# POSITIONING 'CONSTRUCTIVIST' ACADEMIC RESEARCH INTO PROJECT-BASED PEDAGOGICAL DESIGN STUDIES FOR FOURTH YEAR INTERIOR DESIGN DEGREE PROGRAMMES

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## Abstract

*The purpose of this paper is to discuss the benefits of embracing constructivism as a conceptual basis for the practice of teaching and learning in interior design degree programmes; namely Bachelor of Technology, and BA Honours offered at many of the institutions in South Africa.*

*Deliberation is given to using a constructivist approach to both teaching and learning, and as a research paradigm to better align the research and practical components of these traditionally vocationally-orientated, project-based design programmes.*

*A research dissertation structure is described to support exit level outcomes, which are intended to equip students with both the research and practical skills and knowledge to practice in the interior design industry, and simultaneously provide a better academic foundation for the discipline at an undergraduate level.*
**Keywords***: Interior design education. Project-based pedagogy. Constructivist teaching and learning.*

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## Introduction

Traditionally in design education, the completion of a dissertation to accompany a practical design project was the common prerequisite for a fourth year qualification. While the importance of a written dissertation under the guise of a 'research document' is still acknowledged in most programmes, the epistemological link between the written and practical components is not always explicit or evident. With these fundamentally practice-based disciplines being awarded higher academic status within more traditional university type environments, the relationship between the written dissertation and the design project requires academic credibility.

This raises the question as to whether constructivism could be used as a conceptual basis (in the absence of any other theoretical grounding) in order to produce new and transferable knowledge which directly informs the practice within these traditionally vocationally-orientated programmes. Many of the characteristics of a constructivist teaching practice appear to be inherent in project-based learning which has traditionally been used (and is still applicable) in these programmes. As a teaching strategy it is stated that "[project-based learning] requires inquiry as part of the process of learning and creating something new" (Project based learning... 2013).

Although it is acknowledged that the link between constructivism as a philosophy, on the one hand and an educational practice on the other is rather tenuous, many researchers and educators are actively engaged in using constructivist principles to establish new learning environments. In this scenario the learner interprets and constructs a reality based on their experiences and interactions with their environment, and equally,



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concepts, models and theories [and design solutions] are considered viable if they prove adequate in the contexts in which they were created (Murphy 1997).

The main aim of this paper is therefore to identify how constructivist principles could be applied to interior design degree programmes, where as a learning theory knowledge is constructed by an individual through his or her interaction with the environment, and as a learning practice learners actively construct knowledge in their attempts to resolve interior design related problems. How the knowledge is produced, its credibility and the ability for it to be transferable should be considered as a means to improving the academic status of these undergraduate programmes.

**Historical background**

In the fields of Art & Design education, the completion of an 'Exhibition and Dissertation' was the common prerequisite for a fourth year qualification (e.g. National Higher Diploma) in the former Technikon® programme structures. In the interior design discipline the content and structure of the written dissertation was open to interpretation by the student and influenced by the supervisor. The supervisors were often qualified in an associated art or design discipline due to the general absence of interior designers with appropriate qualifications to fulfil this role at that time.

Although it is difficult to generalize about the content of these documents, in many cases the author started with an intention or background to an idea or problem, followed by a 'telling ' of the method and/or process used to arrive at a solution and concluded with an explanation of the final result. The majority of content was made up of conceptual development sketches and design development or processes used to arrive at a final design. According to Häggström (2008, p. 151-152) the academic limitations of this design-process formulated dissertation are that:

- A good design process does not necessarily guarantee a good design solution.
- Simply documenting a process does not substantiate or validate any new knowledge.
- The dissertation may lack any concluding findings that can stand up to academic scrutiny.

In retrospect it may be easy to discredit the academic rigour of these documents, although this format of a submission did present an ideal opportunity for an integrated assessment strategy to evaluate both skills and knowledge acquired through a self-driven and independent learning process. It is however interesting to note that this assessment strategy is still maintained without exception in all interior design degree offerings.

