

Psychological Predictors of College Readiness of the K-12 Graduates

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HOW TO CITE:

Maria Mamba (2026).
Psychological Predictors of College
Readiness of The K-12 Graduates.
International Journal of Special
Education, 41(13s), 1615-1637

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ABSTRACT:

How college ready are the K-12 graduates in the Philippines? What psychological factors influence their college readiness? How do these factors help to prepare them to transition from basic to tertiary education seamlessly and effectively? These questions were examined in this study using the 7,384 first year students enrolled in a state university in Northern Philippines as the respondents. Employing the quantitative research design, results revealed that the K-12 graduates demonstrated low preparedness for college education. As regards psychological characteristics, majority of the respondents are mostly gritty, no more problematic in terms of study motivation and learning strategies, show neutral learning style, have below average to average school ability, unfavourable study habits and attitudes, low academic motivation, low self-concept, have undesirable personality traits, and are borderline in college adjustments. Furthermore, using the Structural Equation Modelling (SEM) particularly the Partial Least Squares (PLS-SEM), the study revealed that college readiness is predicted by numerous psychological factors which include school ability, self-concept, study orientation, school motivation and learning strategies, and personality traits.

Keywords: College Readiness, Psychological Predictors, Non-Cognitive Factors, Higher Education, Structural Equation Modelling

1. Introduction

The changing landscape of education in the 21st century demands learners to acquire competencies necessary to adapt and survive in the environment influenced by globalization, regional integration, internationalization of education, and the Fourth Industrial Revolution. In this respect, various countries have aimed their basic education systems to produce graduates equipped with the knowledge and skills in becoming globally competitive and lifelong learners, and to develop citizens who can significantly contribute to the emerging economic, socio-cultural, and political affairs

(Dougherty, et al. 2006; Merisotis & Phipps 2000). In response to these demands, the Philippines has intensified its national development thrusts. It has embarked on curricular reforms to significantly enhance its educational standards and outcomes, alongside its efforts to address its pressing problems and concerns in the education system (Okabe, 2013). The comprehensive re-engineering of the Philippine basic education was undertaken by the government by adding two years of schooling from 10 to 12 years (International Consultants for Education and Fairs [ICEF], 2013).

Concomitant to the changes in the Basic Education curriculum, the Philippine government also reinforced its serious commitment to further implement its educational plan through reforms instituted in the higher education level. Hence, the Commission on Higher Education (CHED), being the regulatory agency for both private and public institutions of higher learning, has set mechanisms to ensure the congruence and synergy of learning goals between the basic and higher education levels. With this, the CHED came up with the College Readiness Standards (CRS) as the overarching framework in ensuring quality and preparedness of post-secondary students to undertake tertiary education and in modifying the general education curriculum offered in college (CEB Resolution No. 298-2011). The Technical Panel on General Education (TPGE) defines CRS as follows:

College Readiness Standards (CRS) 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).

College readiness is a multidimensional construct which constitutes not only the cognitive factors but also the non-cognitive ones. Non cognitive factors may include key learning techniques, personality traits, and other psychological characteristics or mindsets and behaviors which students have about themselves and schooling (Farrington et al., 2012). Examples include school ability, self-concept, college adjustment, grit, personality traits, learning styles, and school motivation (Kyllonen et al., 2014). These psychological attributes enable students to engage more fully with academic content and maximize learning (Kurlaender et al. 2019), hence, they strengthen academic preparation, improve college knowledge and information, and cultivate stronger resilience to succeed in college. Moreover, good scores in the different psychological variables increase the likelihood of correctly predicting academic success and validate cognitive or academic performance such as college readiness (DeAngelis, 2015).

Since college readiness in the Philippines is an emerging construct, only few researchers have

investigated the different interwoven factors affecting college readiness other than cognitive factors. Hence this paper delved into the following research objectives: (1) determine the psychological profile of Senior High School graduates; (2) assess their college readiness; (3) ascertain the association between their psychological profile and college readiness; and (4) determine the psychological predictors of their college readiness through a structural model.

Review of Literature

College Readiness as a Construct

According to Conley (2007), college readiness can be conceptualized into four main features, which are intricately related to one another: 1) Key cognitive strategies; 2) Key content knowledge; 3.) Academic behaviors; and 4) Contextual skills and knowledge. Key cognitive strategies refer to an individual's skills to think critically, perform research, and problem-solving tasks, as well as display systems thinking which facilitates learning across disciplines (Tierney & Duncheon, 2015). The key cognitive content is the most fundamental foundation of college readiness (Conley, et al., 2006). It allows learners to be well prepared in learning the key content along with different disciplines. Academic behavior is one's ability to regularly attend classes and comply with school rules and policies as they are influential in the preparedness of learners in hurdling tertiary education. Meanwhile, contextual knowledge and skills allow the application of knowledge in the educational and cultural milieu like choosing the right college and course and applying for loans and scholarships (Conley, 2005; Lundell, et al., 2015; & Kirst, et al., 2004).

Philippine College Readiness Standards (CRS)

Since the Philippines has developed the CRS through CHED, it is imperative to measure Filipino college readiness using this framework. The CRS provides the standards in mapping out the competencies that learners need to master in the different learning areas such as English, Literature, Filipino, Science, Mathematics, Social Studies, and Humanities. The central feature of

this framework is the articulation of content and performance standards. The former is the knowledge that the learners must know while the latter is what they can demonstrate from such knowledge. Specifically, the CRS focuses on the enhancement of the 21st century skills and competencies, which are emphasized in the GEC. The GEC has the features of being liberal, learner-centered inter/cross-disciplinary, and context-based (CHED, 2013), a continuation of the competencies acquired in the K-12 curriculum.

