

ISSN 0119-5107



**Philippine Normal University
CENTER FOR RESEARCH AND
DEVELOPMENT IN EDUCATION
Manila**



RESEARCH SERIES

No. 127

October 2010

REVISITING THE PHILIPPINE NORMAL UNIVERSITY ADMISSION TEST (PNUAT): BASIS FOR PROCEDURAL ENHANCEMENT AND TEST ITEMS REVISION

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Revisiting the Philippine Normal University Admission Test (PNUAT): Basis for Procedural Enhancement and Test Items Revision

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INTRODUCTION

Taking an entrance examination to qualify for enrollment in a college or university can be a formidable yet exciting experience for student applicants. The result ascertains their course choice and solidifies their life's direction.

Any examination is worth reviewing every so often. On the part of the institution that administers the examination, the test validity and its administration, the examination booklet, the answer sheet, the test venue, and the competence of proctors are essential areas that must be periodically looked into. Can PNU guarantee that college applicants who have paid for the entrance examination are afforded optimal testing conditions so that plausible extraneous variables that may distress them are reduced?

On the part of the examinee, his/her mental and physical preparedness cannot be taken for granted especially if the examination at hand such as the admission test is a requirement for admission to a college or a university. Are fresh high school graduates truly ready to take a college entrance examination?

In the Philippines alone, there are more than 20,000 online sites that offer tips in taking college entrance examinations. The volume itself speaks of the magnitude the information that proffers the college

applicants. These online information on test-taking tips include strategies from accredited review centers, blogs from private individuals, newspaper articles, higher institutions postings, and reflections from experienced tutors. Obviously, there is no dearth of information to assist an examinee.

BACKGROUND

The current edition of the PNUAT has been used since 2001. Its content and construct validity as well as the reliability of the test were established. The validity and reliability indices were, however, obtained in 2001. After nine years, notwithstanding the single-minded utilization of the instrument, prudence and academic duty require a revisit on the PNU admission test.

The PNUAT comprises 150 multiple choice type items covering three components: Language Skills, Number Skills and Predisposition to Teaching. The Language Skills component is composed of 65 items which are divided into three subtests: Structure (20 items), Reading (25 items), and Verbal Reasoning (20 items). The Number Skills component is composed of 60 items which are also divided into three subtests: Basic Mathematics (30 items), Algebra (15 items), and Geometry (15 items). The last part is the Predisposition to Teaching component which is composed of 25 items. The minimum cut-off score is 70; deemed high enough for the instrument to identify applicants who are likely to succeed or do well in teacher education.

Through the supervision of the Office of Admissions, the University schedules at least four testing dates in a given school year for college applicants in the forthcoming school year. Examinations usually begin on the third Sunday of December. Three more test dates are scheduled on the first Sunday of February, March and April of the following year. After scrutinizing the documents submitted by the applicants, the Office

of Admissions issues examination permits. Walk-in college applicants, those who wish to take the admission test after the last test scheduled in April, are accommodated in late April and May.

College applicants either from public or private high schools, mainly come from the National Capital Region (NCR). Others come from the nearby provinces like Bulacan, Cavite and Laguna. A few applicants hail from the Visayas and Mindanao regions.

Since 2007 when admission test fees were increased from Php 50.00 to Php 350.00, the average number of examinees hovers between 3,000 and 4,000. There were times in the previous years when the number of examinees would reach 10, 000. It has been deduced that the increase in test fees constrained applicants to filter their choice of higher education institutions.

The profile of college applicants who took the PNU admission test from 2006 to 2010 is presented in Table 1. Given the data, one can conclude that, approximately, half of the total number of the applicants annually makes it to cut-off passing score. About 1,300 to 1,500 first year college applicants are accepted every year, contingent on financial and physical resources of the University.

Table 1. Profile of College Applicants Who Take the PNU Admission Test*

School Year	Total Number of Examinees	Passed	%	Failed	%
2006-2007	3,900	1,646	42.21	2,254	57.79
2007-2008	3,618	1,685	46.57	1,930	53.34
2008-2009	2,831	1,546	54.61	1,285	45.39
2009-2010	3,081	1,629	52.87	1,452	47.13
2010-2011	3,305	1,722	52.10	1,583	47.90

** Data was provided by the Office of the Vice President for Academics*

Faculty members are tapped to serve as test proctors. The classrooms in the Main Building are utilized since its location facilitates the distribution of test materials. The administrative staff is retained as support personnel. Honorarium is paid to both faculty and administrative employees for their services during the examination dates.

Mindful of maintaining quality public service as a state university, this research aspires to evaluate the administration of the PNU Admission Test (PNUAT) from the viewpoint of the faculty proctors and of the examinees who are now college freshmen students (SY 2010-2011). Moreover, to affirm the validity and reliability of this almost-a-decade old admission test, this study recalculates the test's reliability coefficient, item difficulty indices and discrimination powers.

PURPOSE OF THE STUDY

General Objective: To appraise the PNU Admission Test (PNUAT) in terms of its administration by concerned officials, experience of the examinees, and test circumstances relevant to present PNUAT data.

Specific objectives:

- a. What is the profile of the PNUAT proctors?
- b. What are the procedures in the selection of proctors?
- c. What are the terms of reference of proctors?
- d. What is the evaluation of proctors of the administration of the test in terms of procedures and coordination of the offices involved?
- e. What is the experience of the examinees before, during and after the examination?
- f. What are the comments and recommendations of the proctors and examinees?

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- g. What is the test reliability coefficient of the PNUAT?
 - h. What are the test item indices of difficulty and discrimination and the discrimination coefficients?

METHODOLOGY

This study used the descriptive survey research method.

Respondents

The study had two (2) groups of respondents: the PNUAT proctors and the college freshman students who took the PNUAT for SY 2009-2010.

All the faculty members who had served as PNUAT proctors were given research instruments with an introductory letter.

Fifteen (15) of the 30 college freshman sections were selected at random to answer the research questionnaires. The faculty who handled subjects taken by these sections was requested to administer the instrument.

Survey Instruments

The survey instruments for the PNUAT proctors and for the college freshman students were both constructed by the research authors with the assistance of the CREDE director and staff. Both instruments were pilot tested in July 2010. Revisions on the instruments were done based on given comments and suggestions.