In 1996 the Bachelor of Technology (BTech): Interior Design degree, as registered and approved by the South African Qualifications Authority was introduced. This programme, with revised exit-level outcomes, specified outcomes and assessment criteria, was made common to all Technikons® (offering the BTech degree), in order to achieve comparable exit level outcomes. This new programme-offering consisted of both practical and theoretical modules. One theoretical module focused on business practice and the other was dedicated to design theory. However the challenges faced in developing suitable curricular and learning structures for the delivery of this programme may have prompted the Committee of Technikon® Principals to declare within four years of implementation that "syllabuses will in future not be determined in general policy" (South Africa. Dept. of Education c.2004) but will remain subject to general policy and the requirements of the Certification Council for Technikon® Education (SERTEC).

The next major development in the landscape of higher education in South Africa was as a result of the merging of Technikons® to form Universities of Technology, and Technikons® with Universities to form

comprehensive institutions. This took place during the 2004/2005 period and would bring about complete autonomy regarding any future developments of interior design courses being offered. The implementation of BTech degrees required an increase in the theoretical content of the courses, and subsequently the entry into the university environment has resulted in a greater emphasis being placed on research within these programmes.

Survey of existing interior design course structures

## Purpose of the survey

In order to identify if there had been any significant developments in teaching strategies and programme structures, a sampling was conducted amongst five institutions offering a degree programme at a fourth year level.

A questionnaire was sent to the programme coordinators and/or facilitators in order to identify developments made regarding:

- Exit level outcomes.
- Overall programme structures.
- The content and structure of the research document that is submitted with the final design project.
- The relationship between the research and the practice.
- The academic value of the research document.

Note: Names of institutions and programme coordinators/ facilitators were not considered relevant to the study and are therefore not disclosed.

## Research findings

Completed questionnaires and/or supporting documentation were collected from the five institutions, four offering Btech degrees and one a BAHons degree. The findings are summarized below according to the previously mentioned points:

- **Exit level outcomes.**

The fundamental purpose of the qualification is described as: To equip students with the skills and knowledge to practice within the Interior Design industry. Specific indicators also contained within purpose statements included: creative problem solving, construction detailing/technology, administration and management of design and research. In one case a mention is made that a four year degree is a prerequisite to practice interior design internationally. However, no mention was made that this qualification is also a prerequisite to enter into post-graduate degree programmes in this discipline.

- **Programme structures**

The diagram presented below was formulated from the data collected from the various institutions sampled for this purpose. The diagram represents an amalgamation of the commonalities relating to course structures and teaching methodologies identified in each instance.