Psychological Characteristics Influencing College Readiness

College readiness includes psychological characteristics or mindsets and behaviors which students have about themselves and schooling (Farrington et al., 2012). Examples include school ability, self-concept, college adjustment, grit, personality traits, learning styles, and school motivation (Kyllonen et al., 2014). These psychological attributes enable students to engage more fully with academic content and maximize learning (Kurlaender et al. 2019), hence, they strengthen academic preparation, improve college knowledge and information, and cultivate stronger resilience to succeed in college. Moreover, good scores in the different psychological variables increase the likelihood of correctly predicting academic success and validate cognitive or academic performance such as college readiness (DeAngelis, 2015).

In terms of self-concept, a longitudinal study conducted by Guay et al. (2004) has proven that improved academic self-concept predicted the educational attainment of students over ten years. This study was affirmed by Gerardi (2009), who also claimed a positive correlation between self-concept and academic achievement as indicated by the students' GPA. Similarly, Zahra et al. (2010) reported that students with higher physical and social self-concept achieved higher scholastic performance. This result was validated by Rady (2016) who claimed that students' academic self-concept influences their academic achievement.

With respect to study orientation, previous researchers have claimed that it exerts a considerable effect on students' learning

performance and success (Aquino, 2011; Memis & Kandemir, 2019; Odiri, 2015). A favorable study orientation employs effective learning tactics (Ogbodo, 2010) and becomes effective when complemented by a degree of pleasure and willingness (Atanasova-Pacemka et al., 2015). Unfavorable study orientation, on the other hand, is characterized as having weak academic engagement and convictions. Students in this predisposition are inclined to practice delay and avoidance of academic tasks, use ineffective study methods, and display negative attitudes toward teachers and requirements that impede their academic growth and achievement (Leithwood & Riehl, 2003).

Meanwhile, researches indicate that school motivation and learning strategies are also principal factors to students' success in college. Having these traits gives the students the opportunity to engage in learning activities and gain academic knowledge and skills. Accordingly, obtaining higher scores in these traits are more likely to show higher academic performance and more persistence in college (Kurlaender et al., 2019).

Most studies show that intelligence quotient (IQ) as reflected in school ability is highly correlated to academic achievement. Specifically, students with higher IQ scores show significantly greater academic progress in reading and writing than those with lower IQ scores. Due to its strong predictive power, IQ tests like Otis Lennon School Ability Test are pervasively used in schools and workplace settings (Kaya et al., 2015).

Aside from cognitive ability, non-cognitive trait such as grit may influence college readiness. Mason (2018) asserts that grit is a valid personal trait in explaining students' success in college learning. Thus, grit must be nurtured or reinforced in basic education (Alhadabi & Karpinski, 2019; Christopoulou et al., 2018) as it enhances students' potentials and facilitates positive educational outcomes, especially on college readiness.

Finally, learning styles have been shown as a predictor of student achievement and may explain how students acquire learning (Ilcin et al.,

2018). Determining students' learning styles gives vital information about their specific way of collecting and processing data. Different approaches to learning offer different performance in class and preparation to college. For instance, having good memory and comprehension of the lessons being taught tend to help learners achieve high academic performance (Ling et al., 2017).

2. Methodology

Design: The study employed the quantitative research approach to ascertain the psychological predictors of college readiness. Using complete enumeration, the 7,384 respondents were the first year students enrolled at the eight (8) campuses of Cagayan State University for SY 2019-2020 and who underwent the K-12 curriculum during their basic education.

Participants/Sample: Using complete enumeration, the 7,384 respondents were the first year students enrolled at the eight (8) campuses of Cagayan State University for SY 2019-2020 and who underwent the K-12 curriculum during their basic education.

Instruments: The study utilized the College Readiness Test (CRT) which is a standardized criterion-referenced test consisting of 200 items measuring the learning competencies covered in the seven (7) learning areas, namely, English,

Filipino, Literature, Mathematics, Science, Social Studies, and Humanities. On the other hand, the psychological profile of the respondents was measured using standardized psychological tests, namely, Grit Scale, Survey of Study Habits and Attitudes, School Motivation and Learning Strategies Inventory, Gordon's Personal Profile, Learning Styles Inventory, College Adjustment Scales, Tennessee Self-Concept Scale, and Otis Lennon School Ability Test – Advanced.

Procedure: The ethical standards and protocols were adhered to in conducting the study. Permission was sought from the concerned authorities of the University and other collaborators in the study. The free and prior informed consent (FPIC) of the respondents was also obtained before the conduct of the study. To safeguard the credibility of the data, the researchers strictly followed the guidelines in test administration, checking, and scoring with the technical assistance of eight registered guidance counselors and eight psychometricians. They explained personally the intent of the research as well as its expected outcome. Moreover, the respondents' participation was voluntary and all information obtained from them were treated with utmost confidentiality.

Data Analysis: Descriptive statistics, Kendall's tau-b correlation, ANOVA with Tukey post hoc test, and Structural Equation Modelling (SEM), specifically the Partial Least Squares (PLS-SEM) were utilized in analyzing the data.

