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Research Article

Assessment of Tertiary Education Readiness of the Pioneering Senior High School Graduates in a Private Higher Education Institution in Northern Mindanao, Philippines

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ABSTRACT

Secondary school graduates entering tertiary education must possess the skills and knowledge to adapt rapidly to the ever-changing landscape of a knowledge-based economy. This study assessed the cognitive and non-cognitive college readiness levels of the 127 pioneering senior high school graduates of the Philippine K-12 Program enrolled as first-year college students in a private Higher Education Institution (HEI) in Northern Mindanao, Philippines. Data gathered for this descriptive research were collected using two standardized tests (OLSAT and 16PF). Results revealed that many students had a below-average cognitive level and average non-cognitive skills implying that they were not ready for the tertiary level cognitively but were college-prepared non-cognitively. It was concluded that assessing students' college readiness levels proved imperative to ensure that standards of the chosen programs are met vis-à-vis students' skills. The researchers recommend that Higher Education Institutions strengthen and institutionalize readiness assessment that will serve as a basis for bridging and remediation program for identified cognitively unprepared college students.

Keywords: *Cognitive Skills, College Readiness, K-12 Program, Non-cognitive Skills, Senior High School*

Introduction

Educators and governments aim to ensure that all high school graduates are prepared for postsecondary education and employment (Dougherty, 2014). To put it another way, high school graduates must be ready to adapt to the ever-changing terrain of a knowledge-based economy quickly. These college preparation takeaways have prompted stakeholders in the K to 12 Program to consider how to appropriately prepare students for the transition from high school to higher education, with the ultimate objective of success in their chosen careers. As a result, international research on

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college preparation highlights the importance of students being prepared for college (Conley, 2010).

The Philippines implemented the K to 12 Program after enacting Republic Act (RA) No. 10533, also known as the Enhanced Basic Education Act 2013, in its never-ending pursuit of true academic excellence. The implementation of the K-12 Education Plan, covering Kindergarten and 12 years of basic education (six years of primary education, four years of Junior High School, and two years of Senior High School [SHS]), aims to form students who are not only prepared for further study and work (Official Gazette, n.d.), but who are interactive learners and possess the necessary knowledge, skills, and attitude which are essential in college life.

Since the graduation of the first batch of Senior High School students in 2018, questions about their readiness to proceed to college surfaced. Past local research used a qualitative approach such as the study of Nishimura (2014) which revealed that there is a relationship among individual perceptions of college and career readiness skills, individual school elements, and school practices like creating a culture of critical thinking that leads a 12th grade student towards tertiary preparation. According to Mohammad (2016), many students had a negative opinion of the two extra years of high school, citing the lack of facilities, teachers, and non-teaching staff as well as the additional burden it placed on parents and students by lengthening the time that students had to spend in school.

There are many disagreements and controversies on what preparedness means and how to assess it, even if it is widely recognized that today's high school graduates should be college and career-ready (Zwick, 2018). The Department of Education categorically states that the K to 12 program's success can be measured by various factors, including its ability to ensure that SHS graduates become college-ready, become entrepreneurs, and find work (DepEd, 2018). College readiness is the level of preparation a student needs to be ready to enroll and succeed – without remediation – in a credit-bearing course at a two-year or four-year institution, trade school, or technical school. In the 21st century, college preparation is necessary for all high school students to be prepared for life in today's "Knowledge Economy" (Baker et al., 2005).

Based on the above, the researchers believe that it is imperative to address difficulties of senior high school graduates entering higher education by evaluating their readiness to confirm the K to 12 Program's efficacy and achievement of its aim of producing high school graduates who are college ready. The researchers thought that assessing students' cognitive and non-cognitive skills would produce a more full, thorough, and strong picture of students' preparation for college. The researchers hoped that evaluating students' cognitive and non-cognitive abilities would provide a more robust, comprehensive, and complete picture of students' college readiness. According to ACT (2014), cognitive skills entail conscious intellectual processes like thinking, reasoning, or remembering, whereas non-cognitive or "soft skills" are linked to a person's personality, temperament, and attitudes.

The value of this study was to determine the levels of readiness with the cognitive and non-cognitive standards for first-year college students enrolled in a private institution in Northern Mindanao, Philippines. These students were the first graduates of the K-12 Curriculum to complete the two-year Senior High School program.