The revised research instrument for proctors included items on:

- a. Procedures
- b. Schedule
- c. Venue
- d. Test Materials (test booklet and answer sheets)
- e. Orientation, Training and Evaluation

The revised research instrument for students included items on:

- a. Preparation for the Examination
- b. Taking the Examination
- c. Release of the Examination Results

The instruments were administered in late July 2010.

Statistical Treatment

Simple frequency counts and percentage distribution were utilized in the data organization.

In the assessment of the test item quality, the study was limited to the analysis of the items on the cognitive part of the PNUAT, the Language Skills and the Number Skills components. Items in the Predisposition to Teaching component, the Teaching Situation Inventory, were not included because the items were affective in nature and thus required a complex procedure for analysis.

The descriptive archival method, a method which analyzes preexisting data or records, was adopted to assess the quality of the individual items and the admission test as a whole. Four thousand eighty-four (4,084) examination papers or 64% of the total examination papers for school years 2008-2009 and 2009-2010 were analyzed. This process is deemed valuable especially when tests are used in later assessments. The item statistics used in the process—difficulty index, discrimination index and discrimination coefficient—were based on the assumption

that the quality of an instrument is derived from the attributes of its items. Tables 2 to 4 were used to categorically describe these item statistics.

Table 2. Difficulty Index*

Index Range	Categorization
0.85 – 1.00	Easy
0.51 – 0.84	Moderate
0.00 – 0.50	Hard

** Based on the SCOREPAK® classification, University of Washington*

Table 3. Discrimination Index*

Index Range	Categorization
0.40 – 1.00	Very Good
0.30 – 0.39	Good
0.20 – 0.29	Needs Revision
0.00 – 0.19	Poor

** Based on Ebel & Frisbie, 1986*

Table 4. Discrimination Coefficient*

Index Range	Categorization
0.31 – 1.00	Good
0.10 – 0.30	Fair
0.00 – 0.10	Poor

** Based on the SCOREPAK® classification, University of Washington*

Further, the reliability coefficient of the PNUAT was estimated. Test reliability refers to the consistency of scores students would receive on alternative forms of the test or on the same test when administered in future occasion. In a one-shot test administration like in the case of the PNUAT, high test reliability means greater probability of students getting the same score when the same test is administered in the future. KR Formula 20 was used to estimate the reliability coefficient of the PNUAT since the previous study revealed that the test has items with heterogeneous item difficulty indices.

RESULTS AND DISCUSSION

Test Administration

I. The PNUAT Proctors

Out of 40 faculty members identified as PNUAT proctors of which seven (7) were males and six (6) were females, only 13 filled out the survey instrument.

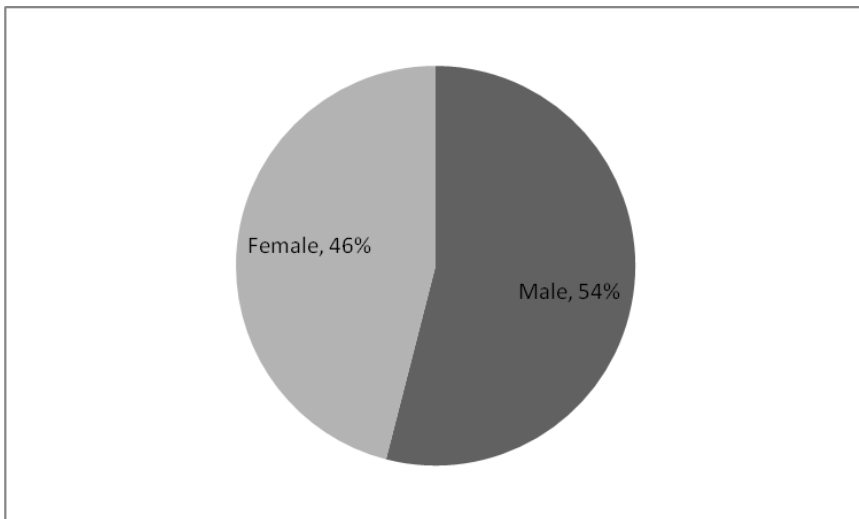


Figure 1. Profile of Respondents by Gender

As shown in Table 5, 62% of the faculty-respondents had been proctors for less than five (5) years. The rest had served 10 years or more.

Table 5. Distribution of Faculty-Respondents according to Number of Years of Service as Proctors

Number of Years	f	%
Less than 5 years	8	62
5-9 years	0	0
10 years and above	5	38
Total	13	100

Majority of the faculty proctors were instructors, followed by an equal number of full professors and assistant professors. It is noteworthy that faculty members of all ranks take time to assist in administering the PNUAT.

A. Selection of Proctor

As revealed in Table 6, the Office of Admissions seemed to have taken an initiative in the selection of proctors. A foreign university defines proctor as an approved person capable of supervising a student while taking an examination (http://distance.usu.edu/htm/faq/faq_q=366). One may infer that the Office of Admissions has identified the faculty who suit such definition.

Question 1: *How were you selected to be proctor?*

Table 6. Distribution of Responses of Faculty-Respondents on the Selection of Proctors

Response	f	%
A. I was told by my department head.	0	0
B. I personally volunteered.	3	23
C. I was asked by the admissions office.	10	77

B. Terms of Reference of Proctors

As regards duties and responsibilities of proctors, all faculty-respondents said they received instructions each time they served as proctor (Table 7). Table 8 reveals that 11 out of 13 faculty-respondents underwent orientation program before each test date. Five (5) of the 11 faculty-respondents underwent one a long time ago. Two (2) confessed that they had not heard anything about the orientation program. One respondent had some confusion about the duties and responsibilities of a proctor (Table 9).

Test proctors have job parameters. In several testing centers that involve large number of examinees, job parameters are in place. These parameters include: the identification, admission, seating, and monitoring of examinees in support of the administration of college, state, and national tests and assessments (http://www.ehow.com/facts_5709816_test-proctor-job-description.html#ixzz10sfzr0qy).

