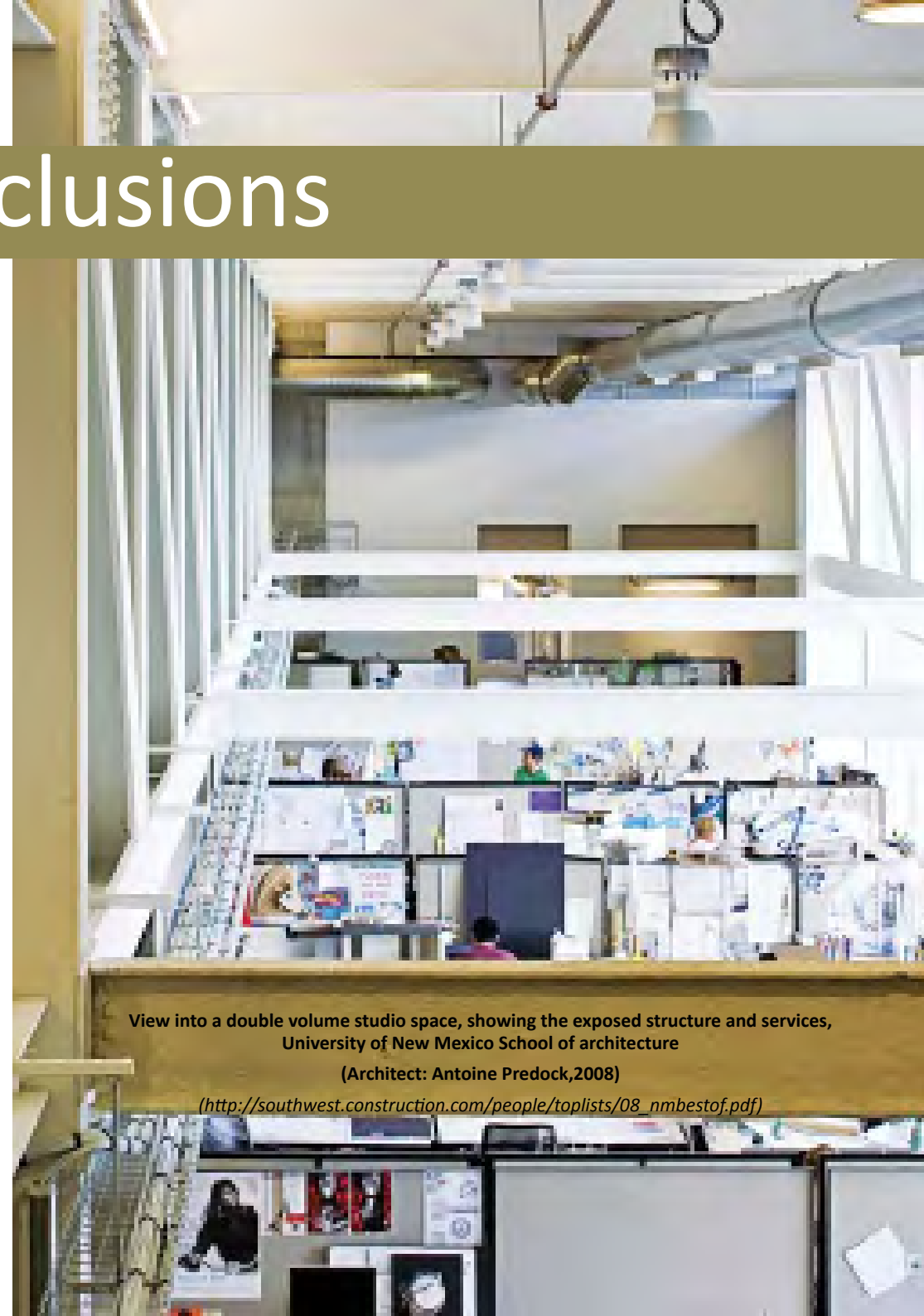


5 Summary & Conclusions

- 5.1 Development of the goals and hypotheses
- 5.2 Review of the findings
- 5.3 Strengths and limitations of the research process
- 5.4 Potential applications of the research findings
- 5.5 Conclusion