3. Results

Respondents' Psychological Profile

Table 1. Respondents' grit

Psychological Attribute	Interpretation	Frequency	Percent
Grit	Not much gritty	17	.2
	Somewhat gritty	1697	23.0
	Mostly gritty	5273	71.4
	Extremely gritty	397	5.4

Table 1 reveals that the respondents are mostly gritty (71.40%) which indicates their high tendency to maintain focus and interest and persevere in obtaining long-term goals.

Moreover, they tend to work strenuously towards challenges and sustain effort and interest over the years despite failure, adversity, and plateaus in progress.

Table 2. Respondents' study habits and attitudes

Psychological Attribute	Dimensions	Interpretation	Frequency	Percent
Study Habits and Attitudes	Delay Avoidance	Unfavorable	6335	85.8
		Favorable	1049	14.2
	Work Methods	Unfavorable	5753	77.9
		Favorable	1631	22.1
	Teacher Approval	Unfavorable	6722	91.0
		Favorable	662	9.0
	Education Acceptance	Unfavorable	6590	89.2
		Favorable	794	10.8
	Study Habits	Unfavorable	6215	84.2
		Favorable	1169	15.8
	Study Attitudes	Unfavorable	6800	92.1
		Favorable	584	7.9
	Study Orientation	Unfavorable	6633	89.8
		Favorable	751	10.2

Table 2 shows that most of the respondents have poor study orientation as they have unfavourable study habits (84.20%) and study attitudes (92.10%). Consistently, majority of them show unfavourable habits along delay avoidance (85.80%) and work methods (77.90%) implying that they are not punctual in carrying out their academic responsibilities and they do not use

efficient study techniques and do not perform academic tasks well. Furthermore, majority of them have unfavourable attitudes consisting of teacher approval (91.00%) and educational acceptance (89.20%) suggesting that they have undesirable perceptions on instructors' classroom behavior and disbelief on educational goals and systems as well as their own obligations.

Table 3. Respondents' school motivation and learning strategies

Psychological Attribute	Dimensions	Interpretation	Frequency	Percent
	Study Strategies	Minimally problematic	0	0.0

School Motivation and Learning Strategies		Less problematic than for most students	682	9.2
		No more problematic than for most respondents	6314	85.5
		Moderately problematic	363	4.9
		Extremely problematic	25	.3
	Note-Taking/ Listening Skills	Minimally problematic	2	0.0
		Less problematic than for most students	75	1.0
		No more problematic than for most respondents	5327	72.1
		Moderately problematic	1647	22.3
		Extremely problematic	333	4.5
	Reading/ Comprehension Strategies	Minimally problematic	0	0.0
		Less problematic than for most students	27	.4
		No more problematic than for most respondents	4749	64.3
		Moderately problematic	2254	30.5
		Extremely problematic	354	4.8
	Writing/ Research Skills	Minimally problematic	63	.9
		Less problematic than for most students	1335	18.1
		No more problematic than for most respondents	5580	75.6
		Moderately problematic	353	4.8
		Extremely problematic	53	0.7

	Test-Taking Strategies	Minimally problematic	8	.1
		Less problematic than for most students	1035	14.0
		No more problematic than for most respondents	6074	82.3
		Moderately problematic	246	3.3
		Extremely problematic	21	.3
	Organizational Techniques	Minimally problematic	22	.3
		Less problematic than for most students	1137	15.4
		No more problematic than for most respondents	5768	78.1
		Moderately problematic	430	5.8
		Extremely problematic	27	.4
	Time Management	Minimally problematic	3	0.0
		Less problematic than for most students	44	.6
		No more problematic than for most respondents	5869	79.5
		Moderately problematic	1413	19.1
		Extremely problematic	55	.7
	Low Academic Motivation	Minimally problematic	0	0.0
		Less problematic than for most students	4	0.1
		No more problematic than for most respondents	1895	25.7
		Moderately problematic	3588	48.6

	Test Anxiety	Extremely problematic	1897	25.7
		Minimally problematic	3	0.0
		Less problematic than for most students	3	0.0
		No more problematic than for most respondents	4967	67.3
		Moderately problematic	2292	31.0
		Extremely problematic	119	1.6
	Concentration/ Attention Difficulties	Minimally problematic	4	0.1
		Less problematic than for most students	18	.2
		No more problematic than for most respondents	4748	64.3
		Moderately problematic	2212	30.0
		Extremely problematic	402	5.4

Table 3 shows that majority of the respondents are 'not more problematic than for most respondents' along the seven strengths of School Motivation and Learning Strategies that enhance academic success. This finding means that they manifest effective study skills and learning strategies related to academic success. As compared to most of their peers, majority of the respondents have manageable problems along study strategies (85.50%) as they have the capability to select important study material and to connect newly learned information with former knowledge. They, too are able to display reasonable level of efficiency in test-taking (82.30%) and in using their time (79.50%) to complete academic tasks. Furthermore, majority of the respondents have acceptable organizational techniques (78.10%) which is demonstrated in organizing class materials and

structuring assignments. In terms of writing/research skills, majority of the respondents (75.60%) demonstrate capability in researching topics in a variety of ways, organizing writing project, and checking for errors. They likewise can discriminate important materials which are essential in effective note-taking/listening (72.10%) and can review text which is helpful in reading comprehension (64.30%).

