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Exegesis in industrial design theses in Malaysia

Keywords

Abstract

The study examined content structuring of final year project reports and theses in design and formulate a conceptual model of the content structure of the exegesis to accompany creative work. The study involved analysis of the Malaysian Qualifications Agency's specifications for design as a sub-discipline of creative arts and the theses writing guidelines of two Malaysian universities offering creative arts academic programmes. The results showed recommendations on the conventional social science thesis structure with some space for the design processes. In addition, the analysis of eleven creative arts theses revealed

confusion on the content structuring and student weaknesses in amassing research findings to contextualize the creative work. Based on the results, a conceptual model of creative arts exegesis with separate chapters for 'Proposed final product and human factor issues' and 'Intellectual property documentation' was formulated and validated by creative arts lecturers. The exegesis model which builds in design processes and research processes would resolve issues on unclear expectations in creative arts students' theses and elevate the significance of the creative work.

Introduction

Much of the research on academic writing has been on research articles because of the 'publish or perish' culture. The research article is a genre with recognizable discourse features (content structuring and language), particularly the IMRAD structure or 'Introduction, Materials and method, Results and Discussion' which is used in medical scientific writing (Sollaci and Pereira 2004) and other science disciplines. The IMRAD structure is used not only for theses but also for research articles. The IMRAD structure is evident in the manuscript part of thesis-by-article which is an alternative given by some universities (e.g., McGill University 2022; Nyaard and Solli 2021; Polytechnic University of Catalonia n.d.). The extensively researched components of a research article are the abstract (Hartley and Sydes 1995) and the Introduction (e.g., Ankomah and Afful 2019; Duenas 2008; Kanoksilapatham 2005; Swales 2004; Ting 2013). Research on the structure and rhetorical strategies of the Method (Lim 2006) and the Discussion/Conclusion (Hopkins and Dudley-Evans 1988; Joseph and Lim 2019; Ting 2010, 2011; Yang and Allison 2003) have shown differing levels of compliance with conventional structures, depending on discipline. As various disciplines may have variations in the content structure of theses, academic writing and formatting (Azlan et al. 2018), it is important that students familiarize themselves with the academic writing guidelines that are in place. Ting's (2006) analysis of research reports written by teacher trainees revealed frequent misfits between the content and section headings, revealing that it is difficult for novices to learn the conventions of the academic communities of practice. University students have difficulties to produce good academic writing, particularly in project papers (Abdul Hamid et al. 2012). The arts/humanities are separated from social science/science in some academic cultures, but this article uses a dichotomy between science and social science, where arts/humanities (including creative arts) are categorized under social science.

The difficulty of creative arts students in writing their thesis is potentially great but we found little research about the phenomenon based on our extensive literature search. Examples of creative works are music compositions, novels, art works, dance and painting. Bean (2008) viewed reports of creative projects as distinct from academic or scholarly writing in other disciplines. Berridge (2008),

a creative arts postgraduate student, wrote about her difficulty of writing a Ph.D. thesis without clear guidelines about expectations and having to adapt the guidelines of a traditional Ph.D. thesis. Berridge's (2008) publication revealed that the subject matter of creative arts may not fit neatly into traditional thesis structures such as the IMRAD. The lack of clarity on creative arts thesis may adversely affect timely completion of the research higher degrees (Mann and Fletcher 2004). The difficulty is compounded by the 'diversity of naming practices for these relations [components of a thesis], institutional variation in guidelines and expectations, and fundamental functional roles for the respective components' (Paltridge et al. 2011: 242). An example of the diversity of naming practices is the Introduction section which is variously referred to as the problem statement, research problem and background.

The void in studies on theses in the creative arts may stem from the lack of recognition to 'practice-based' and 'practice-led' in the performing arts and design discipline (Gray and Malins 2004). For instance, the visual and creative approaches and methodology that are specific to industrial design research are visualization, photography, video, sketching and three-dimensional modelling (Gray and Malins 2004). Industrial design is classified as a sub-discipline of creative arts in Malaysia (Malaysian Qualifications Agency 2011). The skills to produce sketches and illustrations, as well as the process of developing designs is sometimes regarded as research that is not concrete.

