

CHAPTER III METHODOLOGY

3.1 Research Case Study

As a method of profiling the competencies level achieved by the students and in comparison, to the architects in actual industries, this case study is applying data collected from 50 architecture students of the Faculty of Built Environment (FBE) in Universiti Malaysia Sarawak (UNIMAS) and 6 architects who are practicing actively and involve as review panel in UNIMAS architecture studio. FBE was first established on September 2018, initiated with 20 students as the first cohort of the architecture program and Part 1 Accreditation was given to the faculty by *Lembaga Arkitek Malaysia* (LAM) in September 2020. Since then, architecture firms have been involved with the studio courses in the university by the requirements under LAM as panels for design review that are conducted on every final project of each cohort and UNIMAS has been actively involved with various collaboration programs and competitions nationwide.



Figure 3.1 The First Student Cohort of Architecture Program along with Architects from Lembaga Arkitek Malaysia during End-year Review (*Source: Quienera Joshua, 2018*)

Multiple architects from various architecture firms around Kuching, Sarawak involve as panels during the design reviews to evaluate the student's progress throughout the studio year and along with that, they took in interns from the second year of UNIMAS architecture studio. In relation to that, the architects acknowledge the curriculum that is adapted to the students, and evaluations are made based on the guidelines adopted from the curriculum. On the account of this newly built faculty, FBE UNIMAS is selected for this case study as the curriculums is fabricated progressively, leading to the administration of improved and appropriate strategies and the established collaboration earned by the university and faculty with the industry through various projects, especially internship program that maneuver in elaborating and implementing better strategies and learning experiences.



Figure 3.2 Visitation from Advisory Panel of Lembaga Arkitek Malaysia (Part 1 Accreditation Process) (Source: *Quienera Joshua, 2020*)

3.2 Research Design

A mixed-method approach utilizing the convergent parallel design method has been adopted. Qualitative data is acquired through a series of interviews with architects, during which they articulate their perspectives on the practical learning practices implemented at UNIMAS and compare them to industry standards. In parallel, quantitative data is collected through questionnaires distributed to final-year students in the architecture program at UNIMAS. In the convergent parallel design, both qualitative and quantitative data are gathered and analyzed separately. Subsequently, a comparison is made between these data sets to identify differences and similarities, thereby mutually reinforcing the findings. The selected methodology aims to discern architects' responses to the student-oriented practical learning approach and to align these insights with the perspectives of the students. Its objective is to establish a connection between these two vantage points, facilitating a comprehensive investigation into any deficiencies inherent in the applied practical learning model.

Quienera Nyeon Joshua, 2023

ANALYSIS OF PRACTICAL LEARNING: COMPARATIVE STUDY OF ACTUAL INDUSTRY AND ARCHITECTURAL STUDIO IN HIGHER INSTITUTION

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

3.3 Research Participants

For the purpose of this research, a deliberate selection process was undertaken to identify 3 architects affiliated with medium-sized architecture firms comprising 15 to 50 employees. The architects were chosen based on their active involvement as panel design reviewers for UNIMAS and their commitment to providing internships for university students in their respective firms. Their close engagement with the university community ensures a comprehensive understanding of student progress and facilitates the assignment of diverse and intricate projects to hone the students' practical architectural skills.

In addition, a thoughtfully selected cohort of 50 architecture students was enlisted as respondents for this study. Specifically, third-year students were chosen based on their completion of a 3-month internship during their second year, placing them in the concluding phase of their academic program.

3.4 Research Instrument

To gain insights from architects, we conducted interviews utilizing the indicators outlined in Table 3.1 through a qualitative study. The interview questions were thoughtfully designed in an unstructured format to encourage in-depth feedback and detailed responses from the participating architects. The interview questions consisted of 13 open-ended questions.

Conversely, to collect quantitative data, online questionnaires utilizing the Google Form application were distributed to respondents throughout the research period. The questionnaire comprises four-level scale items with the utilization of the Likert Scale to measure the attitudes and hypotheses made by the students based on the variables. The answer options are made strongly disagree (SD - 1), disagree (D - 2), agree (A - 3), and strongly agree (SA - 4). At the end of each sub-indicator section, an open-ended question is provided for the students to further point out their satisfaction level of the condition of their learning experience on practical learning in UNIMAS.