In terms of the three liabilities that interfere with academic development, majority of the respondents are moderately problematic along low academic motivation (48.60%), which means that they lack the intrinsic motivation to succeed academically. However, they have 'no more problematic than for most respondents' along concentration/attention difficulties (69.30%) and test anxiety (67.30%). Such finding suggests that

they have the ability to concentrate and avoid distractions and they are less likely to be worried when taking the test.

Table 4. Respondents' personality traits

Psychological Attribute	Dimensions	Interpretation	Frequency	Percent
Personality Traits	Ascendancy	Low	5979	81.0
		High	1405	19.0
	Responsibility	Low	7084	95.9
		High	300	4.1
	Emotional Stability	Low	6382	86.4
		High	1002	13.6
	Sociability	Low	7352	99.6
		High	32	.4

Table 4 presents that majority of the respondents obtained low scores in all the personality traits. The low score in ascendancy indicates that they are likely incapable of taking active role in the group, making independent decisions, and being self-assured in relationships with others. Also, the low score in responsibility suggests that they

are less likely to stick to the job assigned to them and to be persevering and determined. Meanwhile, the low scores in emotional stability and sociability mean that they show less ability to exert emotional control and maintain resilience as well as to be with and work with people, respectively.

Table 5. Respondents' learning style

Psychological Attribute	Dimensions	Frequency	Percent
Learning Style	Social/applied	116	1.6
	Applied	1002	13.6
	Independent/applied	183	2.5
	Social	398	5.4
	Neutral preference	4460	60.4
	Independent	753	10.2
	Social/conceptual	36	.5
	Conceptual	372	5.0
	Independent/conceptual	64	.9

Table 5 presents that majority of the respondents have neutral preference in learning style which signifies that they tend to have no clear areas of

strong preference. It may also indicate that their learning preference may find adequate match in

any other learning style but may also find it difficult at times to become entirely involved.

Table 6. Respondents' college adjustment

Psychological Attribute	Dimensions	Interpretation	Frequency	Percent
College Adjustment	Academic Problems	Poor adjustment	56	0.8
		Fair adjustment (Borderline)	764	10.3
		Good adjustment	3700	50.1
		Excellent adjustment	2864	38.8
	Anxiety	Poor adjustment	168	2.3
		Fair adjustment (Borderline)	1729	23.4
		Good adjustment	4104	55.6
		Excellent adjustment	1383	18.7
	Interpersonal Problems	Poor adjustment	216	2.9
		Fair adjustment (Borderline)	1827	24.7
		Good adjustment	4251	57.6
		Excellent adjustment	1090	14.8
	Depression	Poor adjustment	398	5.4
		Fair adjustment (Borderline)	3568	48.3
		Good adjustment	2950	40.0
		Excellent adjustment	468	6.3
	Career Problems	Poor adjustment	101	1.4
		Fair adjustment (Borderline)	1906	25.8
		Good adjustment	4586	62.1
		Excellent adjustment	791	10.7
	Suicidal Ideation	Poor adjustment	690	9.3
		Fair adjustment (Borderline)	4040	54.7
		Good adjustment	2171	29.4
		Excellent adjustment	483	6.5
	Substance Abuse	Poor adjustment	40	.5
		Fair adjustment (Borderline)	664	9.0
		Good adjustment	2735	37.0

	Self-esteem Problems	Excellent adjustment	3945	53.4
		Poor adjustment	132	1.8
		Fair adjustment (Borderline)	1556	21.1
		Good adjustment	4586	62.1
		Excellent adjustment	1110	15.0
	Family Problems	Poor adjustment	76	1.0
		Fair adjustment (Borderline)	1742	23.6
		Good adjustment	4908	66.5
		Excellent adjustment	658	8.9

Table 6 shows that majority of the respondents have excellent adjustment along substance abuse (53.40%) which means that they are more likely to cope with irritability and aggression brought by substances like alcohol and drugs. They have good adjustments along family problems (66.50%), self-esteem (62.10%), career problems (62.10%), interpersonal problems (57.60%), anxiety (55.60%), and academic problems (50.10%). This finding indicates that they could

effectively cope with problems along these dimensions. Remarkably, they have borderline adjustment along suicidal ideation (54.70%) and depression (48.30%) which means that they have strong tendency to entertain thoughts of suicide as the most viable way to end problems and that they are more likely to experience fatigue and loss of interest in typically gratifying activities that may lead to social withdrawal from their classmates and peers, respectively.

Table 7. Respondents' self-concept

Psychological Attribute	Dimensions	Interpretation	Frequency	Percent
Self-Concept	Physical	Very Low	96	1.3
		Low	3184	43.1
		Average	3994	54.1
		High	46	.6
		Very High	64	.9
	Moral	Very Low	843	11.4
		Low	5358	72.6
		Average	1178	16.0
		High	3	0.0
		Very High	2	0.0
	Personal	Very Low	2033	27.5
		Low	4439	60.1

		Average	889	12.0
		High	23	.3
		Very High	0	0.0
	Family	Very Low	145	2.0
		Low	3754	50.8
		Average	3466	46.9
		High	16	0.2
		Very High	3	0.0
	Social	Very Low	509	6.9
		Low	4629	62.7
		Average	2231	30.2
		High	14	0.2
		Very High	1	0.0
	Academic	Very Low	635	8.6
		Low	4482	60.7
		Average	2254	30.5
		High	13	0.2
		Very High	0	0.0

Table 7 presents that majority of the respondents have average self-concept along physical dimension (54.10%) implying that they have a modest view of their bodies, health, physical appearance, skills, and sexuality. However, majority of them showed low self-concept along moral dimension (72.60%) suggesting that they are generally dissatisfied with their conduct, and they tend to express a more inconsistent moral code. Their low social self-concept (62.70%) is a sign of their social awkwardness which may be

related to a perceived lack of social skill. On the other hand, their low academic self-concept (60.70%) means that they experience difficulty in performing tasks in school settings which may be related to actual scholastic performance or indicate unrealistic expectations about how they should perform in school. Meanwhile, their low self-concept along personal (60.10%) and family (50.80%) dimensions indicate their tendency to avoid risky situations or challenges and their dissatisfaction with their family relationship.

