: <https://www.ecs.org/clearinghouse/01/17/37/11737.pdf>.
- Baber, L. D., Zamani-Gallaher, E. M., Stevenson, T. N., & Porter, J. (2019). From access to equity: Community colleges and the social justice imperative. In *Higher education: Handbook of theory and research* (pp. 203-240). Cham: Springer.
- Bahr, P. R. (2009). Revisiting the efficacy of postsecondary remediation: The moderating effects of depth/breadth of deficiency. *Review of Higher Education*, 33(2), 177-205.
- Balagtas, M., Garcia, D., & Ngo, D. (2019). Looking through Philippine's k to 12 curriculum in mathematics and science vis-a-vis TIMSS 2015 assessment framework. *Eurasia Journal of Mathematics, Science and Technology Education*, 15(12), 1-14. Available at: <https://doi.org/10.29333/ejmste/108494>.
- Barnett, E., Fay, M., Bork, R. H., & Weiss, M. J. (2013). Reshaping the college transition: States that offer early college readiness assessments and transition curricula. Retrieved from Community College Research Center, Teachers College Columbia

- University Retrieved from: <https://ccrc.tc.columbia.edu/publications/reshaping-the-college-transition-state-scan.html>.
- Camara, W. (2013). Defining and measuring college and career Readiness: A validation framework. *Educational Measurement: Issues and Practice*, 32(4), 16-27. Available at: <https://doi.org/10.1111/emip.12016>.
- Commission on Higher Education. (2011). *Commission en banc resolution No. 298-2011*. Quezon City: CHED Central Office.
- Commission on Higher Education. (2013). CMO 20 s. 2013. General education curriculum: Holistic understandings, intellectual, and civic competencies. Retrieved from: <https://ched.gov.ph/wp-content/uploads/2017/10/CMO-No.20-s2013.pdf>
- Commission on Higher Education. (2019). Commission en banc resolution No. 187-2019.
- Conley, D. (2007). The challenge of college readiness. *Educational Leadership*, 64(7), 23-29. .
- Conley, D. (2007). *Redefining college readiness*. Eugene, OR: Educational Policy Improvement Center.
- Conley, D. T., Aspengren, K., Stout, O., & Veach, D. (2006). *College board advanced placement best practices course study report*. Eugene, OR: Educational Policy Improvement Center.
- Dann-Messier, B. (2011). This is our time: Renewing adult education for the 21st century. *PAACE Journal of Lifelong Learning*, 20(1), 1-20.
- Department of Education. (2016). DO 55, S. 2016 – policy guidelines on the national assessment of student learning for the K To 12 basic education program. Retrieved from: <https://www.deped.gov.ph/2016/06/30/do-55-s-2016-policy-guidelines-on-the-national-assessment-of-student-learning-for-the-k-to-12-basic-education-program/>
- Farrington, C., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T., Johnson, D., & Beechum, N. (2012). *Teaching adolescents to become learners. The role of non-cognitive factors in shaping school performance : A critical review*. Chicago: University of Chicago Consortium on Chicago School Research.
- Flory, M., & Sun, C. (2017). *Measuring college readiness under ESSA: Admissions and placement exams*. Arlington, VA: CNA Analysis and Solutions.
- Furgol, K., Fina, A., & Welch, C. (2011). *Establishing validity evidence to assess college readiness through a vertical scale*. Paper presented at the Paper presented at the Annual Meeting of the National Council on Measurement in Education, New Orleans, LA.
- Gatdula, R. (2018). K- 12 program in the Philippines: Ready or not? Sulong Udyong. Retrieved from: http://udyong.gov.ph/index.php?option=com_content&view=article&id=9449:k-12-
- Glen, S. (2015). Concurrent validity definition and examples. StatisticsHowTo.com: Elementary Statistics for the rest of us. Retrieved from: <https://www.statisticshowto.com/concurrent-validity/>.
- Hurwitz, M., Smith, J., Niu, S., & Howell, J. (2015). The maine question: How is 4-year college enrollment affected by mandatory college entrance exams? *Educational Evaluation and Policy Analysis*, 37(1), 138-159. Available at: <https://doi.org/10.3102/0162373714521866>.
- Lee, V. S. (2012). What is inquiry-guided learning? *New Directions for Teaching and Learning*, 129, 1-14. Available at: <https://doi.org/10.1002/tl>.
- Lin, W., & Yao, G. (2014). *Concurrent validity*. In: Michalos A.C. (ed.) *Encyclopedia of quality of life and well-being research*. Dordrecht: Springer.
- Magno, C., & Piosang, T. (2016). Assessment schemes in the senior high school in the Philippine basic education. *Educational Measurement and Evaluation Review*, 7(1), 66-87.
- Maruyama, G. (2012). Assessing college readiness: Should we be satisfied with ACT or other threshold scores? *Educational Researcher*, 41(7), 252-261. Available at: <https://doi.org/10.3102/0013189X12455095>.
- Mijares, A. (2007). *The college board brief: Defining college readiness*. California: California Education Policy.
- Miller, S., & Happel, J. (2011). A role for college admissions tests in state assessment programs. In J. A. Bovaird, K. F. Geisinger, and C. W. Buckendahl (Eds.), *HighStakes testing in education: Science and practice in K-12 settings* (pp. 101-116). Washington, DC: American Psychological Association.