Questionnaires questions are adopted from the research instrument based on variables in Table 3.1. The following are variables utilized as the research instruments:

Table 3.1 Research Instrument (*Source: Quienera Joshua, 2023*)

Variables	Indicators	Sub-Indicators
Course Curriculum	Relevance to Professionals or Industry	Provide relevancy to the requirement in the industry
	Generate skill-sets	Promotes the growth of skills sets among students
	Soft skills Development	Promotes soft skills among students
Studio and Training (Internship) hour	Time management	The ability of students to work and learn within the time allocated
	Quality of productivity	Assessment of design production within the time provided
Architectural Educators	Delivery and teaching method	Evaluating the effectiveness of delivery and teaching methods
	Sufficient Precedent and Teaching Materials	Identification of proper precedents and materials from the educators
	Mentor or Crit sessions	Assessment of satisfaction mentoring and crit session
Studio Facilities	Alteration of social interaction	Promotes positive space for interaction
	Project critical thinking and character built-up	Encourage spaces for character built-up
	Accessibility	Provide accessible tools to enhance student's creativity

3.5 Research Procedure

The research procedure outlines the chronological sequence of steps undertaken throughout the study, with a strong focus on the operationalization of the research

Quienera Nyeon Joshua, 2023

ANALYSIS OF PRACTICAL LEARNING: COMPARATIVE STUDY OF ACTUAL INDUSTRY AND ARCHITECTURAL STUDIO IN HIGHER INSTITUTION

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

design. The initial stage involves a rigorous identification of the research problem, drawing from empirical observations in the real-world situation. Subsequently, a refined formulation of the research problem allows for a more focused and well-defined scope of investigation. The subsequent step involves the establishment of a well-defined theoretical framework, encompassing essential topics such as the competencies of architecture school graduates, practical learning experiences in both the industry and architecture school settings, and an analysis of the existing disparities between these two domains. This comprehensive approach ensures a structured and methodical research process, fostering the potential for valuable insights and substantive findings.

Upon obtaining a precedent for the research, the subsequent phase entails designing research instruments, such as interview questions and questionnaires, to serve as effective measuring tools. These instruments are formulated based on the variables extracted from the gathered references and model journal. Once the viability of the interview questions and questionnaire was established, the subsequent step involved conducting separate interviews with three architects. Concurrently, questionnaires were distributed to final year architecture students who had completed their internship programs, utilizing Google Forms as the distribution method. Following data collection, the information gathered was processed separately and subjected to thorough analysis to draw valuable conclusions from the research.

Once the data has been gathered, the next stage involves data analysis. Given that this research adopts a mixed-method approach of convergent parallel design, qualitative data is subjected to thematic analysis, while quantitative data undergoes descriptive statistical analysis. The data processing procedure leads to findings, which are then generalized to draw conclusions, serving as valuable information for the readers. The study's outcomes present insights and detailed elaboration regarding the comparison of practical learning in the architecture industry and that within educational institutions. This valuable information can be utilized to enhance the understanding of the differences, strengths, and weaknesses of these two approaches, thus contributing to the advancement of knowledge in the field of architecture education. Additionally,

Quienera Nyeon Joshua, 2023

ANALYSIS OF PRACTICAL LEARNING: COMPARATIVE STUDY OF ACTUAL INDUSTRY AND ARCHITECTURAL STUDIO IN HIGHER INSTITUTION

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

the conclusions drawn from the data analysis hold the potential to guide educators, professionals, and policymakers in making informed decisions for curriculum development and improvement strategies to better align with the needs and demands of the architecture industry.

The final step of the research process involves drawing conclusions from the gathered findings. By analyzing both qualitative and quantitative data, researchers can understand the subject better and provide valuable insights and recommendations for educators, practitioners, and policymakers. These conclusions help bridge the gap between theory and practice, improving the quality of architectural education and fostering a more competent workforce. They also serve as a foundation for future research, encouraging continuous progress and innovation in the architecture field.