Table 8. Respondents' school ability

Psychological Attribute	School Ability	Frequency	Percent
School Ability	Low	1024	13.9
	Below average	3139	42.5
	Average	3108	42.1

Psychological Attribute	School Ability	Frequency	Percent
	Above average	113	1.5
	Total	7384	100.0

Table 8 shows that most of the respondents have below average (42.5%) school ability. This finding implies that they need improvement in the verbal, non-verbal, and quantitative domains of school learning. Moreover, 42.1% of them have average school ability which signifies that

they are capable of performing the required academic tasks. Notably, 13.9% of them have low school ability which connotes that their skills in reading, writing, and arithmetic are below expected standards.

Respondents' College Readiness

Table 9. College readiness of the respondents based on the CRT

College Readiness	Frequency	Percent
Not Ready	4,556	61.7
Ready	2,828	38.3
General Mean score = 93.96		
Total	7,384	100.0

Table 9 reveals that there are more college-unready (4,556 or 61.70%) respondents than the college-ready (2,828 or 38.30%) ones. The general mean score of respondents is 93.96, which is below the passing score of 100. This finding signifies that only 2/5 of the first year respondents admitted in the University are

prepared for college. Notably, these are the respondents who manifest advancement and mastery of the entry competencies defined in the CRS and have the potential to be admitted in college and have higher tendency to pass the GEC without remediation.

Respondents' College Readiness and their Psychological Profile

Table 10. Association between the respondents' college readiness and their psychological profile

Psychological Profile		Mean	Std. Deviation	Correlation Coefficient	Pvalue
Grit				.107**	<0.001
College Adjustment	Academic Problems			-.064**	<0.001
	Anxiety			-.003	.696
	Interpersonal Problems			-.074**	<0.001
	Depression			-.055**	<0.001

	Career Problems			-.095**	<0.001
	Suicidal Ideation			-.147**	<0.001
	Substance Abuse			-.178**	<0.001
	Self-esteem Problems			.018*	.023
	Family Problems			-.016*	.050
Self-Concept	Physical			-.067**	<0.001
	Moral			-.035**	<0.001
	Personal			-.143**	<0.001
	Family			-.063**	<0.001
	Social			-.026**	.001
	Academic			-.055**	<0.001
	Total			-.083**	<0.001
Study Habits and Attitudes	Delay Avoidance			.093**	<0.001
	Work Methods			.133**	<0.001
	Teacher Approval			.094**	<0.001
	Education Acceptance			.124**	<0.001
	Study Habits			.122**	<0.001
	Study Attitudes			.114**	<0.001
	Study Orientation			.127**	<0.001
School Motivation and Learning Strategies	Study Strategies			.047**	<0.001
	Note taking/Listening Skills			.041**	<0.001
	Reading Comprehension			.038**	<0.001
	Writing/Research Skills			-.002	.805
	Test-taking Strategies			.081**	<0.001
	Organizational Techniques			.039**	<0.001
	Time Management			.037**	<0.001
	Low Academic Motivation			.076**	<0.001
	Test Anxiety			-.022**	.007

	Concentration/ Attention Difficulties			.071**	<0.001
Personality Traits	Ascendancy			.007	.373
	Responsibility			.123**	<0.001
	Emotional Stability			.024**	.003
	Sociability			-.038**	<0.001
School Ability				.273**	<0.001
Learning Styles				0.133	0.002
	Independent	93.00 ^A	19.43	a	
	Neutral preference	93.47 ^A	20.04	a	
	Social	93.58 ^A	20.13	a	
	Social/applied	94.53 ^{AB}	21.13	ab	
	Independent/applied	95.16 ^{AB}	20.00	ab	
	Applied	95.16 ^{AB}	20.00	ab	
	Conceptual	96.78 ^{AB}	21.00	ab	
	Independent/conceptual	97.44 ^{AB}	18.80	ab	
	Social/conceptual	101.97 ^B	18.74	b	

Means of the same letter are not significantly different at 0.05 significance level

** $p < 0.01$, * $p < 0.05$

Table 10 presents that grit is highly correlated with the respondents' CRT scores, as reflected in the computed r -value of .107 at a 0.01 level of significance. This finding means that grit plays a significant influence on the college readiness of the respondents. Students with high grit scores tend to score higher in the CRT and vice versa. Hence, grittier students are more able to master the entry competencies defined in the CRS. They, too, tend to have shown a higher potential to be admitted in college, and they have more likelihood to pass the GEC without remediation.