View into a double volume studio space, showing the exposed structure and services,
University of New Mexico School of architecture

(Architect: Antoine Predock, 2008)

(http://southwest.construction.com/people/toplists/08_nmbestof.pdf)

SUMMARY AND CONCLUSIONS

This study proves that the facilities at South African schools of architecture do not comply with the requirements of students. This conclusion is based on the evidence collected at four schools of architecture representative of the South African architectural education environment: two schools in a major city (one of which is a traditional “research” school, the other a “vocationally-oriented” school in a comprehensive institution); a school located on the outskirts of a medium sized city and positioned within a University of Technology (i.e. a previous Technikon); and finally a school in the ‘traditional’ South African mould of research universities, located in a smaller city outside the Gauteng Province).

The conclusion may be controversial, but is based on an in-depth study of theoretical design principles of design for adult education, published precedents, and empirical research in the field. Fortunately, the study also indicates that a generic instrument, with minor adaptations to suit the particular context of a school, can be used to implement strategies to improve this situation.

5.1 Development of the goals and hypotheses

In Chapter 1: Introduction, the claim was made that students at schools of architecture are generally unsatisfied with their on-campus learning environment. This claim was based on the researcher’s personal experience both as architecture student and -teacher. There are also several published studies on the (dis)satisfaction of architecture students with their school facilities, in the form of Building Performance Evaluations, and specifically Post Occupancy Evaluations.

The initial research goal was, by implementing a survey at one school of architecture, to identify what those shortcomings are. The briefest of literature reviews showed that several such studies have been implemented and published. What was also clear though, was a shortcoming of existing research: students are not asked what they want of their school building and facilities, or what is most important to their wellbeing and success.

After a more detailed review of the literature, and analysis of the study results and research conclusions, it became evident that there are definite patterns in those shortcomings that were identified. A wide range of issues, from general campus level to the positioning of light fittings in architecture school studios are common problems in the physical facilities available to architecture students. The question then arose: why are these problems not systematically addressed in the designs of new schools of architecture, or renovations of existing facilities?

Further analysis of the existing studies lead to the underlying question of this study: what is a suitable method to easily identify those shortcomings that require immediate strategic responses, and those that are problematic but not crucial for success? After reviewing literature on research methodologies, Importance-Performance Analysis (IPA) was identified as a possible methodology to gain this missing knowledge. IPA identifies which environmental attributes are most important for student success and satisfaction, and how these can be provided for in a strategic manner. At this point, the research proposal was submitted for comment: that Post occupancy Evaluation, combined with Importance-Performance Analysis is the answer.

5.2 Review of the findings

The hypothesis was tested in the field, at four schools with diverging geo/physical-, academic, and historical contexts, yet the results were surprisingly consistent as far as the importance of the attribute variables were concerned, and gratifyingly inconsistent as far as satisfaction ratings were concerned.

The consistency in the importance ratings imply that 1) the selected attributes in the survey were appropriate, and 2) that there are proven patterns in their importance. The occasional expressed inconsistencies in responses between student bodies indicated that students were careful in their responses. When there was high standard deviation between schools, there was acceptably low deviation between students of the same school.

If all the performance results had been negative, or positive, it would indicate that respondents were probably satisficing (selecting a response without carefully considering the option) and the results would at best be questionable, and at worst unreliable and useless.

The results, as illustrated with the use of line- and bar charts and also scattergrams, indicate that:

- There are definite consistencies in those attributes that are most important: individual learning places where students can concentrate on complex tasks; workspaces outside of the building in landscaped areas; and the infrastructure to support working on computers.
- The above attributes were also those that are the least satisfactorily provided. This result points towards the accuracy of the non-linear relationship between importance and performance and this should be further investigated.
- The clear patterns in the responses prove I-P analysis easy to implement for strategic responses, and for efficient use of scarce resources.