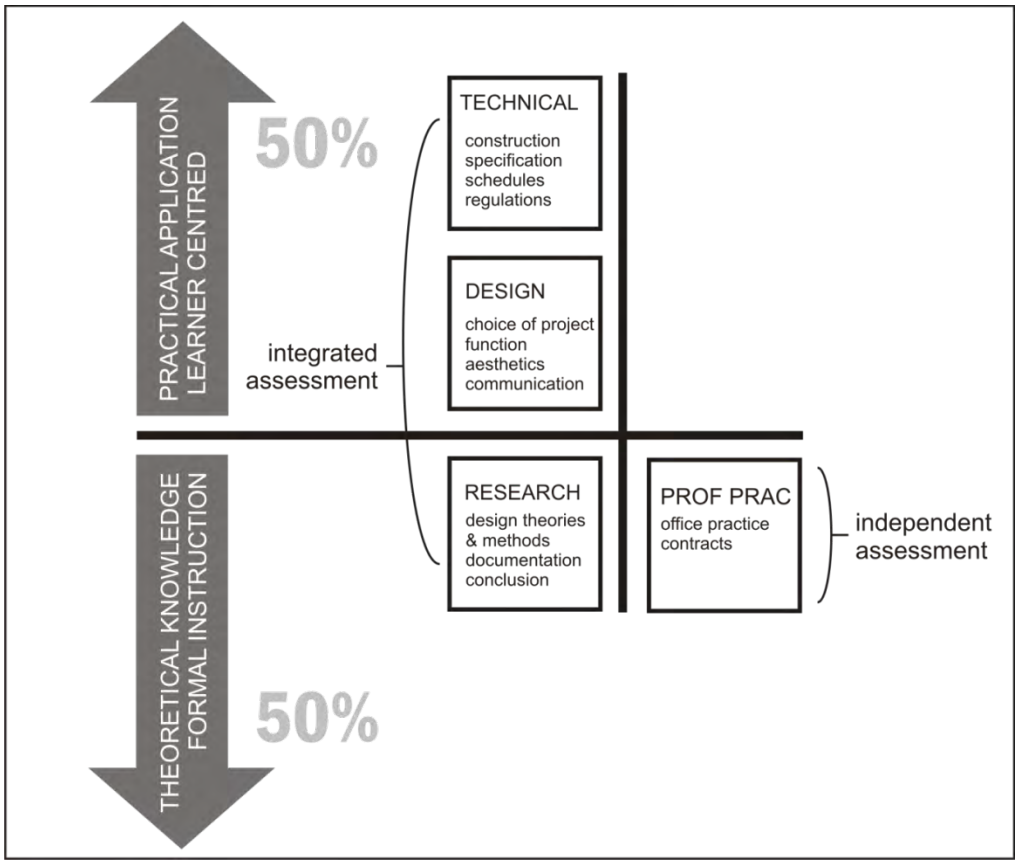


**Figure 1. Common aspects of current Interior design degree programme structures. (By author 2013)**

Generally the number of modules offered ranges between three and five. A fifty/fifty weighting between the theoretical and practical modules is evident. A learner-centred approach is noticeable for the modules in which the students have prior knowledge, such as the design and the technical modules. Areas of learning which are newer to students require more formal instruction. Although an integrated assessment approach is taken, all modules are in general still independently assessed. However the same examiner is used to determine if there is a correlation between the theory and practice.

The **design** module **is c**entral to all the programmes. In most cases students identify a major design project which they will work on for the full duration of the year. The project is 'researched' and a related design proposal is produced. As a teaching and learning strategy the design proposal is usually consider as a solution to a non-routine problem that is informed by the research conducted. The individual student's choice of project, personal inquiry into the topic and his/her subjective engagement in producing the 'solution' supports a learner-centred approach.

The **technical** module is used to produce construction drawings and related documents that represent the technical manifestation of the design proposal. The theoretical knowledge acquired through research relating to: construction methods, specifications, materials and finishes, schedules and building regulations are assessed as context-specific applied knowledge.

Students entering a degree programme should have sufficient knowledge and skills regarding the practical implementation of design to allow for an independent learning strategy to be adopted for these two components.

A **research** module is common in all programmes. The content of this module, to a greater or lesser extent, includes research methodology, visual discourse and the theoretical positioning of design-related studies. Students entering the degree programme may only have an elementary knowledge of research, requiring a more formally structured approach to the teaching of research. This module usually covers academic writing and methods of data collection and analysis. A mixed-methods approach to research is common and includes: site surveys, case studies literature reviews, trends analysis and user needs analysis from both primary and secondary sources. The module is usually assessed through submission of a final research document which accompanies the design proposal.

The correlation between the research dissertation, design and technical modules allow for an integrated assessment (conducted by the same assessor) to ensure that outcomes have been integrated in both theory and design and that the dissertation serves the purpose of supporting the design proposal.

**The professional practice module proves to be the most complex to integrate, possibly due to** some of the original and rather unrealistic outcomes of the original qualification, for example: 'Manage the practice of interior design', 'Submit drawings to relevant authorities' and 'Apply basic management principles'. These are unrealistic due to the hypothetical nature of the associated design proposal. This may also have come about as a result of either attempting to implement integrated assessment for these modules, or in an attempt to include all 26 exit and specific learning outcomes as described in the original programme offering. Therefore aspects related to professional practice that can be assessed as an 'application of knowledge' appear to be better integrated into the practical modules, whereas the aspects requiring the acquisition of new theoretical knowledge are placed in separated formal instruction modules that are independently assessed.

