

Survey of Examination Results of Architecture Comprehensive Course of National University College of Architecture

Joffrey Stephen C. Chung¹, Gracie Ching-Salaya², and Leah S. Manio³

¹College of Architecture, National University-Manila, Sampaloc, Manila City, Philippines

²College of Architecture, National University-Manila, Sampaloc, Manila City, Philippines

³Treasury Department, National University-Manila, Sampaloc, Manila City, Philippines

Abstract.

The Architecture Comprehensive Course (ACOMPREC) under the B.S. Architecture program of the National University-Manila, College of Architecture (NU-CoA) is a summary course of all the different architectural subjects taken by students enrolled in the Program from their first year up to their senior year. The Course provides opportunities for architecture students to show evidence of their abilities to synthesize learning acquired throughout their formative years of learning, and includes studies ranging from theories and principles of architectural design, building construction and technology, structural design, and physical planning of the built environment. The primary objective of the ACOMPREC is to serve as an evaluative tool to help students identify which subject areas they are performing well and which ones they need to improve. The Course also aims to help students prepare for the national government licensure examination for architects and future industry practice. This study first used qualitative and quantitative methods thru survey instruments, to gather and analyze data on the demographic profile of respondents, the actual results of the ACOMPREC, and possible factors causing such results, followed by correlational studies. The results of the research showed that there are significant relations between ACOMPREC results and the respondents' demographic profile, with the correlation between and among the results of the ACOMPREC and the probable factors affecting the performance of respondents supporting the need to do improvements in the Program.

Keywords: National University-College of Architecture, Architecture Comprehensive Course, architecture education, B.S. Architecture program

1. Introduction

The Architecture Comprehensive Course (ACOMPREC) is included in the B.S. Architecture curriculum of National University-Manila College of Architecture (NU-CoA) as an evaluative examination course for assessing the learning of students and to also serve as quality reference check on the performance of the program concerned. It is a summative course of the various subjects taken by the school's Architecture students, starting from their freshman to their senior years. As a mandated course, it is equivalent to three (3) units with four (4) hours of lecture every week and culminates in a final examination activity that includes the study topics from the following study courses: history of architecture, theory of architecture, principles of planning and urban design, architectural practice, structural design,

building technology, building utilities, and architectural design. This is in parallel with the topic contents included in the country's national licensure examination for architects (LEA). The examination is divided into three (3) main areas A, B, and C. Area A covers the socio-cultural and legal aspects of architecture and includes history and theory of architecture, principles and theories in planning and professional practice. Meanwhile, Area B covers building science, which includes building materials and technology, utilities system, and structural design. Area C is architectural design, and is the application of both Areas A and B.

Comprehensive examination courses are actually not new in the academic world. Different disciplines or courses whether it be in the undergraduate or post-graduate studies, and even local or foreign educational institutions, do make use of comprehensive examination courses as an evaluative tool to qualify students for continuing their academic pursuit, as well as to assess the quality of the academic courses offered. This was reflected in the work of Tobin and Gebo (2008) where such showed a significant correlation between the class standing of students and their performance scores in the comprehensive examination. In another case, the work of Sales Alwhaibi, et al (2022) showed that the mock SPLE (Saudi Pharmacist licensure Examination), which is similar to the comprehensive examination, had helped Pharmacy students to have an idea on what to expect in the actual SPLE, and eventually helped them to garner high passing rates in actual board examination.

Under the local setting, a research conducted by Baes (2019) showed that there is no correlation between the comprehensive examination performance and the licensure board examination for teachers who graduated from the Batangas State University. This was as only 16.11% of the MAPEH Major students from the Batangas State University passed the undergraduate comprehensive examinations but surprisingly however, 40.86% of this same student group passed the government licensure examination for teachers. Similarly in a study by Tamayo (2014) at the University of Mindanao in Davao City, such showed students enrolled in said school from the period of 2009-2010 had a mean GPA of 3.19, but the school had a record range of 25-34.40% passing rate in the ALE from the period of 2009 to 2012. It was found out that this was achieved because of an intervention mechanism in the form of introducing or conducting a "pre-review" or in-house review to prepare the students for ALE.