Framework

Experiential Learning Theory (2011) is a dynamic and comprehensive theory that describes learning as the core process of human adaptation involving the entire person. The dynamic learning viewpoint is based on a learning cycle with two goals: action/reflection and experience/abstraction, and it is holistic in nature, meaning it functions at all levels of human civilization, from individuals to groups, organizations, and society. As a result, Experiential Learning Theory can be applied in the classroom and in many aspects of life (Kolb & Kolb, 2017). Accordingly, the researchers utilized the ELT theory as the study's core framework since it supports the idea of learning that includes important abilities, such as cognitive and non-

cognitive skills, and the importance of the environment in the learning process.

According to Kolb and Kolb (2011), learning is a holistic adaptation process; all learning is re-learning; learning arises from synergetic transactions between the person and the environment. Learning does not only take place inside the classroom but can occur outside of the classroom, in places like the home, school, and business.

Conley (2010) defines college readiness as the level of preparation a student needs to succeed without remediation in credit-bearing coursework at the postsecondary level. Conley (2007, 2010) proposes a college readiness model by stressing the importance of students' cognitive capabilities and behavioral attributes. His college readiness model consists of four interactional components that students must possess to complete credit-bearing coursework: vital cognitive strategies, key content, academic behaviors, and contextual skills and awareness.

Key Cognitive Strategies are the ways of thinking necessary for college-level work. Key Content Knowledge refers to key foundational content and "big ideas" from core subjects that all students must know well, and an understanding of the structure of knowledge in core subject areas, which enables students to gain insight into and retain what they are learning. Key Learning Skills and Techniques consist of two broad categories: student ownership of learning, which includes goal setting, persistence, self-awareness, and motivation. Key Transition Knowledge and Skills are necessary to navigate the transition to life beyond high school successfully.

The model of Conley is a guide in this study since the researchers also agreed that to assess the students' college readiness level, the totality of a person must be considered, which includes not only the cognitive skills but also the non-cognitive skills.

Methods

The researchers used the descriptive research design to probe the college-readiness level of the 127 first-year college students who underwent the senior high program in the cognitive (school ability) and the non-cognitive (openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability) skills.

To obtain the desired data, a survey questionnaire was conducted. Two standardized tests were utilized: the Otis-Lennon School Ability Test (OLSAT 7) for the cognitive skill and the Sixteen Personality Factor (16PF) Questionnaire for the non-cognitive skills. OLSAT 7 is a standardized test authored by Arthur S. Otis and Roger T. Lennon. OLSAT 7 assesses students' thinking skills and provides an understanding of a student's relative strengths and weaknesses in various reasoning tasks. On the other hand, the 16PF by Dr. Raymond Cattell is represented to identify the primary components of personality. The assessment provides scores on 16 primary factors or scales and five global factors or scales. For this study, only the five global factors were used: Extraversion, Anxiety, Tough - Mindedness, Independence, and Self-Control. These five global factors corresponded closely to the Big Five Model of personality.

The researchers used the Stanine on the total score for easy-to-understand interpretation in the cognitive skill, while Sten was used in the scoring for the non-cognitive skills.

Cognitive College Readiness Standard

The researchers followed the private school's standard cognitive level, where the respondents take their tertiary education. It is apparent that the standard cognitive college readiness for board courses such as Bachelor of Science in Accountancy (BSA), Bachelor of Science in Secondary Education (BSED), Bachelor of Science in Elementary Education (BEED), Bachelor of Science in Social Work (BSSW), Bachelor of Science in Criminology (BSCRIM), and Bachelor of Science in Nursing (BSN) should be Stanine 4 and above (Average to Above Average). For non-board courses like Bachelor of Science in Hotel and Restaurant Management (BSHM), Bachelor of Science in Information Technology (BSIT), and Bachelor of Science in Business Administration (BSBA) students should have at least Stanine 2 (Below Average) on their OLSAT Test results. It implies that students should be fully equipped with the knowledge and skills when they enroll in

college, especially in board courses. Hence, these scores will be utilized to assess the student's cognitive performance.

Non-Cognitive College Readiness

The required personality traits (global factors) for each course offered in private school were based on Holland's Theme, RIASEC. A study by Logue (2005) showed that personality traits and vocational interest themes were better predictors of college satisfaction. That is why John Holland's Theory of Vocational Personalities and Work Environments is used to identify the non-cognitive college readiness standards.