Since the 1990s, there has been an ongoing debate on the thesis in creative arts, particularly whether art or creative work can be recognized as research (Mann and Fletcher 2004; Perry and Brophy 2001). Evans et al.'s (2003) study was on the type of projects that could be classified as Ph.D.s in the creative arts, defined as research that contribute to the field through the production of a creative work that makes a significant, original contribution to knowledge in a field. The perception that creative work does not count is so strong that the academic research is often considered as necessary to legitimize the creative work (Arnold 2005).

Because of the absence of a framework specific to the creative arts thesis, social science and humanities frameworks have been used as the benchmark for theses in Malaysia (Rahman and Majid 2017). In the sciences, the IMRAD model is used (Sollaci and Pereira 2004). In the social science model, a thesis consists of the Introduction, Literature review, Methods, Findings and discussion, and Conclusions (Oxford Brookes University 2022). Compared to the science model of thesis structure, the additional chapters in the social science model are the Literature review and the Conclusion chapters. Both the science and social science models of the thesis structure do not allow the distinctive nature of creative arts to be shown. For example, creative arts theses need to present descriptions of the proposed product and validation, human factor issues and intellectual property documentation. Creative arts theses document practice-based research, which Candy defines as:

an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice. In a doctoral thesis, claims of originality and contribution to knowledge may be demonstrated through creative outcomes in the form of designs, music, digital media, performances and exhibitions. Whilst the significance and context of the claims are described in words, a full understanding can only be obtained with direct reference to the outcomes.

(2006: par. 2)

In other words, creative arts theses reporting practice-based research outcomes have an exegesis accompanying the creative work. An exegesis provides a critical explanation of the creative work, in which the logic of thought processes, rationales and techniques are explained (Edith Cowan University n.d.; University of Adelaide n.d.). On the other hand, practice-led research 'often falls within the general area of action research', where the focus is on the practice (Candy 2006: par. 3). In terms of the thesis structure, a major difference is that the results of the practice-led research can be fully described in text form and the creative work need not be included (Candy 2006: par. 3).

The introduction of an exegesis to accompany the creative works and applied research of students in creative arts, design and media began in the mid-1990s (Hamilton and Jaaniste 2010). An exegesis includes the cultural and personal ideas which inform the work, the practical constraints on the creative work, the physical context of the work, the function of the work and the relationship between form and function, and at a postgraduate level, an exegesis should add to the understanding of art, culture and humanity as a whole (Edith Cowan University n.d.). Some universities have theses guidelines (e.g. Curtin University of Technology 2021; Edith Cowan University n.d.; Newcastle University 2013; University of Technology Sydney 2013). However, the guidelines are unclear on the documentation of the creative process and the place of research in the creative process in creative art theses.

The exegesis has been a presence in some Australian universities for more than the last fifteen years, even if it has been recently introduced in some other institutions. Considering that the content structure of creative arts theses is still evolving and there is lack of research into the exegesis, this area warrants investigation. Hence, it is vital to investigate the interrelations between the exegesis and the creative work.

The aim of the study was to analyse content structuring of final year project reports and theses in design and formulate a conceptual model of the content structure of the thesis.

Literature review

In Malaysia, creative arts was recognized as a discipline on its own by Malaysian Qualifications Agency (2011) only a decade ago. 'The Programme Standards: Creative Multimedia' states the

necessity of Creative Arts and Design curriculum to have both the practical and theoretical aspects. The practical aspect is assessed through project or studio work taking the forms of project proposals, visual and experimental research, journals, portfolio, presentations and exhibitions. The theoretical aspect requires students to conduct a research project but does not recommend a thesis structure.

In the last one and a half decades, some Australian universities introduced creative work plus exegesis (e.g. Curtin University of Technology 2021; Edith Cowan University n.d.; Newcastle University 2013; University of Technology Sydney 2013). In Arnold's (2005) view, a Ph.D. research in creative arts can be written as a traditional thesis on textuality and discourse or as an exegesis to accompany a creative production (genre work or artefact).