Question 1: *Did you receive instructions on your duties and responsibilities as a proctor before the examination?*

Table 7. Distribution of Responses of Faculty-Respondents on the Orientation on Duties and Responsibilities of Proctors before Administration of PNUAT

Response	f	%
A. Yes, every time I serve as proctor in a given school year.	13	100
B. Yes, I was told a long time ago.	0	0
C. No, I have never heard of such.	0	0

Question 2: *Did you undergo an orientation program before the admission examination test dates?*

Table 8. Distribution of Responses of Faculty-Respondents on the Conduct of Orientation Program before Administration of PNUAT

Response	f	%
A. Yes, every time I serve as proctor.	6	46
B. Yes, I attended one a long time ago.	5	38
C. No, I have never heard of such.	2	15

Question 3: *Are your duties and responsibilities clear to you?*

Table 9. Distribution of Responses of Faculty-Respondents on the Clarity of Orientation on Duties and Responsibilities of PNUAT Proctors

Response	f	%
A. Yes, all of them.	12	92
B. Yes, some of them.	1	8
C. No.	0	0

From the responses shown in Table 10, majority (69%) of the faculty-respondents did not undergo an evaluation process after the test dates. It is possible that the Office of Admissions conducted an evaluation only on the faculty members who are neophytes to the experience. Or, the Office of Admissions deemed the evaluation process unimportant.

Question 4: *Did you undergo an evaluation process conducted by the Office of Admissions after the test dates?*

Table 10. Distribution of Responses of Faculty-Respondents on the Evaluation Conducted by the Office of Admissions

Response	f	%
A. Yes, every time I serve as proctor.	3	23
B. Yes, I had one a long time ago.	1	8
C. No, I have never heard of such.	9	69

C. Administration of the PNUAT

The faculty proctors shared their points of view based on the 11 statements that looked into the details in administering the PNUAT.

Table 11 bares that almost all of the faculty respondents relished their role as PNUAT proctors. It is laudable that one takes pleasure in this academic activity.

Statement 1: *I enjoy serving as proctor.*

Table 11. Distribution of Responses of Faculty-Respondents on Enjoyment of Faculty Serving as Proctors

Response	f	%
A. Yes	12	92
B. No	0	0
C. Sometimes	1	8

Apparently, the administration of the PNUAT is well coordinated. It can be noticed in Tables 12 and 13 that the test booklets and the answer sheets were delivered systematically to the testing rooms. The efficiency guarantees less pressure on the proctor who ascertains that examinees are given complete test materials without hitches so that examinees can deal with the examination with ease and comfort.

Statement 2: *Test booklets are sent to me in proper order.*

Table 12. Distribution of Responses of Faculty-Respondents on the Order of Distribution of PNUAT Test Booklets

Response	f	%
A. Yes	12	92
B. No	0	0
C. Sometimes	1	8

Statement 3: *Answer Sheets are sent to me in proper order.*

Table 13. Distribution of Responses of Faculty-Respondents on the Order of Distribution of PNUAT Answer Sheets

Response	f	%
A. Yes	13	100
B. No	0	0
C. Sometimes	0	0

Table 14 shows that some proctors did not always find the testing room prepared. That the test dates were scheduled in advance implied that everything be properly set up to make the testing room conducive for administering the examination. This is an area where administrative offices should show concerted effort and support to ensure smooth administration of the admission test.

Statement 4: *The testing room is clean and ready.*

Table 14. Distribution of Responses of Faculty-Respondents on the Order of Distribution of PNUAT Test Booklets

Response	f	%
A. Yes	10	77
B. No	1	8
C. Sometimes	2	15

Majority (92%) of the respondents are assured of the assistance of the PNUAT coordinator/in-charge during the testing period (Table 15). This practice augments the efforts of the University to provide optimal testing conditions.

Statement 5: *The PNUAT coordinator goes around to monitor the examination proceedings.*

Table 15. Distribution of Responses of Faculty-Respondents on the Cleanliness of Testing Rooms

Response	f	%
A. Yes	12	92
B. No	0	0
C. Sometimes	1	8

A service contract in a government job position as test proctor stipulates that “testing materials are controlled items and will be handled, stocked safeguarded and administered in strict compliance with applicable regulations (<http://www.dol.gov/whd/regs/compliance/wage/p01520.htm>).”

Table 16 illustrates how PNUAT proctors held this sacred trust. The negative response of one of the faculty-respondents is worth looking into. The response revealed the persistent but unverified testimonies that the PNUAT has been photocopied and surreptitiously circulated.

Statement 6: *I secure the PNUAT test booklet from possible leakage or unauthorized possession.*

Table 16. Distribution of Responses of Faculty-Respondents on Keeping the Security of PNUAT Test Booklets

Response	f	%
A. Yes	12	92
B. No	1	8
C. Sometimes	0	0

Similar to statement 5, the PNUAT staff is also visible to majority (85%) of the proctors who may need assistance during the examination (Table 17). Again, this is a commendable tactic to avert problems that would encumber the proctor and the examinees.

Statement 7: *If I need any assistance while the examination is going on, I can easily ask for it from the PNUAT staff.*

Table 17. Distribution of Responses of Faculty-Respondents on the Availability of PNUAT Staff for Assistance during PNUAT Administration

Response	f	%
A. Yes	11	85
B. No	0	0
C. Sometimes	2	15

In Table 18, only 1 out of the 13 proctor-respondents responded that the list of examinees was not given before the examination. The Office of Admissions prepares and distributes the list of examinees to the concerned proctor. The list is necessary for the proctor to check the attendance of the examinees.

Statement 8: *The list of examinees is available to me before the examination begins.*

Table 18. Distribution of Responses of Faculty-Respondents on the Availability of List of Examinees before PNUAT Administration

Response	f	%
A. Yes	12	92
B. No	1	8
C. Sometimes	0	0

As shown in Tables 19 and 20, the proctors observed time accurately. They all began and ended the test on time.

Statement 9: *I begin on time.*

Table 19. Distribution of Responses of Faculty-Respondents on Their Punctuality in Starting the Administration of PNUAT

Response	f	%
A. Yes	13	100
B. No	0	0
C. Sometimes	0	0

Statement 10: *I end on time.*

Table 20. Distribution of Responses of Faculty-Respondents on Ending PNUAT Administration on Time

Response	f	%
A. Yes	13	100
B. No	0	0
C. Sometimes	0	0

It has been observed in the administration of the PNUAT that once an examinee is done with the test, he/she is allowed by the proctor to leave the room even before the time is up. Table 21 shows that only 1 out of the 13 proctors did not allow this practice.

There are advantages in letting the examinee that is done with the test earlier than the allotted time to stay in the testing room until the allotted time ends. First, the examinee can be encouraged to make use of the remaining time to review his/her answers. Second, less movement in the room can prevent distraction to other examinees.