Students should have an average level (STEN 5) on their required global factors. Based on the 16PF Administrator's Manual 5th Edition, Criminology students can be associated with the Realistic theme and should acquire global factors such as tough-mindedness and independence. An Investigative theme can be best described for BSIT students and requires tough-mindedness, extraversion, and independence. Courses such as BSSW, BSN, BSED, and BEED can be linked as social persons wherein they must be extraverted, independent, anxious, and self-controlled. On the other hand, Enterprising can be associated with BSBA and BSHM students with required personality traits, the same as BSIT students who should be tough-minded, extraverted, and independent. Conventional people resemble the BSA students who should possess tough-mindedness and self-control.

The data analysis included various statistical techniques such as frequency count, simple percentages, mean and standard deviation.

Result and Discussion

College Readiness Level of the Respondents (Cognitive)

Table 1 shows the frequency, percentage, and mean distribution of the respondents' college readiness level regarding cognitive skills. It discloses that 66 percent of the respondents (n=84) had below-average school ability. These students were described as having difficulty using language to express themselves, comprehend stories, or in reasoning and problem solving that employs verbal skills. On the other hand, the remaining 33.8 percent of the respondents (n=43) obtained an Average School Ability on their OLSAT Test results. It was revealed that many students might lack abilities essential to success in school performance, such as critical thinking, reasoning abilities, and problem-solving skills.

The importance of the cognitive aspect in college readiness was intensified as other policy scholars have defined college readiness primarily as academic skills and achievement to prepare students to be successful for college-level coursework (Conley, 2007; Nishimura, 2014). In addition, Antonak (1988) concluded, as cited by Pearson (2005), that while the best predictor of current achievement was a past achievement, OLSAT scores were a powerful predictor of achievement.

With a grand mean of 3.02 and a standard deviation of 1.27, respondents' overall cognitive level is Below Average, which is the standard cognitive level for non-board courses like the BSIT, BSHM, and BSBA. In other words, the respondents failed to pass the standard cognitive level for courses with board exam.

Table 1. Respondents' College Readiness Level in terms of Cognitive Skills

Stanine	Verbal Interpretation	f	%	Mean
9	Above Average School Ability	0	0	**0**
8		0	0	
7		0	0	
Total (for Above Average)		***0***	***0***	
6	Average School Ability	4	3.1	**4.51**
5		13	10.2	
4		26	20.5	
Total (for Average)		***43***	***33.8***	
3	Below Average School Ability	37	29.1	**2.24**
2		33	26.1	
1		14	11.0	
Total (for Below Average)		***84***	***66.2***	
Overall Total		***127***	***100***	

Grand Mean: 3.02 **Interpretation: Below Average**

College Readiness Level of the Respondents (Non-Cognitive)

Non-Cognitive: Tough-mindedness

Tough-mindedness has several contributing aspects, as reflected in its related primary factor scales. Tough-minded people tend to be reserved, utilitarian, grounded, and traditional (Russell and Karol, 1993).

Table 2 presents the respondents' tough-mindedness level's frequency, percentage, and mean distribution.

Results show that more than 50 percent (n=76) of the respondents have an Average Tough-mindedness, followed by 20.5 percent (n=26) who have a Low Average Tough-mindedness; 8.6 percent (n=11) belonged to Low Tough-mindedness; 7.9 percent (n=10) have High Average Tough-mindedness, and the remaining 3.1 percent (n=4) fell into the High Tough-mindedness.

ough-mindedness has a grand mean of 5.36. It implies that most respondents may portray a sense of being set or fixed. However, respondents high on this global factor may have difficulty accepting new viewpoints, including those involving emotions. These students may be inclined to take courses such as BSCRIM, BSIT, BSBA, BSA, and BSHM.

In contrast, respondents who belonged to Low Average to Low Tough-mindedness were considered Receptive people. They tend to deal with problems in a cultured, refined, or sensitive way. However, receptive people may overlook the practical or objective aspects of a situation.

Table 2. Respondents' College Readiness Level in terms of Non-Cognitive Skills

TOUGH-MINDEDNESS				
STEN	**Interpretation**	**Description**	**f**	**%**
10	High Tough-Mindedness	Tough-minded, resolute, non-empathetic, determined	0	0
9			0	0
8			4	3.1
7	High Average Tough-Mindedness		10	7.9
6	Average Tough-mindedness		31	24.4
5			45	35.4
4	Low Average Tough-Mindedness	Receptive, open-minded, intuitive	26	20.5
3	Low Tough-Mindedness		6	4.7
2			3	2.4
1			2	1.6
Overall Total			**127**	**100**

Grand Mean: 5.36 **Interpretation: Average Tough-mindedness**

Non-Cognitive: Self-Control

Self-control concerns curbing one's urges. It is related to being serious, rule-conscious, practical, grounded, and perfectionistic (Russell and Karol, 1993).