As regards college adjustment, the Kendall's tau-b correlation results suggest that there is significant negative association between college readiness score and AP ($\tau_b = -0.064, p < 0.001$), IP ($\tau_b = -0.074, p < 0.001$), DP ($\tau_b = -0.055, p < 0.001$), CP ($\tau_b = -0.095, p < 0.001$), SI ($\tau_b = -0.147, p < 0.001$), SA ($\tau_b = -0.178, p < 0.001$), and FP ($\tau_b =$

$-0.016, p = 0.050$). This implies that higher college adjustment score means lower college readiness score or vice versa. Meanwhile, correlation results indicate a significant positive association between self-esteem and college readiness score. This means that better adjustments along self-esteem problems signifies higher college readiness score or vice versa.

With respect to self-concept, the Kendall's tau-b correlation results suggest that there is a significant negative association between college readiness score and Physical ($\tau_b = -0.067, p < 0.001$), Moral ($\tau_b = -0.035, p < 0.001$), Personality ($\tau_b = -0.143, p < 0.001$), Family ($\tau_b = -0.063, p < 0.001$), Social ($\tau_b = -0.026, p = 0.001$), Academic ($\tau_b = -0.055, p < 0.001$), and total self-concept score ($\tau_b = -0.083, p < 0.001$). This implies that the higher the self-concept of the

respondents is, the lower is their college readiness score or vice versa.

As regards study habits and attitudes, the Kendall's tau-b correlation results showed that there was significant positive association between college readiness score and Delay Avoidance ($\tau_b = 0.093, p < 0.001$), Work Methods ($\tau_b = 0.133, p < 0.001$), Teacher Avoidance ($\tau_b = 0.194, p < 0.001$), Education Acceptance ($\tau_b = 0.124, p < 0.001$), Study Habits ($\tau_b = 0.122, p < 0.001$), Study Attitudes ($\tau_b = 0.114, p < 0.001$), and Study Orientation ($\tau_b = 0.127, p < 0.001$). This implies that more favourable study habits and study attitudes signifies higher college readiness score or vice versa.

With regard to school motivation and learning strategies, the Kendall's tau-b correlation results showed that there is a significant positive association between college readiness score and study strategies ($\tau_b = 0.014, p < 0.001$), note-taking/listening skills ($\tau_b = 0.041, p < 0.001$), reading comprehension ($\tau_b = 0.038, p < 0.001$), test-taking strategies ($\tau_b = 0.081, p < 0.001$), organizational techniques ($\tau_b = 0.039, p < 0.001$), time management ($\tau_b = 0.037, p < 0.001$), low academic motivation ($\tau_b = 0.076, p < 0.001$) and concentration/attention difficulties ($\tau_b = 0.071, p < 0.001$). This implies that higher school motivation and better learning strategies usher higher college readiness score or vice versa. Meanwhile, there was a significant negative association between college readiness and test anxiety, $\tau_b = -0.022, p = 0.007$. This means that the higher the test anxiety of the respondents, the lower is their college readiness score or vice versa. Remarkably, the only dimension which was not significantly correlated with college readiness is writing/research skills.

In relation to personality traits, the Kendall's tau-b correlation results showed that there was a

significant positive association between college readiness score and responsibility ($\tau_b = 0.123, p < 0.001$), and emotional stability ($\tau_b = 0.024, p < 0.001$). This means that the higher the student's responsibility and emotional stability scores are, the higher is their college readiness score. Meanwhile, sociability was found to have a significant negative association with college readiness. This implies that the higher their sociability score, the lower is their college readiness score. Notably, ascendancy is not significantly correlated with college readiness.

Also, Kendall's tau-b correlation results indicate that there was a significant positive association between college readiness score and school ability score, $\tau_b = 0.273, p < 0.001$. This implies that respondents with higher school ability have higher college readiness or vice versa.

With respect to learning styles, the ANOVA results reveal that there is a significant difference in the mean college readiness test score of respondents when grouped according to learner type, $F(8, 7370) = 3.0, p = 0.002$. A Tukey post hoc test revealed that respondents who are independent, or neutral preference, or social learner type had significantly lower mean college readiness score as compared to those who are social/conceptual learner type. Other pairwise comparisons are not significantly different.

Psychological Predictors of College Readiness among K-12 Graduates

Examining the psychological predictors of college readiness is the central focus of the study. It provides information on significant variables that have direct effect or have the most influence on college readiness among K-12 graduates. Knowing these predictors serves as input in planning to improve the educational structures and services toward the preparedness of K-12 graduates for tertiary education.

Table 11. Evaluation results of testing the formative measurement model

Formative measures	Outer Weights	95% Bca Confidence Interval				P	VIF
College Adjustment							
Anxiety	-0.679**	[	-0.833	,	-0.535	] <0.001	3.024
Academic problem	0.029	[	-0.098	,	0.167	] 0.670	2.040
Career Problems	0.248**	[	0.132	,	0.371	] <0.001	1.924
Depression	0.094	[	-0.069	,	0.260	] 0.263	3.422
Family Problems	-0.008	[	-0.099	,	0.082	] 0.863	1.024
Interpersonal Problems	0.254**	[	0.118	,	0.394	] <0.001	2.431
Substance Abuse	0.596**	[	0.506	,	0.689	] <0.001	1.357
Self-esteem Problems	-0.239**	[	-0.356	,	-0.132	] <0.001	1.592
Suicidal Ideation	0.414**	[	0.299	,	0.526	] <0.001	1.759
Self-concept							
Academic	0.067	[	-0.068	,	0.204	] 0.334	1.625
Family	0.154*	[	0.024	,	0.287	] 0.023	1.470
Moral	-0.092	[	-0.235	,	0.059	] 0.224	1.812
Personal	1.063**	[	0.987	,	1.138	] <0.001	1.613
Physical	-0.024	[	-0.179	,	0.134	] 0.759	1.888
Social	-0.366**	[	-0.505	,	-0.219	] <0.001	1.821
Study Motivation and Learning Strategies							
Concentration/attention difficulty	0.278*	[	0.040	,	0.518	] 0.023	3.418
Low motivation	0.534**	[	0.337	,	0.743	] <0.001	2.932
Note-taking/listening skills	-0.391**	[	-0.630	,	-0.167	] 0.001	3.286

