

Students' Natural Aptitudes and the Required Skills in their Chosen Program

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Abstract - This qualitative research aims to find out whether natural talents and interest of students based on NCAE result match the program they have enrolled in. One hundred sixteen first year students were involved in this study, 61 of whom were from the College of Computer Studies while 55 were from the College of Engineering. Analysis and findings of this study were based on the data obtained from the University's guidance office on the respondents' National Career Assessment Exam Results. It was found out that most of the respondents chose to enroll in programs that do not match their occupational field of interest. It further revealed that majority of the first year students from both College of Engineering and Computer Studies were seen to have the potential of becoming successful in other fields.

Keywords - student aptitudes, occupational interest

INTRODUCTION

National development is every nation's goal throughout the world. A country is seen to be developed when underemployment and unemployment rates decreased if not eliminated. One of the probable reasons for this is the mismatch between education and employment. With this situation, the Department of Education is challenged to improve the quality of secondary education graduates entering college by developing the National Career Assessment Exam (DepEd Memo no. 270, July 2007).

National Career Assessment Examination (NCAE) is believed to maintain the quality of education in the Philippines by leading the flow of students to courses in post-secondary institutions of learning matching their aptitude thereby, bringing national development in the country. Among the objectives on the creation of NCAE are to minimize indiscriminate wastage of manpower and other resources which otherwise could be directed towards more productive ventures and assess the abilities the students has developed through the years which are essential for successful college or becoming an entrepreneur (DepEd Memo no. 270 s. 2007).

With Pangalangan (2007) idea that career choices should match the natural talents and interest of students, the researcher would like to delve at whether programs where students chose to enroll match their occupational field of interest based on NCAE result.

FRAMEWORKS

Scientific Ability (SA). This is an assessment of the individual's scientific abilities and skills to adopt scientific methods, procedures and processes constructing knowledge and solving experimental or real-life problems. One who has a high SA has greater probability to excel in academic programs that work mostly on scientific methodologies (e.g. medical allied professions). Those with average SA can be successful in the field of chemistry, physics, zoology, botany, biology, and other courses related to medicine.

Reading Comprehension (RC). This measures the ability to understand what has been stated directly; to analyze, interpret, and criticize what has been read; to recognize reasonable application of

principles or opinions expressed by the author. A student with high RC has the potential to make sound inferences, syntheses, generalizations, or conclusions on what he/she read. Students who possess the skills will most likely succeed in courses that involve public speaking and even writing such as mass communication, teaching, theology, and law.

Verbal Ability (VA). This subtest measures the assertive ability of a person in view of grammatical rules and logical arrangement of ideas. Individuals with high VA have high sense of analogy; hence, they have potential in mass communication, law, teaching, and preaching vocation. Those with average VA can be developed in advertising careers.

Mathematical Ability (MA). This subtest is used to assess quantitative abilities and computational skills, particularly, on working with numbers, perceiving relationship between two quantities and solving word problems. One with high MA has a high sense of mathematical calculus, a requisite skill in engineering courses, aeronautics, and marine courses.

Clerical Ability (CA). This is a test of ability and skill to encode data /information and file office records, as well as ability to note details. High CA is the requisite skill for secretarial jobs for these jobs require good manual dexterity; thus, individuals with high CA are potential computers operators, encoders, and stenographers.

Manipulative Skills (MS). This subtest determines a person's skills in manual dexterity such as producing handicrafts, and assembling or disassembling equipments. Manipulative skills are required in occupations such as machine technicians, jewelers, watchmakers, engravers, handicraft makers, and the like.

Nonverbal Ability (NVA). This tests a person's reasoning ability to identify patterns presented in diagrammatic form. The series of figures presented in each item requires the perception of an operating principle underlying the changes in the figures. In each instance, the examinee must discover the principle's governing change/s of the figures and give evidence of his understanding by indicating the diagram that should logically follow. It tests abilities required in jobs such as engineering, science, architecture and any other jobs, which involve working with diagrammatic and similar visual information.

Entrepreneurial Skills (ES). This is a test to assess one's capacity to engage in business undertakings. One with average to high ES has the potential to succeed in activities/jobs that generate income, considering profit business.

The following are the brief descriptions and interpretation of students' occupational interest:

Outdoor Interests. This means that one enjoys working with naturalistic environment such as plants and animals. Examples of which are the following: landscaping workers, poultry/dairy farmers, cattle ranchers, fishermen, agriculturists, horticulturists, zoologists, agronomists, botanists, and marine biologists.

Mechanical Interests. This means that one enjoys working with real-world materials such as woods, tools and machinery. Examples of occupations are the following: cooks, equipment operator/technicians, machinists, sculptors, jewelers, watchmakers, goldsmiths, carpenters, engravers, painters, plumbers, masons, tile setters, cooks/food technicians, medical technicians, electricians, and mechanical/ civil/ mining/ chemical/ computer hardware engineers.