The same result can be gleaned from the Tough-mindedness shown in Table 3. Most respondents (59.0 percent; n=75) have an average level of Self-Control, followed by 23.6 percent (n=30) who have a Low Average Self-Control. An Average High Self-Control was obtained by 9.4 percent, while 6.3 percent of the respondents have a Low level of Self-Control, and only 1.6 percent (n=2) have a High level of Self-Control.

The non-cognitive skill has a mean of 5.48, equivalent to the average self-control level. It implies that more than 50 percent of the respondents can control themselves. Respondents with high self-control tend to inhibit their impulses and may do so in several ways. Respondents who possess this global factor were expected to be BSSW, BSN, BSED, BEED, and BSA students.

Contrarily, Low Average to Low Self-Control is those people who are unrestrained. Students who belong to these categories tend to follow their urges more. Unrestrained people may be perceived as self-indulgent, disorganized, and irresponsible. This personality trait is not a good characteristic of a college student.

Table 3. Respondents' College Readiness Level in terms of Non-Cognitive Skills

SELF-CONTROL				
STEN	**Interpretation**	**Description**	**f**	**%**
10	High Self-Control	Self-controlled, inhibiting impulses	0	0
9			0	0
8			2	1.6
7	High Average Self-Control		12	9.4
6	Average Self-Control		28	22
5			47	37
4	Low Average Self-Control	Unrestrained, impulsive, uncontrolled	30	23.6
3	Low Self-Control		8	6.3
2			0	0
1			0	0
Overall Total			**127**	**100**

Grand Mean: 5.48 **Interpretation: Average Self-Control**

Non-Cognitive: Extraversion

Extraversion has been included in even the earliest descriptions of personality. This global factor includes interpersonal warmth, liveliness, social boldness, forthrightness, and group orientation (Russell and Karol, 1993).

Table 4 revealed that more than 50 percent (n=68) of the respondents possessed an Average Extraversion. It was followed by 26.8 percent (n=34) who had a Low Average Extraversion; 11.8 percent (n=15) with a High Average Extraversion; 7.1 percent (n=9) of the respondents had Low Extraversion; and 1 respondent who had a High Extraversion.

The mean score of 5.34 indicates an average level of extraversion, implying that most of the respondents are Extroverts rather than Introverts. Extraverted students tend to be people-oriented and seek out a relationship with others. These students were supposed to be BSIT, BSSW, BSN, BSED, BEED, BSBA, and BSHM. Opposite the extraverts, introverted students tend to be less outgoing and sociable; they spend more time in their own company than others.

Table 4. Respondents' College Readiness Level in terms of Non-Cognitive Skills

EXTRAVERSION				
STEN	**Interpretation**	**Description**	**f**	**%**
10	High Extraversion	Extraverted, social participant	0	0
9			0	0
8			1	.8
7	High Average Extraversion		15	11.8
6	Average Extraversion		22	17.3
5			46	36.3
4	Low Average Extraversion	Introverted, socially inhibited	34	26.8
3	Low Extraversion		8	6.3
2			1	.8
1			0	0
Overall Total			**127**	**100**

Grand Mean: 5.34 **Interpretation: Average Extraversion**

Non-Cognitive: Independence

Independence revolves around the tendency to be actively and forcefully self-determined in one's thinking and actions. Independence has various contributing aspects such as dominance, being socially bold, vigilance, and openness to change (Russell and Karol, 1993).

The data in Table 5 concede the non-cognitive college readiness of the respondents' Independence level. It shows the same result pattern as the Self-Control and Extraversion tables above. Similarly, a significant number of respondents (62.2 percent; n=79) got an Average on their Independence level and was followed by Low Average (18.9 percent; n=24), High Average (11.0 percent; n=14), Low Independence (5.5 percent; n=7), and lastly High Independence as obtained by three (2.4 percent).

It has a grand mean of 5.77. The finding suggests that many respondents are independent, although only three got high in this global factor, while few are accommodating. As a description, independent people tend to form and express their own opinions.