The instructions in a government examination read: “No one will be permitted to leave until all examinees at that location have completed the examination or until the allotted time expires (www.cbp.gov/linkhandler/cgov/trade/trade_programs/broker).” In a Chinese service website, test instructions say, “No one may leave the testing room before the conclusion of the test. In an exceptional situation, the

supervisor may permit an examinee to leave early (http://www.at0086.com/at_News%5C27%5C509822394182897.html).”

However, there are other institutions that allow examinees to leave the room as soon as they are done with the examination. Perhaps, the admissions office can issue a clear policy on this aspect.

Statement 11: *I let the examinees leave the room once they are done answering, even before the time is up.*

Table 21. Distribution of Responses of Faculty-Respondents on the Dismissal of Examinees during PNUAT Administration

Response	f	%
A. Yes	12	92
B. No	1	8
C. Sometimes	0	0

Toward the end of the survey instrument, a few of the proctors suggested the following:

- *“Examinees must be advised to wear proper attire (e.g. no shorts/slippers).”*
- *“Test administration must be standardized.”*
- *“Change the PNUAT cover.”*
- *“Don’t entertain late examinees.”*
- *“Only classrooms with air-conditioning units must be used.”*

II. The PNUAT Experience of College Freshman Students

The PNUAT Experience instrument was administered to randomly-selected first year classes in SY 2010-2011. Fifteen (15) out of 30 college freshman classes answered the research questionnaire. The number of respondents totaled 652, 50% of 1,307 freshman population in SY 2010-2011.

Demographic data of the college freshman respondents

Of the 652 respondents, only 124 were male. This was 46% of the total college freshman male population. There were 526 female respondents which was 51% of the total college freshman female population. Consistent with past gender profile of college students, the ratio of male to female in the University was one is to five.

Table 22 shows the distribution of the male and female respondents according to type of high school attended.

Table 22. Profile of Student-Respondents according to Gender and Type of High School Attended

Gender	f	%
Male		
Private	29	23
Public	93	75
No Answer	2	2
Total	124	100
Female		
Private	148	28
Public	375	71
No Answer	3	1
Total	526	100
Overall Total	652	

In SY 2010-2011 the number of college freshman students coming from private high schools (177 or 27%) belongs to the usual range of 25% to 30%. Majority (72%) of the incoming freshmen come from public high schools (Table 23).

Table 23. Profile of Student-Respondents according to Type of High School Attended

Type of High School	f	%
Private	177	27
Public	470	72
No Answer	5	1
Total	652	100

Table 24 shows the distribution of the respondents according to when they took the PNUAT. More than half applied for the admission test in December 2009 and in February 2010. This may signify the commendable early preparation of the applicants in choosing their school for a college degree.

Table 24. Distribution of Respondents according to Examination Date of PNUAT

Date of Exam	f	%
December 2009	214	33
February 2010	200	31
March 2010	76	12
April 2010	157	24
No Answer	4	1
Walk-in	1	0
Total	652	100

As shown in Table 25, two-thirds of the respondents took the entrance examinations in other colleges or universities. One may deduce that the 39% of the respondents who took the admission test only at PNU were those who were definite to take Education at the University.

Table 25. Percentage Distribution of Student-Respondents Who Took Entrance Examinations in Other Schools

Did you take entrance examinations in other college/university?	f	%
Yes	390	60
No	254	39
No Answer	8	1
Total	652	100

Of those who took entrance examinations in other colleges or universities, 80% did so before taking the PNUAT (Table 26). This may suggest that these students did not successfully pass the entrance examinations in these universities or were possibly taking their chances to apply at as many schools as they could. The PNU applicants' taking of entrance examinations at colleges and universities before taking the PNUAT may imply that they were not yet decided or convinced to take Education.

Table 26. Profile of Student-Respondents on Taking Admission Tests in Other Schools before Taking PNUAT

Did you take the entrance examinations in other universities before the PNUAT?	f	%
Yes	318	80
No	78	20

Survey Results

The survey results are categorized according to:

1. Preparing for the Examination
2. Taking the Examination
 - B.2.1. Test Schedule and Venue
 - B.2.2. Proctor
 - B.2.3. The Test
3. Release of the Examination Results

1. Preparing for the Examination

In preparing for the PNU admission test, less than half (43%) of the respondents reviewed for the examination and went around the campus (32%) before the examination date to locate their examination room. Majority (85%) had a meal before going to the University and was aware of the materials required in taking the examination. Some respondents learned what materials were needed through the PNU website. One, however, suggested that the materials needed during the examination be posted on bulletin boards.

Several online sites confirm the importance of physical and mental preparation before taking an examination (e.g. How To Prepare For and Take A Test, courses.ncssm.edu/kolena/test_advice.html). A few comments from the respondents attested to their confusion on what to review on. Others did not feel the importance to review, nor did they feel compelled to do an early check on the location of their assigned examination room.

One respondent commented that he/she did not locate her examination room before the examination date because the University security guards were strict in allowing entry to the campus.

Table 27. Distribution of Responses of Student-Respondents on Preparation for PNUAT

Statements/Responses	Yes	%	No	%
1. Did you review for the PNUAT?	282	43	369	57
2. Did you go around the PNU campus before your examination date to locate your examination room?	209	32	443	68
3. Did you have meal before taking the PNUAT?	555	85	97	15
4. Were you aware of the materials needed for the examination?	620	95	30	5

2. Taking the Examination

2.1. Test Schedule and Venue

A high 86% of the respondents found the testing time just right. The University has two (2) test schedules: 8:00 – 11:00a.m. and 1:00 – 4:00 p.m. It was not ascertained though which test schedule was deemed too early for the 14% of the respondents who said so.

Almost all (92%) found the test venue easily. Moreover, the examination room was adjudged clean and with enough chairs by a high majority (97%). Only three-fourths (73%) of the respondents found the examination rooms well-ventilated. Barely a fourth (23%) pointed out that the testing rooms were too crowded of examinees. A few of the respondents proffered the idea that only air-conditioned rooms in the University be used as testing rooms.

One respondent suggested that a campus map be posted to easily locate the testing rooms.

Table 28. Distribution of Responses of Student-Respondents on PNUAT Schedule and Venue

Statements/Responses	Yes	%	No	%
1. Was the testing time too early?	91	14	561	86
2. Was the test venue easily found?	597	92	54	8
3. Was the examination room clean?	631	97	21	3
4. Was the room well ventilated?	477	73	172	27
5. Were there enough seats for the examinees?	607	93	44	7
6. Was the room too crowded of examinees?	149	23	501	77

2.2. Proctor

The respondents rated the proctors well in most of the aspects (Table 29). The proctors were prompt; thorough in reminding examinees anent the examination permit and the things disallowed during the examination; clear at explaining test instructions in a well-modulated voice; and organized in the distribution and collection of test materials.