Investigative Interests. This means that one enjoys activities, which require mental work or thinking skills. Example: dieticians, nutritionists, biochemists, physicists, astronomers, anthropologists, archaeologists, geographers, historians, psychiatrists, clinical psychologists, physicians, dentists, respiratory therapists, medical technologists, pharmacists, veterinarians, lawyers, sociologists, statisticians, computer systems analysts, political analysts, economists, and market research analysts.

Artistic Interests. This means that one enjoys activities that look at the side of things such as forms, designs and patterns. Examples: fashion designers, interior decorators, graphic designers, landscape architects, makeup artists, painters, sketch artists, poets/lyricists, cartoonists, photographers, musicians, singers, dancers, actors, directors, radio/TV announcers.

Social Interests. This means that one enjoys activities that assist other people and promote learning and personal development. Examples: ushers/lobby attendants, nurses/caregivers, librarians, teachers, news reporters, translators, advertisers, sale agents/representatives, athletic trainers, law enforcers, judges, counseling

psychologists, religious workers/laymen, health educators, business managers, community workers.

Enterprising Interests. This means that one likes activities that have something to do with carrying out projects especially business ventures. Examples: retail or sari-sari store, door-to-door sales, buy-and-sell, handicrafts, telemarketing, hairdressing, cosmetology, dressmaking/tailoring, agriculture crops, food factory, travel agency, loan service, hotel and restaurant.

Clerical Interests. This means that one enjoys work activities that follow set procedures and routines. Examples: office clerks, cashiers, secretaries, bank tellers, encoders/data processors/computer operators, bookkeepers, and sales inventory clerks (Department of Education National Education Testing and Research Center).

OBJECTIVES OF THE STUDY

This study aims to find out whether natural talents and interest of students based on NCAE result match the program taken by the first year students school year 2007-2008. Specifically, it includes the following objectives:

1. To determine the potentials/inclinations of students based on NCAE results in terms of general scholastic aptitudes, scientific ability, reading comprehension, verbal ability, mathematical ability, technical-vocational aptitude, clerical ability, manipulative skill, non-verbal ability, and entrepreneurial skill.

2. To identify the occupational fields of interest based on NCAE results by college.

METHODOLOGY

This study employed qualitative research design. It merely described the respondents' general scholastic aptitude, technical-vocational aptitude, non-verbal ability, entrepreneurial skill and their occupational field of interest. Respondents were one hundred sixteen first year students analysis and findings of this study were based on the data obtained from the University's guidance office on the respondents' National Career Assessment Exam Results.

Colleges of Engineering (COE) and Computer Studies (CCS) are two of the seven colleges of La Salle University. COE offers five programs namely Geodetic, Civil, Computer, Electronics and Communication and Electrical Engineering whereas, CCS offers two programs which include Computer Science and Information Technology.

Percentage was used to disclose findings and analysis from the data gathered. The data used and presented in this paper were taken from the standardized result of NCAE.

RESULTS AND DISCUSSIONS

National Career Assessment Exam measures eight potentials/ inclinations of students namely, scientific ability, reading comprehension, verbal ability, mathematical ability, clerical ability, manipulative skills, nonverbal ability and entrepreneurial skills. The first four skills were grouped together to represent the general scholastic aptitudes while the next two abilities represent the technical-vocational aptitudes.

The general scholastic aptitudes of the respondents in the National Career Assessment Exam refers to the generally acquired knowledge and is measured in terms of scientific ability, reading comprehension, verbal ability, and mathematical ability.

The scientific ability in the NCAE assesses students’ scientific abilities and skills to adopt scientific methods, procedures and processes constructing knowledge and solving experimental or real-life problems (Department of Education National Testing and Research Center).

The general scholastic aptitude of students in terms of scientific ability is presented in Table 1.

Table 1 Students’ general scholastic aptitude
in terms of scientific ability

Descriptive Rating	Frequency	Percentage
Very High	4	3.4
Above Average	5	4.3
Average	49	42.2

Low Average	43	37.1
Below Average	14	12.1
Poor	1	.9
TOTAL	116	100

Table 1 shows that 4 of the respondents have the greater probability to excel in academic programs that work mostly on scientific methodologies while 54 of the respondents are inclined to be in the field of chemistry, physics, zoology, biology and other courses related to medicine. This implies that 50% of the respondents have the potential of becoming successful in the fields other than engineering and computer studies. With this, a notion can be drawn that half of the respondents have the probability of deciding to shift to another program related to medicine.

The reading comprehension in the NCAE measures students' ability to understand what has been stated directly; to analyze, interpret, and criticize what has been read; to recognize reasonable application of principles or opinions expressed by the author (Department of Education National Testing and Research Center).