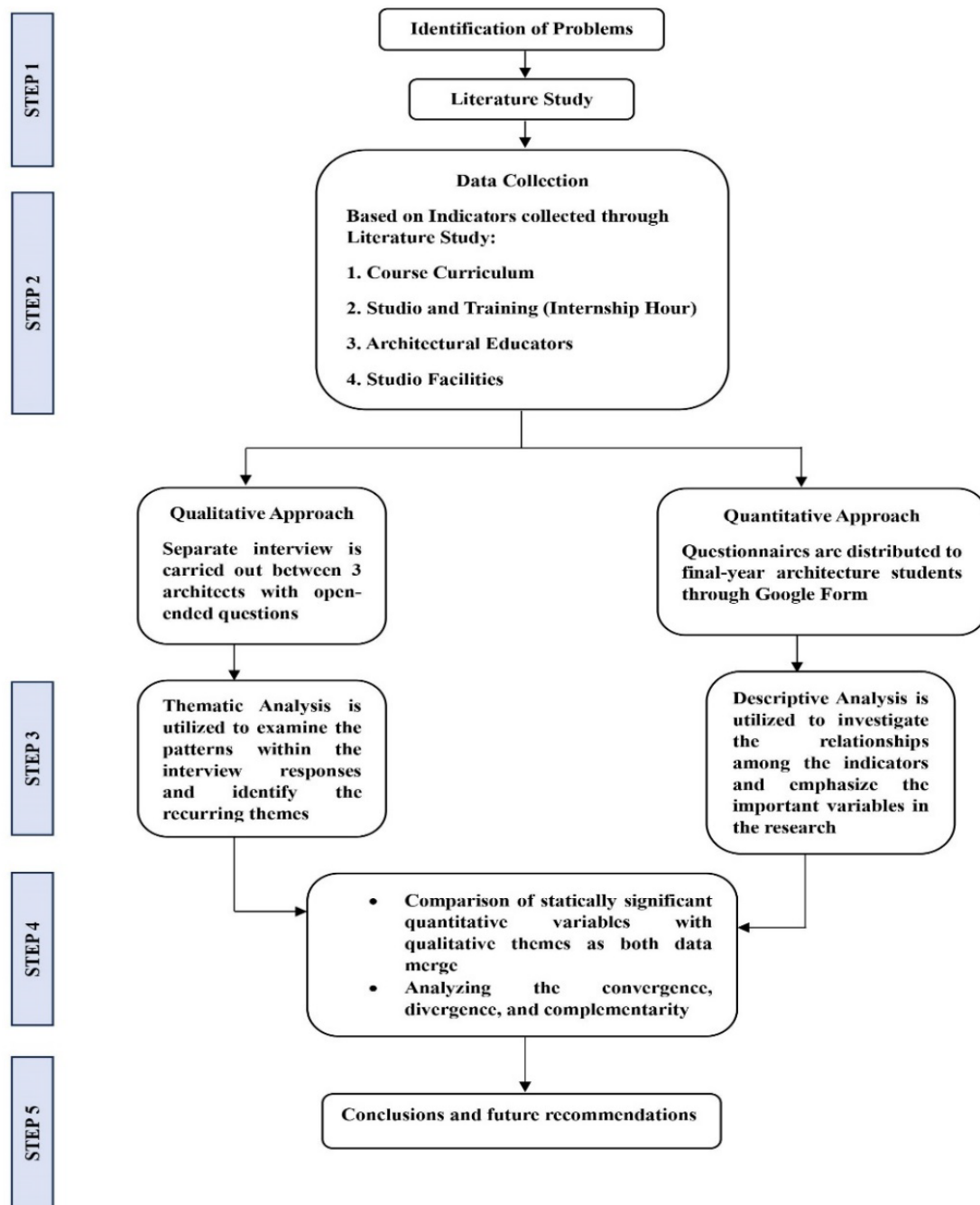


Figure 3.3 Research Flowchart (Source: Quienera Joshua, 2023)

3.6 Data Analysis

3.6.1 Qualitative Data Analysis

Thematic analysis is employed to analyze the qualitative data gathered in this study. The architects' responses regarding practical learning, both in the industry and at UNIMAS, are meticulously transcribed and organized into codes during the coding phase of thematic analysis. These codes are subsequently grouped into themes that best encapsulate and elucidate the architects' feedback. This process allows us to identify discernible patterns within their responses. Table 3.1 is an outline, presenting a comprehensive compilation of variables acquired through a detailed literature review. These variables form the foundation for systematically structuring the interview questions, assuring that they are well-founded and effectively cover the essential aspects of the study. The discussion will involve exploring the connections between themes and uncovering correlations among them. These correlations will ultimately contribute to deriving conclusions that align with the findings from the quantitative data later in the study. Table 3.2 presents a breakdown of the quantity of questions situated between each set of variables.

Thematic analysis emerges as the ideal method for this research, with its capacity to delve deeply into qualitative data. Thematic analysis promises to unearth the intricate qualitative nuances and insights essential for understanding the complexities of this research topic. Furthermore, it is adept at contextualizing these disparities within the educational framework, shedding light on the "why" and "how" behind the observed differences. By employing thematic analysis and utilizing NVivo 14, this research not only quantifies the extent of practical learning differences but also generates holistic and actionable insights that can inform practical recommendations, making it an astute choice for this study. NVivo 14's powerful capabilities for data management, coding, and theme development significantly enhance the efficiency and rigor of the thematic analysis process, ultimately contributing to a comprehensive understanding of the research subject.