Table 29. Distribution of Responses of Student-Respondents on Performance of Proctors in the Administration of PNUAT

Statements/Responses	Yes	%	No	%
1. Did the proctor come on time for the examination?	582	89	69	11
2. Did the proctor check the examination permit before giving the test booklet?	632	97	19	3
3. Did the proctor remind you of things NOT to be used during the exam (e.g. mobile phones, calculators, ball pens)?	612	94	39	6
4. Did the proctor explain the test instructions clearly?	634	98	16	2
5. Did the proctor speak in a well modulated voice?	611	94	40	6
6. Did the proctor entertain questions pertaining to reminders and test instructions?	593	92	54	8
7. Did the proctor start the examination on time?	555	85	96	15
8. Did the proctor provide assistance to examinees during the examination?	490	76	153	24
9. Was the proctor organized in distributing and collecting the test booklets and the answer sheets?	631	97	17	3

2.3. The Test

In Table 30, most (93%) of the respondents said the test booklets were clean, easy to read (95%), instructions simple (97%), and the layout easy to manage (96%).

Almost 4 out of 5 respondents opined that some test items were difficult to answer. Unfortunately, the respondents did not specify which specific area in the test.

Fifteen percent (15%) found the test items too many, given the time frame.

Table 30. Distribution of Responses of Student-Respondents on Cleanliness, Readability, Clarity, Difficulty and Layout of PNUAT Test Booklets

Statements/Responses	Yes	%	No	%
1. Was the test booklet clean?	607	93	44	7
2. Were the writings easy to read?	622	95	30	5
3. Were the instructions in the test booklet easy to understand even if the proctor will not explain?	631	97	19	3
4. Were some of the items difficult to answer?	510	78	141	22
5. Were the items too many that you were NOT able to finish the test on time?	96	15	555	85
6. Was layout of the answer sheet easy to manage? (e.g. easy to follow, not confusing)	627	96	23	4

3. Release of the Examination Results

In Table 31, 4 out of 5 respondents believed that the waiting time for the results was reasonable and the manner of releasing and getting the results was convenient.

As indicated by the respondents, two (2) weeks was the average waiting time to get the results. Some did mention that they got the results after three or four weeks. A few respondents suggested that the test results be mailed because some applicants residing in provinces do not have the internet to access the results.

Table 31. Distribution of Responses of Student-Respondents on the Release of PNUAT Results

Statements/Responses	Yes	%	No	%
1. Was the waiting time for the results too long?	116	18	535	82
2. Was the manner of release the results convenient to the examinee?	585	90	64	10

Reliability and Item Quality Analyses

Subjecting 4084 test results of applicants who took the PNUAT for school years 2008-2009 and 2009-2010 to Kuder-Richardson Reliability Test (KR Formula 20), study results suggest that the PNUAT has very good measure of reliability. The computed reliability coefficient is 0.95, implying that validity measures can be established in the instrument. To Wells & Wollack (2003), a validity study would be worthwhile if the test has adequate reliability.

In the presentation of the item analysis results, general characteristics of the items are followed by each item's individual traits.

A. Collective Results

A.1. Item Difficulty

The item difficulty index (d_i) is indicative of the percentage of students who took the test and answered an item correctly. The higher this index, the easier the item is understood to be (Wood, 1960). It can also

be defined in terms of the relative frequency in which those taking the test choose the correct response (Thorndike et al., 1991).

Analysis of the item difficulty indices suggests that the PNUAT appears to be a good test instrument. It can be seen in Table 32 that the average item difficulty of the test is 0.56 (moderately difficult). This number signifies that when the PNUAT is given to a group of students, about 56% will get an item correctly. The table also shows that the remaining 38% and 4% of the items are hard and easy, respectively. Items in these categories need to be reviewed for revision or for replacement.

Table 32. Difficulty Indices

Component and Subtest	Number of Items			Average Index	Classification
	Easy	Moderate	Hard		
Language Skills	4	38	23	0.57	Moderate
Structure	1	12	7	0.54	Moderate
Reading	2	14	9	0.57	Moderate
Verbal Reasoning	1	12	7	0.60	Moderate
Number Skills	1	35	24	0.55	Moderate
Basic Mathematics	1	20	9	0.59	Moderate
Algebra	0	6	9	0.48	Difficult
Geometry	0	9	6	0.55	Moderate
General	5	73	47	0.56	Moderate
	(4%)	(58%)	(38%)		

Note: Percentage in parentheses is with respect to the 125 total items for the two components.

By component, items in the Number Skills component ($d_i = 0.55$; moderately difficult) appear to be a little more difficult than those in the Language Skills component ($d_i = 0.57$; moderately difficult). For items in the different Language Skills subtests, those classified in the Verbal Reasoning subtest ($d_i = 0.60$; moderately difficult) is the easiest and those in the Structure subtest ($d_i = 0.54$; moderately difficult) the hardest. In

the Number Skills component, the Basic Mathematics subtest items ($d_i=0.59$; moderately difficult) are the easiest and those in the Algebra subtest ($d_i=0.48$; difficult) the hardest.

A.2. Item Discriminating Power

A.2.1. Discrimination Index

The item discrimination index (d_e) illustrates the ability of the item to differentiate students how well they know the material being tested. Item discrimination index describes the number of examinees who answered an item correctly and obtained high scores and those who answered the same item correctly but obtained low scores. The higher the discrimination index, the better the item because the item discriminates in favor of the group with high scores. A negative discrimination index for an item is unfavorable because it implies that more students with low scores answered the item correctly than those with high scores.

Using the discrimination index parameter, it is difficult to say that the PNUAT is a good instrument. Table 33 shows that only 22% of the items are “very good,” 25% “good,” and more than half, 57%, “needs revision.” Equally, the average discrimination index of 0.29 indicates relatively low test discriminating power. To illustrate, using 100 students with high scores and 100 with low scores, a difference of only about 29 students in favor of the high score group answered an item correctly.