Table 2 Students' general scholastic aptitude
in terms of reading comprehension

Descriptive Rating	Frequency	Percentage
Excellent	1	.9
Above Average	17	14.7
Average	69	59.5
Low Average	24	20.7
Below Average	5	4.3
TOTAL	116	100

Only one respondent has excellent skill in reading comprehension and who has the potential to make sound inferences, syntheses, generalizations, or conclusions on what he/she reads. About 87 respondents are most likely to succeed in courses that involve public speaking and even writing such as mass communication, teaching,

theology and law. This implies that most of the first year engineering and computer studies students can be successful in other fields other than the field they have enrolled in. This means that 75% of the respondents may end up deciding in the next year or so to move to other programs related to public speaking say, mass communication, education or journalism among others.

The verbal ability in the NCAE determines students’ assertive ability in view of grammatical rules and logical arrangement of ideas.

Table 3 Students’ general scholastic aptitude
in terms of verbal ability

Descriptive Rating	Frequency	Percentage
Above Average	14	12.1
Average	64	55.2
Low Average	31	26.7
Below Average	6	5.2
Very Poor	1	.9
TOTAL	116	100

Majority of the respondents (78) can be developed in advertising careers. This result implies that most of the students enrolled in engineering and computer studies programs can be successful in fields that require verbal ability like mass communication, law, teaching and preaching vocation. Such result confirms the respondents’ potential that involve public speaking and even writing as reflected in Table 2.

The mathematical ability in the NCAE evaluates students’ quantitative abilities and computational skills, particularly, on working with numbers, perceiving relationship between two quantities and solving problems (Department of Education National Testing and Research Center).

Table 4 Students' general scholastic aptitude in terms of mathematical ability

Descriptive Rating	Frequency	Percentage
Very High	2	1.7
Above Average	7	6
Average	69	59.5
Low Average	33	28.4
Below Average	4	3.4
Poor	1	.9
TOTAL	116	100

Seventy-eight (78) of the respondents possessed the requisite skill for engineering courses, aeronautics, and marine courses. Thus, they can be developed to become successful engineers and pilots. However, this result does guarantee that indeed those enrolled in the engineering program in La Salle University did possess this ability since these 78 respondents were not solely from the college of Engineering and that frequency is a combination of students who are enrolled both in engineering and computer studies programs.

The overall general scholastic aptitude is the combination of results of the four dimensions comprising students' general scholastic aptitude. The data were obtained from the individual NCAE results of students. This is presented in Table 5.

Table 5 Students' overall general scholastic aptitude

Descriptive Rating	Frequency	Percentage
Above Average	9	7.8
Average	71	61.2
Low Average	33	28.4
Below Average	2	1.7
Poor	1	.9
TOTAL	116	100

Sixty-nine per cent (69%) of the respondents had acquired good scholastic aptitude during their high school days. This is evident since 9 were seen to have above average while 71 got average in their overall general scholastic aptitude result. This means that 69% of the respondents are fit to enroll in any four-year course in the tertiary level.

Table 6 Students’ technical-vocational aptitude
in terms of clerical ability

Descriptive Rating	Frequency	Percentage
Above Average	26	22.4
Average	49	42.2
Low Average	36	31
Below Average	5	4.3
TOTAL	116	100

The technical-vocational aptitude of students refers to students’ manual dexterity as measured in terms of clerical ability and manipulative skills.

The clerical ability in the NCAE specifically assesses students’ ability and skill to encode data/information and file office records, as well as ability to note details.

Majority of the respondents (75) were seen to possess clerical ability which means that they are inclined to be successful as computer operators, encoders, and stenographers. It can be noted that 51 of the total number of respondents were enrolled in Computer Studies programs who are expected to be computer operators and knows how to encode. This could have bearing on the result that 65% of the respondents are seen to possess clerical ability. The manipulative skills in the NCAE judges students’ skills in manual dexterity such as producing handicrafts, and assembling and disassembling equipment (Department of Education National Testing and Research Center).

Table 7 Students' technical-vocational aptitude
in terms of manipulative skills

Descriptive Rating	Frequency	Percentage
Excellent	1	.9
Very High	3	2.6
Above Average	16	13.8
Average	55	47.4
Low Average	39	33.6
Below Average	1	.9
Very Poor	1	.9
TOTAL	116	100

As shown in Table 7, 75 respondents possessed manipulative skills. This implies that majority of the respondents are seen to possess the potentials of becoming machine technicians, jewelers, watchmakers, engravers, handicraft makers and the like. Such skills might also be inherent of those people who are interested to become engineers and those who are computer enthusiasts. It is believed that manual dexterity is needed in these fields because of laboratory works that includes assembling or disassembling of different parts, may it be computers for those who enrolled in computer studies and/or circuits for those who are into engineering programs.