5.3 Strengths and limitations of the research process

The initial intention was to test the quality of the research instrument – a questionnaire, and a method of responses analysis – at one school of architecture. The weakness inherent in such a small sample, is that the lack of opportunity for comparison and verification can deliver insufficiently convincing results. The survey sample was subsequently extended to include three more schools. The evidence gathered from the four different schools has much greater validity than that from a single student group.

The timing of the implementation – during an unstructured class period, or at year-end portfolio examinations – had both advantages and disadvantages. The main advantage was, that all students in a specific class group were present at the time of implementation. The disadvantage of permitting students to discuss their responses was that there was evidence of some cross-influence of responses, and during examination times students

may not complete the questionnaires in full due to time limitation. Timing has to be carefully considered and a controlled environment with sufficient time, appears to be the best option.

A possible criticism of the data analysis is that there was not in-depth statistical analysis. Some analysis of the raw data such as standard deviation, skewness and kurtosis, and sample variance was done, using data analysis extensions to Microsoft Excel 2010 and the results are available in the annexures. The patterns identified through relatively simple graphic means such as scattergrams, bar charts and line graphs were however considered consistent enough to be used as a basis for analysis and discussion.

A definite negative impact on the likelihood of future implementation of this research was uncovered during the literature review process: the generally poor acceptance of Post Occupancy Evaluation by the architectural profession. The reasons for this problem were briefly discussed, as it has a potential impact on subsequent implementation of the survey at schools of architecture and acceptance of the outcomes, but a solution to that problem is not proposed here. It is a strength of this study, that implementation of POE at schools of architecture, preferably through implementation by students themselves, may have a positive effect on future POE implementation in practice.

5.4 Potential applications of the research findings

This study was done with the particular goal of enabling future research that expands on current methodologies. A questionnaire was developed, that includes the importance of attributes and not only their performance.

This research format can be used in various ways: for longitudinal studies over a number of years (to assess how the conditions and needs of a particular group in a particular school change); cross-sectional studies (how the conditions and needs of similar groups in separate schools differ); or for quick studies to identify the causes of, and suitable responses to a particular problem. The psychometrics of the methodology was purposely kept simple, so that inexperienced researchers such as teachers or student groups can

easily implement the study either for further study or as part of an academic course. The scope of the attributes allow for in-depth investigation but the survey can be adapted to include or exclude certain attributes provided this is done within the parameters of good research practice, as discussed in Chapter 2: Literature review and Chapter 3: Methodology.

By having proven that there are core needs that are universally important (and as it turned out, almost universally poorly provided for), it is proposed that existing schools can address these needs and that designers of future schools can avoid them. Of course, to avoid this situation from being further perpetuated, this research must be repeated regularly as the needs of academic programs and students are dynamic.

Schools can use the outcomes of this study, or of their own implementation of the survey, to justify requirements for additional institutional resources. As has been acknowledged, this study focused on one of many influences on student success. While the methodology is not suitable for quantitative studies, some problems that were highlighted can be used to justify such studies of indoor environmental conditions such as temperature, lighting levels and air quality.

5.5 Conclusion

Two important objectives of this study were met: firstly, it builds on and contributes to multi- and interdisciplinary studies on Post Occupancy Evaluation. Another objective, expanding the traditional scope of IPA application in the HE environment from reporting on student satisfaction with the ‘soft’ service environment to also reporting on the physical learning environment has also been achieved.

This study did not set out to solve problems at schools of architecture on a global scale, or produce a ‘universal’ methodology. What it did set out to prove was that using Post Occupancy Evaluation and Importance Analysis together as a systematic process of data collection and results reporting, generates knowledge that can be used to make the architectural academic community aware of the issues that influence the satisfaction and thus the performance of their students.

The results of this study can contribute much to our understanding of how to design, and manage facilities at schools of architecture. This does not apply only to “brand new” schools (there are precious few of those), but even more importantly, the ongoing improvement of existing facilities.

Based on the above discussion of the outcomes, it is proposed that this study has succeeded in its goal.

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