Table 5. Respondents' College Readiness Level in terms of Non-Cognitive Skills

INDEPENDENCE				
STEN	**Interpretation**	**Description**	**f**	**%**
10	High Independence	Independence, persuasive, willful	0	0
9			1	.8
8			2	1.6
7	High Average Independence		14	11.0
6	Average Independence		42	33.1
5			37	29.1
4	Low Average Independence	Accommodating, agreeable, selfless, subdued	24	18.9
3	Low Independence		7	5.5
2			0	0
1			0	0
Overall Total			**127**	**100**

Grand Mean: 5.77 **Interpretation: Average Independence**

They are often persuasive and forceful. Independence is one of the requirements in all eight courses except BSA. On the other hand, respondents who have Low Average to Low Independence are the Accommodating people that tend not to question; instead, they value agreeableness and accommodation more than self-determination or getting their way.

Non-Cognitive: Anxiety

Anxiety has been described since early studies of personality and continues to be described in studies of the "big five" dimensions of personality (Goldberg, 1992; Russell and Karol, 1993). Anxiety has several contributing factors, as mentioned by Russell and Karol (1993), such as reactiveness, vigilance, apprehension, and tension.

Likewise, Table 6 shows the anxiety level of the respondents. The table entails that 52 percent (n=66) of the respondents obtained an Average level of Anxiety. Unlike the results shown in the above tables, the Anxiety level of the respondents next to the Average was High Average (28.3 percent; n=36), with a High level of Anxiety for 13.4 percent (n=17) and a Low Average Anxiety of 6.3 percent (n=8) of the respondents.

Table 6. Respondents' College Readiness Level in terms of Non-Cognitive Skills

ANXIETY				
STEN	**Interpretation**	**Description**	**f**	**%**
10	High Anxiety	High anxiety, tense, perturbable, histrionic	1	.8
9			1	.8
8			15	11.8
7	High Average Anxiety		36	28.3
6	Average Anxiety		42	33.1
5			24	18.9
4	Low Average Anxiety	Low anxiety, relaxed, imperturbable, well-adjusted	8	6.3
3	Low Anxiety		0	0
2			0	0
1			0	0
Overall Total			**127**	**100**

Grand Mean: 6.26 **Interpretation: Average Anxiety**

It has a grand mean of 6.26. Most respondents were anxious, and very few had low anxiety. Respondents, who are anxious experience more negative effect, may have difficulty controlling their emotions or reactions and may act counterproductively. BSSW, BSN, BSED, and BEED courses require average to high anxiety. Otherwise, respondents with low

anxiety tend to be unperturbed; however, they may minimize the negative effect or be unmotivated to change because they are comfortable.

Summarized Non-Cognitive Level

The summarized mean distribution of the respondents' non-cognitive college readiness level, including tough-mindedness, self-control, extraversion, independence, and anxiety, reveals an average level of all personality traits. It means that the students are more or less prepared to face college regarding their non-cognitive skills. It may be the outcome of the immersion program during their Senior High, wherein they were exposed to the actual work life and was confirmed on the FGD responses.

Although the results did not show a definite personality trait, it will surely change as they experience college life. Kolb's Experiential Learning Theory emphasized in one of its propositions that *learning results from synergetic transactions between the person and the environment* (Kolb & Kolb, 2011).

Conclusion

The current study brings a potential view on the college readiness level among the first-year college students who underwent K-12 Program. Most respondents are not ready for college regarding their cognitive aspect since most of them got below average on their OLSAT test. On the other hand, their non-cognitive readiness level reveals that they are ready to face college life. Moreover, Accountancy and Information Technology students are considered college-ready among the courses offered.

Furthermore, mismatches on the course and OLSAT test results indicate that the admission committee in one of the private schools allows students to take the course even if they did not pass the required cognitive college readiness standard. However, those students were considered conditionals wherein their grades will be strictly monitored for the whole semester as implemented by the private school.

Additionally, students were enrolled in a course incompatible with the required personality type. It indicates that the students lack sufficient career guidance and orientation in the early years of their education. Hence, there is a clear advantage in identifying students' college readiness level by course, matching each course's standards, and highlighting students' preparation level for their chosen courses and careers.

Therefore, assessment of both cognitive and non-cognitive skills deepens the understanding of the college-readiness level of the students and should be done before they enroll in college. However, even the most accurate assessment will not mean much without effective communication about test results to the parents, teachers, principals, counselors, admission officers, and especially students.

The findings of this study have implications on the Higher Education Institutions, through their Admission Offices, to strengthen and institutionalize readiness assessment as an entrance examination. The data from such assessment shall serve as a basis for institutional bridging and remediation program for identified college students enrolled but not cognitively prepared for college.

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