Referring to studies discussed above, the researches show that there are correlations between and among academic performances, board examination performances, and intervening mechanisms in the form of pre-board review or comprehensive mock-up examination or studies in various professional fields, both in foreign and local settings. Thus, this provides an opportunity for the researcher concerned and his team to conduct this study of utilizing the ACOMPREC as a tool to improve the learning, licensure examination performances of students, and the overall architectural education program of NU-CoA. This research thus intends to answer the following questions:

1. What is the present demographic profile of the students of NU-CoA who are taking up the ACOMPREC?
2. What are the actual academic performance levels of Architecture students in NU-CoA, as reflected in the results of their ACOMPREC?
3. What are the perceived possible factors that are affecting the academic performances of NU-CoA students, as reflected in the results of their ACOMPREC?

4. What are the correlations of the students' demographic profiles, ACOMPREC performance, and perceived possible factors affecting their academic performances (as reflected in ACOMPREC results) with one another?
5. What are the correlations of the actual ACOMPREC grade results of one (1) area with the others?

2. Methods

The research first used the descriptive method to capture and understand the demographic profiles of the sample population group. The researchers developed a set of survey questionnaires (combination of manual & online), reviewed and verified by consultants, before being given out to four (4) batches of 5th year students from the school year 2019 to 2022, covering the pre, pandemic, and the early stage of the post-pandemic stage of COVID-19 disease for purposed of ensuring inclusivity and a balanced heterogeneity in the composition of the research's sample population. Meanwhile, the researchers collected a total of 393 responses, and these were further screened to remove repeated, mismatching, and incomplete responses. Final count of responses accepted was at 206, giving the research study for a range of 94 to 95% confidence level.

The survey questionnaire focuses on gathering information on three (3) main parts or areas, namely: the demographic profile, the academic performance, and the factors affecting the performances of the respondents. Following the descriptive gathering of data, the researchers conducted correlation analysis between and among the variables collected. The researchers used different statistical tools, including Mean, Standard Deviation, Weighted Mean, Chi-Square, Correlation, Spearman Rank, and Frequency. These helped to determine as to which among the different topic areas are the strengths of the students, as well as course study areas to improve on. On the other hand, Cluster Analysis was also used to further validate the learning strengths and weaknesses of the participants. This specifically pertains as to whether learners excel more in arts-related courses like theory, history, and architectural design, or in building sciences to include materials, technology, and utilities, or the socio-economic and legal aspect of architecture like professional practice and planning.

3. Results

3.1. Demographic Profile

Of the total 206 respondents, 80% were aged 22 to 24 years old which shows that this is the ideal age for students to take the said course. This is also the mixture of the pandemic and post-pandemic group. Similarly, 85.0% of the sample population is living with their parents / siblings / relatives and being taken care of. 105 or 51.0% of the respondents are taking up B.S. Architecture as their first tertiary education, with 159 respondents (77.2%) are full-time students, with their studies supported by parents (60.2%) or under full-time student scholarship (17.0%).

3.2. Assessment of Cumulative Learning / Personal Performance

Using the Likert Scale of 1.00 (*Consistently Failed*) to 5.00 (*Excellent*) for personal assessment of performance, the survey shows that respondents have assessed themselves to

have mean score ranging from 3.35 to 3.62 in all subject courses included in Area A, 3.14 to 3.51 in Area B, and 3.58 in Area C or Architectural Design.

3.3. Course Preference or Likings

Using the Likert Scale of 1.00 (*Very Dislike*) to 5.00 (*Very Like*) for preferences of course studies, the survey shows that respondents to have above average preference or “Like” for the entire Areas A and B, and “Very Like” for Architectural Design subject.

3.4. ACOMPREC Results

Per actual ACOMPREC performance with 60.00 as the Passing score, 72 – 83 as Above Average, and 96.00 to 100 as Excellent, survey results show the respondents performed best in Area A, particularly in Theory, History, and Planning (73.13, 69.13, and 68.16). The respondents scored 65.94 in Building Technology, but garnered failing mean scores of 58.85, 59.77, 57.20, and 57.58 respectively in Structural Design, Building Utilities, Professional Practice, and Architectural Design. Overall average performance is at 63.72.