Among the two components, the Language Skills items appear to be less discriminating, having an index of 0.23. This value suggests that the items in this component need to be revised, if not replaced. The worst scenario is observed in items in the Reading subtest where about 80% of the items need to be improved. Items in the Number Skills component,

however, are generally “good” with an average index of 0.35, but Geometry items need to be reviewed ($d_e = 0.28$).

Table 33. Discrimination Indices of the PNUAT Items

Component and Subtest	Very Good	Number of Items Good	Needs Revision	Poor	Average Index	Classification
Language Skills	5	17	16	27	0.23	Needs Revision
Structure	4	4	6	6	0.26	Needs Revision
Reading	1	4	8	12	0.19	Poor
Verbal Reasoning	0	9	2	9	0.24	Needs Revision
Number Skills	23	14	15	8	0.35	Good
Basic Math	13	8	7	2	0.38	Good
Algebra	6	3	4	2	0.37	Good
Geometry	4	3	4	4	0.28	Needs Revision
General	28	31	31	35	0.29	Needs Revision
	(22%)	(25%)	(25%)	(28%)		

Note: Percentage in parentheses is with respect to the 125 total items for the two components.

A.2.2. Discrimination Coefficient

The discrimination coefficient (d_e) estimates the degree to which an individual item measures the same construct as the rest of the items. Discrimination coefficient is determined by correlating individual student responses to a particular item and the total score in a subtest or that in the whole test. The Point Biserial correlation is used to determine this degree of association. A negative discrimination coefficient for an item is equally unfavorable because it means that more students getting the item correctly have low scores than those who have high scores.

Item discrimination coefficients with respect to the corresponding subtest scores appear to be higher compared with those relative to the total score in the test. This is expected because the items in a subtest must measure the same construct. For instance, items in the Algebra subtest must indicate the degree of students' mastery of concepts and skills in the subject.

It can be noted in Table 34 that a greater percentage of items has good discrimination coefficient. Eighty-two percent (82%) are classified with "good" discrimination coefficient. Moreover, the mean discrimination coefficient is higher, 0.40.

Table 34. Discrimination Coefficients of the PNUAT Based on the Subtest Scores

Component and Subtest	Number of Items			Average Discrimination Coefficient	Classification
	Good	Fair	Poor		
Language Skills	47	14	4	0.34	Good
Structure	16	3	1	0.37	Good
Reading	15	8	2	0.30	Fair
Verbal Reasoning	16	3	1	0.36	Good
Number Skills	55	5	0	0.46	Good
Basic Math	29	1	0	0.47	Good
Algebra	14	1	0	0.49	Good
Geometry	12	3	0	0.41	Good
General	102	19	4	0.40	Good
	(82%)	(15%)	(3%)		

Note: Percentage in parentheses is with respect to the 125 total items for the two components.

Among those in the different subtests, items in the Reading sub-test registered a mean coefficient classified as "fair," the lowest mean value. Items in the Algebra subtest appeared to have the greatest mean discrimination coefficient, followed by those in the Basic Mathematics and Geometry subtests.

B. Individual Item Results

The succeeding tables display results of analysis of individual items in the different subtests. Each table contains the indices—difficulty index, discrimination index and discrimination coefficient—necessary to assess the quality of the items. This procedure was done to identify which items needed to be retained, reviewed or rejected.

B.1. Language Skills Component

The Language Skills component of the PNUAT is designed to assess students' language and linguistic ability, reading comprehension and verbal reasoning. This component is divided into three subtests: Structure, Reading and Verbal Reasoning. The object of the Structure subtest is to determine linguistic accuracy and appropriateness in the use of language forms. The Reading subtest aims to measure the students' ability to comprehend printed text. Lastly, the Verbal Reasoning subtest assesses the ability of students to identify relationships between and among people, objects and ideas using analogies.

B.1.1. Structure Subtest (20 items)

It can be judged from the indices given in Table 35 that not all items in the Structure subtest have favorable quality. Notably, item 19 appears to be of poor quality, given its low difficulty index and negative discrimination power. An item with negative discrimination power suggests that more students having low scores were able to answer the item correctly than those with high scores. This item, indeed, needs to be reviewed and revised, if not to be rejected. Items 5, 9 and 18, though they have favorable difficulty indices, must also be revisited. These items have low discriminating power. They can hardly differentiate good students from those who are not-so-good. Further,

items 3, 8, 13 and 20 may be reviewed because they appear to be easy, but can barely discriminate good students.

Table 35. Indices of Items in Structure Subtest

Item No.	Difficulty Index	Discrimination Index	Discrimination Coefficient
1	0.60	0.45	0.54
2	0.43	0.48	0.55
3	0.82	0.26	0.40
4	0.55	0.43	0.55
5	0.57	0.02	0.14
6	0.68	0.46	0.52
7	0.51	0.24	0.38
8	0.85	0.23	0.37
9	0.36	0.02	0.13
10	0.60	0.36	0.51
11	0.59	0.28	0.37
12	0.64	0.33	0.46
13	0.73	0.18	0.33
14	0.39	0.31	0.43
15	0.47	0.34	0.44
16	0.57	0.25	0.38
17	0.21	0.19	0.32
18	0.31	0.02	0.15
19	0.05	-0.02	-0.01
20	0.80	0.28	0.42

B.1.2. Reading Subtest (25 items)

It appears in Table 36 that a number of items in the Reading subtest need to be improved. Alarming, item 16 registers a considerably negative discrimination power. Its discrimination index, -0.25, suggests that 25% of students with low scores got the item correctly more than those with high scores. Item 21 also has negative discrimination index. These two items need restudying. Similarly, attention must be paid to items 17 and 18. These items are very easy,

but with very low discrimination indices and relatively low discrimination coefficients. Items 1, 3, 5, 7, 14, 15, 19, 20 and 24 may also require reviewing. The discrimination indices of these items are less than 20%.