- **The content and structure of the research document submitted with the final design project.**

Comments made here have also been informed through personal observation as an examiner of these documents over the last ten years. The content and structure of these documents vary considerably between institutions and individual students.

The intended content of these written documents generally includes an introduction to the study which describes the physical and social context, justification of its choice and establishment of aims and objectives. In some cases, the introduction is followed by a research strategy where the intended lines of enquiry (methods and sources) are established. In some cases a scope of work or 'programme' is presented in the introduction which seems illogical as the required design intervention can only really be determined after completion of the research. Within this context this appears to reinforce the academic criticism often levelled at design practice as being overtly 'creative and subjective', as in several design practices specifically those based on artistic practice, designers tend to think directly in solutions. This predicament is further compounded by the fact that "… project-based learning can [often] begin with the vision of an end product" (Project based learning...2013).

The main body of the document is considered as 'research findings' and may include some primary research such as: a site survey, samplings or structured interviews and case studies. A significant portion of the text is from secondary sources comprising of 'text-book' summaries of associated design theories, literature reviews with supporting images of loosely associated architectural or interior installations (irrespective of their context). A large section is often only visually descriptive of global current trends relating to styling and aesthetics and product availability. In some cases conceptual and/or design development sketches are included amongst the research findings, which are intended to demonstrate how a solution was arrived at, but would make more sense if presented with the practical design proposal.

Conclusions to the research documents are either completely omitted or briefly used as self-serving justifications of the initial choice of project. The 'conclusion' would have better value if used to formulate the

framework for the resulting design proposal, as often within this learning context the initial problem identified is only fully understood by the end of the research process.

The written component is usually submitted bound together with the practical design development, a full set of construction drawings and an annexure with supporting documentation. This traditional 'architectural treatise' format has some advantages in that it serves as a comprehensive record of a student's performance and facilitates integrated assessment.

- **The relationship between the research and the practice.**

The responses obtained from the institutions varied, stating that the theory/practice link: helps to form a theoretical basis for the study and practice of design; allows for creativity to run parallel and link to theory; helps students challenge accepted assumptions; gives students a language in which to engage in design discourse. Only one response suggested that students research a problem and apply the design solution to the problem.

- **Academic value of the written document**

Without exception all respondents acknowledged the value of the written document with specific reference made to: meeting exit-level outcomes, producing more valid design solutions and to developing skills needed in the workplace due to the fact that research in practice is becoming stronger.

Possibly inherent in the responses to the two previous points, but not blatantly stated, is that the real academic value of the research document should be to produce the context- specific knowledge required to resolve the associated design project.

## Conclusion of questionnaire findings

- Despite the autonomy of the interior design degree programmes an organic process seems to have formed programmes with similar objectives.
- The majority of exit level outcomes are determined by the vocational nature of the discipline. Theory of design and/or research is included as a module in all programmes. The dissertation is considered as a research document that is intended to inform the design project of the student's choice. Although the importance and value of research is acknowledged by all, the explicit purpose of it varied between all respondents.
- In all programmes there is evidence of integrated assessment of the research and practical components even if awarded separate marks.
- Professional practice is either structured as a stand-alone theoretical component or integrated in a variety of ways into other modules.
- Significantly, no mention was made that the research document should stand as valid research contributing to new knowledge in the field. The research methods described a general mixed-methods approach but lacked any underlying cohesive paradigm.

Establishing an appropriate research paradigm for project-based design studies
As in most forms of more traditional research it is the epistemological grounds that determine the methodological approaches required to justify research results as explicit knowledge worth being acknowledged.