Table 8 Students' potential in terms of overall
technical-vocational aptitudes

Descriptive Rating	Frequency	Percentage
Very High	3	2.6
Above Average	22	19
Average	53	45.7
Low Average	35	30.2
Below Average	2	1.7
Poor	1	.9
TOTAL	116	100

The overall technical-vocational aptitude is the combination of results of the two dimensions comprising students’ technical-vocational aptitudes. Such data were obtained from the individual NCAE results of students. This is presented in Table 8.

Sixty-seven percent (67%) of the respondents were seen to possess the potential to excel in technical-vocational programs. This is evident in the result presented having 3 respondents who garnered very high descriptive rating, 22 above average and 53 gathering average rating in the overall technical-vocational aptitudes result. The nonverbal ability in the NCAE gauges students’ reasoning ability.

Table 9 Students’ non verbal ability

Descriptive Rating	Frequency	Percentage
Excellent	1	.9
Very High	4	3.4
Above Average	16	13.8
Average	52	44.8
Low Average	39	33.6
Below Average	4	3.4
TOTAL	116	100

Twenty-one (21) of the respondents got high while 52 got average on nonverbal ability. This means that these respondents possess the skills required in jobs such as engineering, science, architecture and any other jobs which involve working with diagrammatic and similar visual information. The entrepreneurial skills in the NCAE measures students’ capacity to engage in business undertakings.

Table 10 Students' entrepreneurial skills

Descriptive Rating	Frequency	Percentage
Excellent	1	.9
Very High	2	1.7
Above Average	19	16.4
Average	52	44.8
Low Average	38	32.8
Below Average	3	2.6
Poor	1	.9
TOTAL	116	100

Seventy-four (74) of the respondents were seen to have the capacity to engage in business undertakings. They have the potential to succeed in activities/jobs that generate income, considering profit business. This holds true to the fact that engineers can do their own practice at home or in the office for the public to avail of their services for a fee (e.g. geodetic engineers who are hired as surveyors). Computer studies graduates who end up acquiring their own computer shops and manage their own internet cafes.

The National Career Assessment Exam identifies seven students' occupational field of interest namely, outdoor, mechanical, investigative, artistic, social, enterprising, and clerical interests.

Table 11 Students' occupational field of interest

Descriptive Rating	COE		CCS	
	Frequency	Percentage	Frequency	Percentage
Artist	14	25.5	27	44.3
Mechanical	15	27.3	8	13.1
Clerical	8	14.5	10	16.4
Investigative	6	10.9	7	11.5
Enterprising	6	10.9	5	8.2
Social	5	9.1	3	4.9
Outdoor	1	1.8	1	1.6
TOTAL	55	100	61	100

Table 11 shows, first year students in the Colleges of Engineering and Computer Studies have varied occupational interest based on National Career Assessment Exam Result. Forty-one of them have artistic interests which implies that they enjoy activities that look at the artistic side of things such as forms, designs and patterns. That is, these respondents are interested in becoming fashion designers, interior decorators, graphic designers, photographers, musicians, singers, dancers, actors, directors, radio/TV announcers. Engineering students are ideally expected to be interested in mechanical as an occupational field of interest while computer studies students are ideally expected to have investigative as their occupational field of interest. However, it can be noted that only 15 out of 55 engineering respondents are seen to possess mechanical field of interest. They are the only ones who enjoy working with real-world materials such as woods, tools and machinery of which are expected to have the jobs of electricians and mechanical/civil/mining/chemical/computer hardware engineers. However, only seven respondents coming from the CCS, were interested in activities which require mental work or thinking skills necessary for becoming computer systems analysts. With these findings, it is clear that only 27.3% of the first year students in the COE and only 11.5% of first year students in CCS whose occupational field of interest match the program they enrolled in.

As presented in Table 11, data implies that students' occupational interest based on NCAE result and the program where they get themselves enrolled in did not match. Three possible reasons could be mentioned here. One is that other persons might have been the one responsible for choosing the program for the students. Two, the NCAE result was not given weight by the students when they made decision on which program to choose. Three, it could be that the admitting officer failed to consider the NCAE result as the basis in guiding students in choosing which career to take.

CONCLUSIONS

Most of the respondents choose to enroll in a program that does not match their occupational field of interest. A majority of these respondents from both College of Engineering and Computer Studies

were seen to have the potential of becoming successful in other fields such as in profit business since they possess enough clerical ability, manipulative skills, and nonverbal ability.

RECOMMENDATIONS

Based on the findings, the following are recommended:

1. Students should be guided to choose or take up program that reflects their natural talents or potential.
2. Administrators should consider the importance of NCAE results in designing admission policies, in maintaining the frequencies of enrollees, ensuring higher survival rate, and producing committed graduates.
3. Another investigation should be done to see whether students' interest and potential affect performance.

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