Table 36. Indices of Items in Reading Subtest

Item No.	Difficulty Index	Discrimination Index	Discrimination Coefficient
1	0.68	0.18	0.30
2	0.76	0.29	0.41
3	0.73	0.20	0.32
4	0.53	0.35	0.43
5	0.35	0.19	0.30
6	0.57	0.42	0.49
7	0.44	0.13	0.28
8	0.67	0.36	0.43
9	0.69	0.30	0.43
10	0.58	0.33	0.41
11	0.20	0.22	0.31
12	0.79	0.25	0.39
13	0.37	0.21	0.31
14	0.65	0.16	0.32
15	0.40	0.14	0.26
16	0.38	-0.25	-0.13
17	0.98	0.02	0.15
18	0.96	0.06	0.20
19	0.80	0.16	0.29
20	0.51	0.18	0.30
21	0.31	-0.02	0.08
22	0.43	0.22	0.34
23	0.52	0.29	0.37
24	0.64	0.18	0.32
25	0.40	0.20	0.32

B.1.3. Verbal Reasoning Sub-test (20 items)

Like in the previous subtest, there are some items in the Verbal Reasoning subtest that must be reconsidered. As shown in Table 37, item 5 definitely has to be revised because it possesses negative discriminating power. Consideration must also be given to item 2, giving low difficulty and discrimination indices. Equally, attention should be accorded for easy, but low discriminating power items, such as items 8, 10 and 13. Item 20 also needs to be reviewed because of its low discriminating ability.

Table 37. Indices of Items in Verbal Reasoning Subtest

Item No.	Difficulty Index	Discrimination Index	Discrimination Coefficient
1	0.44	0.29	0.36
2	0.13	0.06	0.17
3	0.66	0.36	0.45
4	0.79	0.38	0.54
5	0.49	-0.16	-0.02
6	0.76	0.33	0.45
7	0.68	0.39	0.52
8	0.84	0.16	0.34
9	0.79	0.33	0.51
10	0.75	0.17	0.32
11	0.59	0.22	0.38
12	0.69	0.18	0.32
13	0.85	0.18	0.36
14	0.36	0.34	0.44
15	0.30	0.19	0.34
16	0.70	0.32	0.43
17	0.36	0.16	0.27
18	0.60	0.39	0.47
19	0.71	0.38	0.45
20	0.42	0.08	0.22

B.2. Number Skills Component

The Number Skills component of the PNUAT is composed of three subtests: Basic Mathematics, Algebra and Geometry. The Basic Mathematics subtest measures numerical and logical reasoning and critical thinking. The Algebra subtest assesses fundamental operations of Algebra in working with polynomials, algebraic fractions, exponents and radicals. It also involves linear and quadratic equations and inequalities to analyze and apply various concepts of Algebra in solving word problems. Finally, the Geometry subtest focuses on proving geometric relationship.

B.2.1. Basic Mathematics Subtest (30 items)

Fortunately, all items in the Basics Mathematics subtest display positive discrimination indices and coefficients as seen in Table 38. These imply that these items are able to differentiate good students from not-so-good ones. Item 17 is worth mentioning. This item has a remarkable discrimination index, 0.72, despite its moderate difficulty, 0.52. For 100 students with high scores and 100 with low scores, 104 students got this item correctly and 88 had high scores, while the remaining 16 obtained low scores. However, there are also some items that require restudying because of their relatively poor quality. Items 6 and 11 have discrimination indices of below 20%, and items 3, 5 and 8 are easy, but less discriminating.

Table 38. Indices of Items in Basic Mathematics Subtest

Item No.	Difficulty Index	Discrimination Index	Discrimination Coefficient
1	0.51	0.23	0.33
2	0.75	0.38	0.50
3	0.79	0.31	0.46
4	0.28	0.28	0.38
5	0.81	0.25	0.43
6	0.91	0.15	0.33

Item No.	Difficulty Index	Discrimination Index	Discrimination Coefficient
7	0.69	0.34	0.45
8	0.83	0.24	0.37
9	0.78	0.33	0.51
10	0.55	0.44	0.50
11	0.21	0.14	0.21
12	0.65	0.38	0.45
13	0.46	0.40	0.47
14	0.66	0.46	0.55
15	0.57	0.41	0.49
16	0.50	0.59	0.63
17	0.52	0.72	0.75
18	0.27	0.29	0.40
19	0.65	0.52	0.62
20	0.50	0.26	0.32
21	0.48	0.49	0.57
22	0.69	0.43	0.52
23	0.58	0.35	0.48
24	0.53	0.39	0.47
25	0.68	0.22	0.33
26	0.47	0.40	0.49
27	0.62	0.49	0.60
28	0.60	0.37	0.46
29	0.62	0.49	0.58
30	0.43	0.51	0.58

B.2.2. Algebra Subtest (15 items)

In terms of difficulty, it appears in Table 39 that the items in the Algebra subtest display good quality, except for items 11, 13 and 15, registering indices below 35%. As for discrimination power, these items also show good quality with the exception of items 3, 8, 10, 13 and 15. These said items registered indices no higher than 30%.

Table 39. Indices of Items in Algebra Subtest

Item No.	Difficulty Index	Discrimination Index	Discrimination Coefficient
1	0.62	0.51	0.59
2	0.44	0.48	0.59
3	0.53	0.25	0.39
4	0.50	0.50	0.56
5	0.47	0.54	0.62
6	0.67	0.36	0.48
7	0.54	0.60	0.66
8	0.68	0.29	0.44
9	0.53	0.61	0.65
10	0.46	0.15	0.30
11	0.33	0.24	0.38
12	0.48	0.36	0.49
13	0.22	0.20	0.37
14	0.55	0.34	0.50
15	0.24	0.13	0.33

B.2.3. Geometry Subtest (15 items)

In Table 40, 9 of the 15 items in the Geometry subtest have moderate difficulty and the remaining 6 are classified hard or difficult items. However despite their favorable difficulty, 2 of these 9 items—items 7 and 13—must be reviewed because their discrimination indices are low. Similarly, the 6 other items (items 1, 2, 4, 6, 9 and 14) with low difficulty indices (below 30%) must be revisited for improvement.

Table 40. Indices of Items in Geometry Subtest

Item No.	Difficulty Index	Discrimination Index	Discrimination Coefficient
1	0.42	0.22	0.35
2	0.63	0.25	0.39
3	0.48	0.37	0.48
4	0.59	0.26	0.37
5	0.66	0.44	0.55

Item No.	Difficulty Index	Discrimination Index	Discrimination Coefficient
6	0.37	0.06	0.20
7	0.84	0.12	0.27
8	0.32	0.33	0.43
9	0.36	0.17	0.37
10	0.59	0.44	0.53
11	0.68	0.41	0.50
12	0.52	0.42	0.50
13	0.69	0.13	0.30
14	0.36	0.20	0.35
15	0.67	0.38	0.49

C. Implications

In sum, it appears that the cognitive part of the PNUAT is reliable, given the reliability coefficient of 0.95. The value implies that if the same group of students will retake the PNUAT sometime in the future, when some relevant threats to validity like maturation are controlled, these student will be more likely to get the same scores as in the previous examination results. This coefficient also signals that revalidating the PNUAT is a worthwhile undertaking.