Organizational technique	0.559**	[	0.383	,	0.746	]	<0.001	2.154
Reading/comprehension strategies	-0.401**	[	0.630	,	0.168	]	0.001	3.311
Study strategies	0.407**	[	0.217	,	0.600	]	<0.001	2.433
Test anxiety	-0.812**	[	0.986	,	0.647	]	<0.001	2.270
Test-taking strategies	0.577**	[	0.372	,	0.790	]	<0.001	3.035
Time management	0.027	[	0.152	,	0.198	]	0.768	1.920
Writing/research skills	-0.362**	[	0.543	,	0.194	]	<0.001	1.889
Personality Traits								
Ascendancy	-0.285**	[	0.422	,	0.150	]	<0.001	1.219
Emotional Stability	-0.427**	[	0.582	,	0.264	]	<0.001	1.689
Responsibility	1.129**	[	1.048	,	1.207	]	<0.001	1.599
Sociability	-0.238**	[	0.370	,	0.103	]	0.001	1.044

**p<0.1, *p<0.05

Table 11 shows the evaluation results of testing the formative measurement model. In evaluating the relevance of the formative indicators, the study examined the outer weights and the variance inflation factors (VIF). VIF checks multicollinearity between the individual measured variables. The computed VIF values shown in the table above are all below the threshold level of five. Thus, the presence of serious collinearity issue is not of concern.

Table 11 also presents the relative contribution of each indicator variable in terms of its outer weights and its significance in forming the constructs. Results show that most of the formative indicators weights are significant. For the variables with insignificant weights such as time management in school motivation and learning strategies, academic, moral, and physical

dimensions of self-concept, and academic problems, depression, and family problems in college adjustment, their outer loadings were evaluated and theoretical contents were reassessed. All of the aforementioned insignificant formative indicators – except for family problems - had significant outer loadings, albeit the extent is less than 0.5. Although both the outer weight and outer loading of family problems were not significant, all of these variables made a valuable contribution to the content validity of their respective target constructs, thus, they were still retained in the model. When taken together, the results in Table 12 can offer support for the quality of the outer model and analysis to address the assessment of the inner model that could be conducted.

Table 12. Evaluation results of the structural model

Relationship	Path Coefficient	95% BCa Confidence Interval					p	VIF
<i>Direct effect</i>								
CRT -> College Adjustment	-0.278**	[	-0.299	,	0.250	]	<0.001	1.000
Personality traits -> CRT	0.051**	[	0.023	,	0.074	]	<0.001	1.135
Grit -> CRT	-0.005	[	-0.028	,	0.018	]	0.662	1.006
Learning Styles-> CRT	0.009	[	-0.013	,	0.031	]	0.440	1.013
School ability -> CRT	0.224**	[	0.198	,	0.253	]	<0.001	1.336
School motivation & learning strategies -> CRT	0.054**	[	0.026	,	0.074	]	<0.001	1.089
Study Orientation -> CRT	0.056**	[	0.033	,	0.080	]	<0.001	1.175
Self-concept -> CRT	-0.080**	[	-0.103	,	0.054	]	<0.001	1.127

**p<0.1, *p<0.05

Table 12 presents the results of the evaluation of the inner model. It shows the path coefficients of the direct effects related to the key target variable college readiness and its significance based on the biased-corrected and accelerated (BCa) bootstrap confidence interval. The values of the variance inflation factors are all low (<3) which indicates that multicollinearity is not a problem in the structural model.

The assessment of the significance of the direct effects of different variables to and from the college readiness can be seen in Table 12. Results show that personality traits, school ability, school motivation and learning strategies, and study orientation have positive significant effect on college readiness. Meanwhile, self-concept had a significant negative effect on college readiness. The rest of the hypothesized predictor variables

such as grit, learning styles, do not have significant direct effects on college readiness. It is also expected that college readiness affects college adjustment. The direct effect results show that indeed, college readiness has a significant negative effect on college adjustment (low scores mean good adjustment).

The total effects were also assessed to answer the main objective of the study which is to determine significant predictors of college readiness. Table 13 displays the different variables' path coefficients and their significance, confidence levels, and effect size (f^2) to college readiness. The table is also arranged from the strongest down to the weakest variables that affect college readiness. As shown on the table, school ability had the strongest effect on college readiness

Table 13. Summary table on the psychological predictors of college readiness

Variables	Path Coefficient	95% BCa Confidence Interval					p	f ²
School Ability	0.224**	[	0.198	,	0.253	]	<0.001	0.049
Self-concept	-0.080**	[	-0.103	,	-0.054	]	<0.001	0.007
Study Orientation	0.056**	[	0.033	,	0.080	]	<0.001	0.004
School Motivation and Learning Strategies	0.054**	[	0.026	,	0.074	]	<0.001	0.003
Personality Traits	0.051**	[	0.023	,	0.074	]	<0.001	0.003
Learning Styles	0.009	[	-0.013	,	0.031	]	0.440	0.000
Grit	-0.005	[	-0.028	,	0.018	]	0.662	0.000

**p<0.1, *p<0.05

Further evaluation of the structural model indicates that the coefficient to determine college readiness is 0.235 which means that the hypothesized predictors in the model explain 23.5% of the variance in college readiness. The Stone-Geisser's Q² was also calculated using blindfolding procedure to assess the predictive accuracy of the PLS path model. The calculated Q² value for college readiness (0.225) which is above zero provides a clear support for the model's predictive relevance.