Most definitions of research state that research is a systematic, patient process of collecting, analysing, interpreting information, and communicating what is discovered to the larger scientific community. Also, that

the point of research is to discover new information, or to verify existing information in new ways that extend or expand knowledge in a field (Leedy & Ormrod 2005, p. 5).

In the fields of art and design it is not inconceivable to think that an artefact can be the end result of such a process and that the resulting artefact potentially contributes towards a body of knowledge. However the relative value between theory and practice is still debateable within academic circles. There is still a general perception that theory produces explicit and transferable knowledge, pertaining to 'scientific' research methods; that knowledge is produced through an objective and scientific research process, and it is 'scientific' because it is viewed as a systematic process of discovery, delivering objective knowledge independent of any subjective considerations. On the other hand, practice is still deemed to produce embodied and unchallengeable (even indefinable) knowledge. Practice is seen to pertain to an artistic/creative and therefore subjective process and is also considered to deliver, or invent products that are dependent on the specific character of the maker (Barfield & Quinn 2004).

Another valid concern is that even if an artefact is considered as a valid research output, the knowledge produced through this process must be transferable and be able to be tested. This may have been a contributing factor for a decision made by the Ministry of Education in 2003, to stop recognising artefactual research output for subsidy purposes (South Africa. Ministry of Education 2003). This decision has subsequently had a significant impact on institutionalised art and design education on many levels. In interior design education this problem is compounded as no final product or artefact is ever produced. The final outcome of the learning process is usually a design proposal only. In certain of the other practice-based disciplines however, such as engineering or industrial design, a working prototype is usually produced that can be empirically tested to determine its efficacy and therefore the extent to which the research aim has been met. These results of the testing process itself can be considered to produce new knowledge.

According to Häggström (2008, p. 153) a possible answer to this 'impasse' could be to consider design as a problem-solution and thereby as a teaching strategy to shift the focus of the research onto the problem rather than the solution. As a teaching strategy this would support practice-based learning, which requires 'research' as part of the process of learning and creating something new. The new knowledge produced relating to the problem should be transferable and could be 'tested' relative to the specific context in which it was produced. Equally as an assessment tool (in the absence of a testable product) it would enable the student to "articulate explicit reasons why a specific design ought to be accepted as a reasonable solution to a defined problem" (Häggström 2008, p. 153).

**Why use constructivist inquiries for design studies?**

There is an emerging paradigm of constructivist and interpretative research being used in the interior design field. These lines of enquiry are generally defined by the following principles: knowledge is established through the meanings attached to the phenomena studied, researchers interact with the subjects of study to obtain data, the inquiry changes both researcher and subject, and the knowledge created is context and time dependent. They are characterized by a belief in a socially-constructed, subjectively-based reality that is influenced by culture and history. (Coll & Chapman, cited in Krauss 2005, p. 759). The research data collected requires interpretation by the researcher to develop causal explanations to the particular phenomenon being investigated (De Vaus 2001, p. 2).

According to these definitions a constructivist approach supports the relativist nature of many interior design problems wherein the subjects of the study are to a large extent the end users of the spaces. The researcher/designer may interact with the end users to determine their socially-constructed and subjective realities and how these realities relate to their functional and emotion needs within the built environment in

which they operate. The researcher could now take on the role of the designer where an interpretation of the data collected is required in order to produce a design solution to address the particular problem identified.

Unfortunately the hypothetical nature of a design proposal rules out evidence-based research methods being used more commonly in the interior design industry, as the final design is never built and therefore can never be tested. For example, methods such as 'Monitoring implementation of design and construction' and 'Measuring post-occupancy performance results' which are required in order to obtain conclusive data can never be implemented (Friedow 2012 p. 35). Students should however be knowledgeable of this methodology and its growing significance on the practice of interior design.