3.5. Factors or Possible Reasons for ACOMPREC Performance

Using the Likert Scale of 1.00 (*Strongly Not Possible*) to 5.00 (*Extremely Possible*) for factors affecting ACOMPREC performance, with the category of factors listed below, the survey results showed that for factors under professors / instructors, 7 of 8 sub-factors are neutral except for one (“*professors are biased*”) which got Not Possible. Under the school facilities, half is Not Possible, while the other half is Neutral. For personal, 7 of 13 got Not Possible votes, while 8 of 13 got Neutral. Lastly under education system, 4 of 6 are Not Possible while only 2 got Neutral.

3.5.1. Category of Factors Affecting Performance

- 1) Professor / Instructor (8 sub-factors)
- 2) School Facilities (6 sub factors)
- 3) Personal (13 sub-factors)
- 4) Education System (6 sub-factors)

3.6. Correlation Study of ACOMPREC Performance

The correlation test between respondents’ demographic profile and their liking assessment using Chi-Square reveals that there is a significant correlation between respondent’s age profile to their liking assessment having a chi square value of 20.133 ^a, with the degrees of freedom of 6 and probability value less than 0.01 (.003). On the contrary, the Chi-Square test on the correlation between respondents’ demographic profile (*age, living status, nature of enrollment, and student status*) and their actual grade resulted to values greater than 0.01.

The Spearman Rank (Rs) correlation values between the average grade results of respondents in ACOMPREC and the possible factors affecting their studies were all below 0.39, with all probability (p) values of beyond the threshold of 0.01 or 1.00%. Adding to this, the Spearman Rank correlation among the three (3) areas of the actual ACOMPREC results shows the correlation between Areas B and C as garnering the highest correlation value of 0.6228, and the correlation between Area A and C the weakest at 0.3216. All correlation tests got highly significant probability or p-values.

4. Discussion

More than 50% of the respondents probably belong to the first and early batches of the senior high school or K-12 program implemented way back SY 2016-2017, which contains specialization preparatory track programs called strands to prepare students for college. However, the survey results showed that students have inclination to do better with the socio-cultural and art aspect of architecture than in the building sciences, and architectural design, especially as they increase in age. This is despite the fact that the sample group had an overall mean fair passing grade of 63.75 in the ACOMPREC.

This research also showed that when the results on the factors affecting their ACOMPREC performance were simplified to be a “Yes”, “No”, and “Neutral” vote, the following factors listed below are the ones identified to be affecting the performance of students, as supported by the correlation tests conducted.

1. Professors are “masungit”, or “terror”, and can hardly be approached for clarifications on class lectures. (40.70%)
2. There is low internet connectivity in school. (38.69%)
3. The school is very far from my place of residence, and consumes a lot of travel time and effort. (44.72%)
4. I have physical ailment or disability that makes it hard for me to focus on my studies. (46.73%)
5. I cannot focus on studying, esp. with online education due to physical distractions in my home environment. (38.19%)

With the above interpretation, this research has the following implications and recommendations as listed below:

1. There is apparently a gap/s in the preparedness of the K-12 senior high STEM (*Science, Technology, Engineering, and Mathematic*) strand program graduates to pursue a college degree in architecture with the following points to consider:
 - B.S. Architecture is classified under STEM strand.
 - Sixty-six fifty percent (66.17%) of the respondents entered the College in the school year 2018 and 2019 (*the first two graduation years of K-12 program*).
 - The STEM program contains at least ten (10) subject courses on language, culture, and humanities.
 - The STEM program contains zero (0) subject courses relating to building science like carpentry, furniture making, plumbing, electrical, and air conditioning.
2. There may have been gaps in the qualification system and standards of the College concerned in accepting K-12 senior high graduates for the B.S. Architecture program. A review and revision on the policies for such may be needed.
3. The significant correlation between the performance of respondents in Areas B and C call for enhancing the skills of learners in logic and analysis, as both building science and architectural design involves problem solving. The ACOMPREC program may be enhanced to address this issue.
4. There is apparently an existing gap between the current teaching methodologies of the College faculty members with the learning method or levels of the students,

considering the preparation program of STEM strand. Enhancing the architectural education skills of the College faculty may be explored into.