4. Discussion

The psychological make-up of learners are valuable inputs to their college readiness. Among the psychological predictors, the school ability has the greatest effect on college readiness. This is because it reflects verbal, non-verbal, and quantitative domains which are direct indices of school learning. Thus, it shows capability of students in performing the required academic tasks. The K-12 graduates who exhibit higher school ability are more able to hurdle academic tasks in college such as reading, writing, and mathematics (Lamas, 2015).

Another psychological predictor is self-concept which has inverse effect on college readiness. The finding could be explained by the fact that the academic self-concept obtained the lowest T-score among the six dimensions of self-concept. The K-12 graduates who perceived themselves to be poor in performing school activities tend to

manifest college unreadiness. This finding affirms numerous studies showing that low academic self-concept is a significant factor in explaining students' poor performance in school (Manning et al., 2006). Besides, according to Fitts & Warren (1996), people with high Total Self-concept (TOT) scores generally view themselves as having many positive aspects that can be called upon to compensate for threats or injury to specific aspects of their self-image. It can be viewed that those who reported themselves to have high self-concept use it to compensate themselves from these unfavorable situations. Because they show high self-concept, they tend to be overly confident and complacent in the things they do in life, including mastering the entry competencies essential for them to be college-ready.

Interestingly, favourable study orientation is a good predictor of college readiness. This is because a favourable study orientation employs functional learning tactics (Ogbodo, 2010) and becomes effective when complemented by a degree of pleasure and willingness (Atanasova-Pacemski et al., 2015). Unfavourable study orientation, on the other hand, is characterized as having weak academic engagement and convictions. SHS graduates in this predisposition are inclined to practice delay and avoidance of academic tasks, use ineffective study methods, and display negative attitudes toward teachers and requirements that impede their academic

growth and achievement (Leithwold & Riehl, 2003).

Meanwhile, the school motivation and learning strategies as a predictor of college readiness indicates K-12 graduates who have effective learning strategies such as note-taking/listening skills, reading comprehension, test-taking, organizational techniques, and time management are more college ready. Furthermore, those who have highly developed academic motivation and have the ability to cope with attention and concentration difficulties as well as test anxiety show preparedness for college (Kyllonen et al., 2014).

Finally, personality traits such as responsibility, emotional stability, ascendancy, and sociability have significant effect on college readiness. K-12 graduates who manifest high ascendancy are capable of taking active role in the group, making independent decisions, and being self-assured in relationships with others. Those who show higher responsibility are able to stick to the job assigned to them and remain persevering and determined. Meanwhile, those who are emotionally stable and sociable exert emotional control and maintain resilience as they work with people (Kyllonen et al., 2014; MacCann et al., 2020; Mashburn & Pianta, 2006).

5. Conclusion

This study provided baseline data that may shed light to the college readiness and psychological characteristics of Senior High School graduates which are relatively unexplored in the Philippine context. The study results may be used as valuable inputs for crafting policies and programs that may fortify SHS graduates' seamless transition from basic to tertiary education.

Using the CRT result as a measure, the K-12 graduates demonstrated less preparedness for college education. The educational outcome pictured from the study presents that much is still

desired for basic education institutions to improve the quality of its K-12 graduates with special focus on the teaching of Science and Mathematics. Hence, the need to develop a "college-going culture" that ensures seamless and effective transition of K-12 learners from basic to tertiary education.

As regards psychological characteristics, majority of the respondents are mostly gritty and have below average to average school ability. In terms of study motivation and learning strategies, they are no more problematic than for most respondents in study strategies, note taking/listening skills, reading/comprehension strategies, writing/research skills, test taking strategies, organizational techniques, and time management. Furthermore, they show eclectic or neutral preference in their learning style as they can employ varied learning styles.

However, the respondents have unfavourable study habits and attitudes and low academic motivation. Notably, they have low self-concept specifically along moral, personal, family, social, and academic dimensions. They, too, have undesirable personality traits particularly along ascendancy, responsibility, emotional stability, and sociability. Similarly, they are borderline in college adjustments specifically on depression and suicidal ideation.

As a complex and emerging construct, college readiness is predicted by numerous psychological factors that interplay in shaping every K-12 learner. These include school ability, self-concept, study orientation, school motivation and learning strategies, and personality traits. As these factors have effect on college readiness, they must be given primary consideration in planning for curriculum alignment, transition interventions, and college admissions.

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7. Acknowledgements (Optional)

The author expresses her wholehearted gratitude to the Commission on Higher Education and Cagayan State University for making this research possible. Special thanks are extended to her DARE TO Team for allowing her to publish this research.

8. Author Declaration

The author declares that this manuscript is an original work and has not been published previously, nor is it currently under consideration for publication elsewhere. The DARE TO Team where the author was a member have contributed to the preparation of the manuscript and have approved its final version for submission.

The author further declare that they have **no conflicts of interest** to disclose in relation to this work.