The “good” discrimination coefficients of the said part of the PNUAT suggest that the instrument contain items with some favorable quality. The coefficients imply that the items composing the test or the subtest almost measure the same construct assessed in the test or in the subtest. All the different subtests registered “good” discrimination coefficients, except the Reading subtest with only “fair.”

Despite the abovementioned favorable characteristics, it is still difficult to argue that the current form of the cognitive part of the PNUAT is a very good assessment instrument in admitting college freshmen. The present data found in this study imply that many items in the said instrument are not-so-favorable. With the test having an average

discrimination index of 0.26, classified as “needs revision,” it is easier to assert that the instrument can barely differentiate good student applicants from not-so-good ones. This outcome may be attributed to the fact that the items in the said test are somehow difficult. Although the average difficulty index is placed at 0.56, meaning moderately difficult, this index falls in the lower limit of the range for items with moderate difficulty, 0.51-0.84. The 0.56 index suggests that only about 56% of students, on the average, answered every item correctly. This result is more likely to occur even in any testing period, because the instrument possesses a very good reliability characteristic. Given this dismal circumstance, it is probable that PNU may not have maximized the possibility of accommodating students with the desired knowledge and skills to excel in a teacher education institution.

This alarming result does not necessarily suggest that the instrument is no longer valid for its purpose, rather, the degree of its validity may have somehow deteriorated over the years as far as the measures of item quality is concerned. The instrument may still possess validity, but some specific items measuring the different constructs assessed in the test may have been irrelevant to the present time. For instance, it can be maintained that the present secondary curriculum may no longer contain some topics tested in the PNUAT. Technological and political circumstances mentioned in some PNUAT items may likewise be inappropriate to the present situation. It is also plausible that the quality of problematic items had not been altered so much in the development stage of the instrument about a decade ago. It was noted that the items statistics obtained before the revision of the items are somewhat similar to the data presented above. With these arguments, there is, therefore, an immediate need for the cognitive items in the PNUAT to be revisited and revised for improvement in order for PNU to filter college applicants who possess desirable potentials in becoming competent and dedicated teachers who can be assets to the Philippine educational system.

SUMMARY AND RECOMMENDATIONS

A. Administration of the PNUAT

Results of the study on the administration of the PNUAT can be summarized by the following points:

1. Faculty proctors come from all ranks.
2. The Office of the Admissions requests the faculty to serve as proctor.
3. Duties and responsibilities are known to the proctor.
4. An orientation program is organized for the proctor.
5. The evaluation of the performance of proctors and the administration of the PNUAT are not done regularly.
6. There is a systematic way of distributing the test materials to the proctors.
7. The proctors find the PNUAT procedure smooth and orderly.
8. At least two-thirds of those who take the PNUAT for SY 2010-2011 also take entrance examinations in other institutions.
9. In preparing for the examination, majority of the respondents do not review for the entrance examination; do not locate their room assignment before the testing date; have meal before taking the exam; and are aware of what materials to bring.
10. As regards test venue and schedule, majority of the respondents find the schedule just right; have no difficulty in looking for their testing room; find the room clean, well ventilated and with enough chairs.

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11. The proctors are generally rated very well by majority of the respondents: prompt, systematic and thorough.
 12. As to the PNUAT itself, majority of the respondents find the booklets clean, with legible writings, with clear instructions and with just enough number of items. Also, majority of the respondents find the answer sheet layout easy to follow.
 13. Almost 80% of the respondents opine that some test items are difficult to answer.
 14. Getting the results of the PNUAT is not considered a problem by majority of the respondents.

These results reflect the systematic efforts of the University to administer the admission test in an organized manner so that optimal testing conditions are guaranteed to the applicants.

In view of the above findings, the following are recommended:

- a. To encourage greater service to the University, the Office of Admissions should go on extending the invitation to all faculty members of all ranks to serve as proctors in the PNUAT;
- b. To ensure standardized testing procedures which can prevent extraneous variables detrimental to the applicants' success in taking the admission test, the Office of Admissions should continue to hold regular orientation programs to all proctors before the administration of the PNUAT. The orientation program should cover the proctors' duties and responsibilities in terms of inspection of examination permits, time management, security of test booklets, testing room management, uniform policy on tardiness among applicants and dismissal of the applicants during the examination.

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- c. For better coordination between the faculty proctors and the administrative staff who extend support during the administration of the admission test, the administrative staff involved should maintain attendance in the orientation program;
 - d. To avert lapses and maintain smooth conduct of the admission test, the Office of Admissions should create an evaluation instrument to regularly evaluate the performance of proctors and the administrative staff involved in the administration of the admission test;
 - e. In response to the comments of the student-respondents in this study, it is recommended that:
 - e.1. A campus map should be put up to guide the examinees in locating their testing room assignments;
 - e.2. The Office of Admissions should distribute the examination permit with a leaflet which contains a short information on the admission test e.g. preparation for the examination, materials needed during the examination, the schedule and the manner of the release of the results and the admission procedures after passing the admission test.

B. Analysis of the Items in the PNUAT

Given the parameters used in assessing the quality of test items, the following are raised:

1. The items in the PNUAT have moderate difficulty, registering an average difficulty index of 0.58. Items in all subtests are classified with moderate difficulty, except those in Algebra which is “hard.”

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2. The average discrimination index of all items in the PNUAT is 0.26, implying that, generally, the items need revision. While items in the Number Skills component are generally “good” discriminating items (ave. $d_e = 0.35$), items in the Language Skills component need revision based on its average discrimination index of 0.23. Items in Structure subtest registered the highest index, 0.26 (“needs revision”), and those in Reading subtest the lowest, 0.19 (“poor”).
 3. The average discrimination coefficient is registered at 0.39, interpreted as “good.” All coefficients for subtests give “good” indices, except for the Reading subtest which is “fair.”

Restudying of these items using standard procedures in establishing quality to the PNUAT items is recommended. There is a great need to increase the items’ discrimination indices by revisiting the test and revising most items with problematic quality. Tuning of these items to the present conditions is likewise recommended. Equally, it may be necessary to continuously develop new items to be incorporated in the PNUAT and to conduct a regular validation of the new University admission instrument.

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