5. Improvement of the internet connection and system of the school is very helpful to provide a conducive environment for studying.
6. Distractions in home environment and ailment are apparently affecting the well-being of students to perform well in their studies. Development of programs to address such from the end of the institution is encouraged.
7. This research did not consider the effect of COVID-19 on the architectural studies of the students. A further research on such can be made.

5. Conclusion

This research surveyed on the performance of the respondents on their Architecture Comprehensive Course (ACOMPREC), which is a reference of their cumulative learning and the architecture education program offered by National University College of Architecture (NU CoA). The study involved respondents which apparently belonged to the first early batches of the senior high K-12 STEM strand program. The results showed the respondents performed fairly in their ACOMPREC, with more inclination to the arts side of architecture. Factors affecting the fair performance of respondents were identified as well. With this, the research team recommends improvements to be made to address gaps in the learning of respondents.

Acknowledgement

The research proponent and his team would like to sincerely acknowledge and thank National University, Philippines for fully sponsoring this research project under its Internally-Funded Research Program (IFRP), with contract no. 2020I-3T-07-MLA-COA-Architecture. The principal researcher is also grateful to the University's Research Department Office for providing technical guidance and assistance in making this endeavor possible.

Declaration of Competing Interest

The researcher and his team are presently employees of the academic institution concerned.

Reference

- Ali, R., Naim, H., & Abbaoui, M. (2022). "Educational Situations (ES) as Useful Tools for Teachers to Improve Architectural Design Studio Courses (ADSC)". *International Online Journal of Education and Teaching*, [Online] vol.9, pp. 551-570, Available: <https://eric.ed.gov/?id=EJ1327758>
- Baes, V. E. (2019). "Correlation of Comprehensive Examination and Licensure Examination among MAPEH Major Graduates of Batangas State University Pablo Borbon I". *International Journal of Recent Innovations in Academic Research*, [Online] vol.03, Issue 03, pp. 57-65, Available: <https://www.ijriar.com/index.php/ijriar/article/view/187>

- Jamandri, R. S., & Cortez, E. S. (2007). "Relationship of Licensure Examination Performance in Utilities and Structural Design to Academic Performance in Related Professional Subjects". Philippine E-journals, vol. 04, no.1, Available: <https://ejournals.ph/article.php?id=9182>
- Megahed, N., & Hassan, A. (2021). "A blended learning strategy: reimagining the post-Covid-19 architectural education". Archnet-IJAR, [Online] vol. 16, no. 01, pp. 184-202, Available: <https://doi.org/10.1108/ARCH-04-2021-0081>
- Olweny, M., Ndibwami, A., & Ahimbisibwe, A. (2022, August). Online architectural education: Reflections on COVID-19 emergency remote learning in East Africa. Sage Journals. [Online] Available: doi:<https://doi.org/10.1177/20427530221117329>
- Sales, I., Alwhaibi, A., & al, e. (2022). "A Comprehensive Review Program to Prepare Pharmacy Students for the Saudi Pharmacist Licensure Examination (SPLE)". Saudi Pharmaceutical Journal, [Online] issue no.30, pp. 1552-1560, Available: <https://pubmed.ncbi.nlm.nih.gov/36465845/>
- Tandon, U., Mittal, A., & Bhandari, H. e. (2022, November 21). "E-learning adoption by undergraduate architecture students: facilitators and inhibitors". Engineering, Construction, and Architectural Management, [Online] vol.29, no.10, pp. 4287-4312, Available:<https://www.emerald.com/insight/content/doi/10.1108/ECAM-05-2021-0376/full/html>
- Tobin, K., & Gebo, E. (2008). "Assessing Student Learning & Departmental Effectiveness Through an Undergraduate Comprehensive Exam". Criminal Justice Studies,[Online] vol 21, no. 03, pp. 223-238, Available: doi:<http://dx.doi.org/10.1080/14786010802355362>
- Department of Education. (2023). STEM strand Curriculum. <https://www.deped.gov.ph/wp-content/uploads/2019/01/Science-Technology-Engineering-and-Mathematics-STEM-Strand.pdf>