- National Conference of State Legislatures. (2012). Rethinking "seat time": State approaches to earning credit in out-of-school time. Retrieved from: <https://www.ncsl.org/research/education/fall-forum-2012-rethinking-seat-time.aspx>.
- Paris, J. (2019). Philippines ranks among lowest in reading, math, and science in 2018 study. Rappler Philippines. Retrieved from: <https://rappler.com/nation/philippines-ranking-reading-math-science-pisa-study-2018>.
- Philippine Institute for Development Studies. (2020). Some learners lack basic SHS competency. Development research news. Retrieved from: <https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidsdrn20-1.pdf>.
- Porcalla, D. (2018). Free tuition not for truant students. The Philippine Star. Retrieved from: <https://www.philstar.com/other-sections/education-and-home/2018/01/11/1776753/free-tuition-not-truant-students>.
- Porter, A., & Polikoff, M. (2011). Measuring academic readiness for college. *Educational Policy*, 26(3), 394-417. Available at: <https://doi.org/10.1177/0895904811400410>.
- Psychological Association of the Philippines. (2013). The K-12 program of the department of education. Retrieved from: <https://www.pap.org.ph/sites/default/files/position-paper/201302-k-12.pdf>.
- Roderick, M., Nagaoka, J., & Coca, V. (2009). College readiness for all: The challenge for urban high schools. *The Future of Children*, 19(1), 185-210.
- Sanchez, E. (2013). Differential effects of using ACT® college readiness assessment scores and high school GPA to predict first-year college GPA among racial/ethnic, gender, and income groups. Retrieved from ACT Research Report Series website: https://www.act.org/content/dam/act/unsecured/documents/ACT_RR2013-4.pdf.
- Scott-Clayton, J. (2012). *Do high-stakes placement exams predict college success?* New York: Columbia University, Teachers College, Community College Research Center.
- Sousa, V., Driessnack, M., & Mendes, I. A. C. (2007). An overview of research designs relevant to nursing: Part 1: Quantitative research designs. *Latin American Journal of Nursing*, 15(3), 502-507. Available at: <https://doi.org/10.1590/S0104-11692007000300022>.
- Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (5th ed.). New York: Routledge.
- Tamayao, A., Vecaldo, R., Asuncion, J. E., Mamba, M., Paat, F. M., & Pagulayan, E. (2020). Design and validation of the college readiness Test (CRT) for Filipino K to 12 graduates. *International Journal of Higher Education* 9(2), 209-224. Available at: <https://doi.org/10.5430/ijhe.v9n2p209>
- Welch, C., & Dunbar, S. (2011). K-12 assessment and college readiness: Necessary validity evidence for educators, teachers and parents. ITP Research Series: The University of Iowa. Retrieved from: https://itp.education.uiowa.edu/ia/documents/K-12_Assessments_and_College_Readiness.pdf.
- Williams, C. (2007). Research methods. *Journal of Business & Economics Research*, 5(3), 65-72. Available at: <https://doi.org/10.19030/jber.v5i3.2532>.
- Ylagan, A. (2019). The worst in math, science and reading. Business World. Retrieved from: <https://www.bworldonline.com/the-worst-in-math-science-and-reading/>

Views and opinions expressed in this article are the views and opinions of the author(s), International Journal of Education and Practice shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.