Additionally some of the practical advantages related to the theory of constructivism as a line of inquiry are described by Guba & Lincoln (1994 p. 112) and read as:

- The relationship between the ontology, in this case considered as 'relativist' and the epistemology which is 'transactional and subjective' gets blurred, allowing students to learn about the subject and what can be known about it simultaneously.
- The investigator and the object of the investigation are assumed to be interactively linked so the 'findings' are literally created as the investigation proceeds.
- The inquiry aim is that of understanding and reconstruction.
- The nature of the knowledge is individual reconstructions that are formulated around consensus.
- The' voice' is one of a passionate participant.

Many of these points support the previously described learning outcomes of the interior design degree programmes.

## Conclusion

The survey findings and literature reviewed appear to indicate that the teaching and learning aspects of these current degree offerings that need to be reconciled are:

To retain the fundamentally vocationally orientated nature of the programme yet include sufficient scholarly research as required for a degree qualification.

To meet exit level outcomes as determined by the fundamental purpose of the qualification i.e. to equip students with the skills and knowledge to practice within the Interior Design industry.

To maintain an equal balance between the research and practical components to avoid 'academic drift', as currently the majority of students completing this programme enter the work place.

To establish a solid conceptual teaching and learning basis that equally informs the practical and research modules and in turn better aligns the research to the practice.

That in the absence of a final product that can be tested, any new knowledge produced must be transferable and withstand academic scrutiny. This also has significance in developing appropriate interior design scholarship to prepare students for post graduate studies.

According to Häggström (2008, p. 153) it may be possible to reconcile these issues if within this context, design is considered as a problem-solving activity. She admits that this definition of design is not accepted by all, and although intuitive creativity may be an important part of the artistic skill it however "does not help the designer in explaining why his or her design is worth acceptance". She also suggests that the role of the research accompanying a design project should be to "articulate explicit reasons why a specific design ought to be accepted as a reasonable solution to a defined problem", and "to make all relevant reasons and grounds [for design decisions taken] as explicit as possible… also reasons that may not be based on facts, but rather refer to aesthetic, ethical or even emotional values".

In addition, Häggström (2008, p. 152) states that the dissertation (in a traditional research format) is also "an important teaching strategy as it requires a logical construction". It helps students to analyse and grasp which explicit reasons and grounds may support their definition of the problem, and which ones can validate their design in a rational manner to avoid design solutions based on misconceptions or a prejudiced understanding of a situation. This form of writing is also relevant to design education as the analytical structuring skills developed are equally useful for the practitioner. The content and structure of the dissertation therefore need to fulfil these roles.

The dissertation should begin with an introduction to the problem describing the physical and social context and theoretical positioning of the study, followed by the aims and objectives. Within this framework the main aim of this study should therefore logically be: to produce a design proposal that presents a possible solution to the identified 'problem' through interior design intervention. A research plan should be included in the introduction outlining the appropriate methods and sources needed to construct the knowledge about the specific problem and the design knowledge required to address that problem. An explanation of the research-process is important as it determines the reliability and/or validity of 'new knowledge' produced. Data collection methods should favour empirical methods from primary sources to augment a constructivist learning approach.

The content of the main body should not only document the research findings, but also demonstrate the student's ability to interpret the findings by making them specifically relevant to the design problem being addressed. Supporting data from secondary sources such as: building regulations, product availability and summaries of design text books may better be placed in the appendix and cross referenced as sources in the main text. Accounts of the design process and/or development should be omitted from the main body and rather be presented as practical work.

Most importantly a succinct conclusion is critical and should describe: the design criteria and principles that need to be assimilated into the design proposal, a user-needs analysis, and the extent of the programme or scope of work that needs to be addressed in order to achieve the main aim. In this format the conclusion establishes the epistemological link between the research and the practice, as the knowledge produced about the problem is the same knowledge that is required to substantiate the design proposal. The design can now be assessed as a problem-solution.

The written dissertation in this form could exist as a piece of valid academic research on its own thus improving the academic level of these undergraduate programmes. Exit level outcomes would still be adequately met, equipping students with both the practical skills and research knowledge to practice in the interior design industry and to apply these skills and knowledge to any other design problems encountered in the future.

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