Table 3.2 Number of Questions in Interview for each Variables and Indicators
(Source: Quienera Joshua, 2023)

Variables	Indicators	Number of Questions
Course Curriculum	Relevance to Professionals or Industry	3
	Generate skill-sets	
	Soft skills Development	
Studio and Training (Internship) hour	Time management	5
	Quality of productivity	
Architectural Educators	Delivery and teaching method	3
	Sufficient Precedent and Teaching Materials	
	Mentor or Crit sessions	
Studio Facilities	Alteration of social interaction	3
	Project critical thinking and character built-up	
	Accessibility	

3.6.2 Quantitative Data Analysis

The quantitative data collected was compiled by using the statistical package for the social sciences (SPSS) and analyzed using descriptive statistical analysis. SPSS offers an extensive range of analytical functions, including basic descriptive statistics and advanced capabilities for general linear modeling, while also providing specific functions to facilitate variable transformations in preparation for various tests (Suresh, 2015). Table 3.1 presents an exhaustive compilation of variables that form the fundamental basis for structuring the questions in the questionnaires. To enhance the

Quienera Nyeon Joshua, 2023

ANALYSIS OF PRACTICAL LEARNING: COMPARATIVE STUDY OF ACTUAL INDUSTRY AND ARCHITECTURAL STUDIO IN HIGHER INSTITUTION

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

questionnaire's effectiveness, each variable is accompanied by carefully chosen sub-indicators, meticulously derived from an extensive literature review. Utilizing the identified variables and sub-indicators as a framework, Table 3.3 provides a comprehensive set of detailed questions for the questionnaires. By incorporating these variables as guidelines, the questionnaires are designed to address the crucial aspects essential for achieving the objectives of the study. This thoughtful approach ensures that the collected data and insights are comprehensive and relevant.

Table 3.3 Number of Questions in Questionnaires for each Variables and Indicators
(Source: Quienera Joshua, 2023)

Variables	Indicators	Number of Questions
Course Curriculum	Relevance to Professionals or Industry	6
	Generate skill-sets	5
	Soft skills Development	7
Studio and Training (Internship) hour	Time management	8
	Quality of productivity	8
Architectural Educators	Delivery and teaching method	6
	Sufficient Precedent and Teaching Materials	6
	Mentor or Crit sessions	6
Studio Facilities	Alteration of social interaction	6
	Project critical thinking and character built-up	6
	Accessibility	6

The questionnaires are divided into 4 parts, according to each variable: Course Curriculum, Studio and Training (Internship) Hour, Architectural educators, and

Studio facilities. Each variable is presented with specific indicators that rule as to monitor detailing each variable. The questionnaires are presented with 4 options answer; Strongly Disagree, Disagree, Agree and Strongly Agree. Apart from the comprehensive questionnaires, an additional measure to enhance maximum student satisfaction is introduced. At the conclusion of each indicator section, an open-ended question is included, encouraging respondents to provide suggestions and elaborate on their thoughts regarding the current condition represented by each indicator. This allows for subjective input and enables students to share their perspectives more extensively.

In the context of research, the utilization of SPSS for carrying out descriptive analysis is instrumental in gaining a comprehensive understanding of survey or questionnaire data, especially when dealing with Likert scale responses. Researchers can harness SPSS to compute crucial descriptive statistics like means, frequencies, minimum, and maximum values for Likert scale items. These statistics provide researchers with valuable insights into the central tendencies of participants' opinions, the distribution of responses across various categories, the correlation between the sub-indicators and the range and extremities of attitudes expressed. This analytical approach enables researchers to succinctly summarize and visualize their data, making it easier to identify trends, patterns, and variations within the dataset. Ultimately, SPSS enhances the research process by facilitating the extraction of meaningful insights from Likert scale data, which is often used to gauge attitudes, opinions, and perceptions in various research domains.

SPSS empowers researchers to quantitatively measure and visualize responses from Likert scale questions, allowing for a precise examination of perceived practical learning effectiveness. Through statistical tests and data visualization, gaps in perceptions can be identified, quantified, and illustrated, enhancing the robustness of the findings. SPSS streamlines the analysis process, ensuring data accuracy and providing clear, interpretable results. Consequently, this software is instrumental in the quest to objectively assess and convey the extent of the gap in architectural practical

Quienera Nyeon Joshua, 2023

ANALYSIS OF PRACTICAL LEARNING: COMPARATIVE STUDY OF ACTUAL INDUSTRY AND ARCHITECTURAL STUDIO IN HIGHER INSTITUTION

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

learning between industry and UNIMAS, facilitating well-informed conclusions and recommendations derived from the research data.