Milech and Schilo (2004) posit three models for the exegesis. First, the Context Model has been described by Mann and Fletcher (2004) where an exegesis offers a description of the research procedures, and provides a context for the creative work. The exegesis presents the historical, social and/or disciplinary context(s) within which the student developed the creative work. Milech and Schilo (2004: 7) are of the view that the Context Model of exegesis may be the dominant model across Australian universities and 'accommodates normative university definitions of research as work that deals with theoretical, historical and disciplinary matters in a fashion that contributes to knowledge in the discipline, and possibly adds to social capital'. Second, in the Commentary Model, the exegesis explicates or comments on the creative production and is secondary to the creative work. Evans et al.'s (2003) characterization of the exegesis as a critical commentary is closest to the meaning of exegesis in the Commentary Model. Both the Context and Commentary Models preserve the theory-practice divide (Milech and Schilo 2004). In their third model, the Research Question Model, 'both the exegetical and the creative component of the research thesis hinges on a research question posed' (Milech and Schilo 2004: 9) and both independently answer the same research question. Milech and Schilo propose that the Research Question Model integrates creative and production-based theses with traditional notions of research at different levels in undergraduate and postgraduate education as follows:

> At one level of education (the Honours research level), a research question may simply enable the student/practitioner to ask the question that enables her or him to better understand the field, and to produce a work that exemplifies practice in that field. At another level (the research Master of Arts), that question may enable the research student to identify a question of significance in the field and amplify the debates and practices related to that question in an effective fashion. And at still another level (the doctoral level) that question may be posed in a fashion that not only takes account of presiding debates and practices but also opens the way for contributing new understandings.
>
> (2004: 11)

An example of a content structure that emphasizes the context for the product creation is Hamilton and Jaaniste (2010): Introduction, Situation concept, Practical context, Researcher's creation and Conclusion. While the Introduction and Conclusion may be similar in linking the product creation to society-oriented issues which form the basis for the research problem, the other parts of the thesis emphasize the design process. Hamilton and Jaaniste's (2010) recommendation reflects Milech and Schilo's (2004) Commentary Model of the exegesis. This is because the Commentary Model has the creative work, supplemented by the exegesis (critical explanation of creative work). However, what Hamilton and Jaaniste (2010) emphasize is the context or, in conventional research terms, the knowledge gap giving rise to the research problem. For creative work, the write-up of the context needs to show 'an area of concern, a condition to be improved, a difficulty to be eliminated', in theory, or in practice that points to the need for the invention of the creative work (Sacred Heart University 2020: par. 1). Rahman and Majid (2017) concur with Jones (1992) on the need for the design process to start from research findings pertaining to societal issues and problems that give rise to a research problem, and the output is a new product that can contribute to the society. To Jones (1992), the researcher's imagination, readings and observation lead to idea generation for a new product design, and this may be translated to sketches, illustrations and 3-D models. Next, the idea and design development take the form of details on the form and functions of the product. The product may be pilot tested on users. This leads to the final idea construction where detailed sketches, technical drawings, mock up and prototype models are produced.

The model of exegesis that is dominant in a particular institution may be conveyed to students via theses guidelines and research method courses. Considering that design is a relatively young sub-discipline in creative arts in Malaysia, it is important to investigate student writing of the exegesis that accompanies creative works.

Method of study

Exegesis in design

A study was conducted to examine the content structuring of creative arts theses using three techniques of data collection. A total of eleven final year projects and theses from the industrial design sub-discipline were analysed to examine the content structuring. The data comprised six exegeses written in English and six exegeses written in Malay by undergraduate and postgraduate students from two public universities in Malaysia (referred to as Uni 1 and Uni 2 in Table 1). The topics of the theses included recreational park chairs, wooden bridge, the place to take holy water in mosques, school chairs, speed bumps, camper vans, furniture and lip synchronization animation for translation of movies into other languages. In this article, the exegeses are referred to as T1–T11.

Table 1: Design theses analysed in this study.

Thesis	Title	Level	University	Language	Number of pages
T1	Study on ergonomic aspect that can assist secondary school student in placing their schoolbag in classroom	Undergraduate	Uni 1	English	40
T2	Eco-friendly speed bump with kinetic energy in urban area	Undergraduate	Uni 1	English	48
T3	An investigation of the potential of three wheeled commercial vehicle using the electric technology	Undergraduate	Uni 1	English	47
T4	Reka bentuk jelatung bagi penduduk di kawasan persisir Sungai Sarawak (Jelatung design for residents in the coastal area of Sungai Sarawak)	Undergraduate	Uni 2	Malay	91
T5	Reka bentuk kerusi taman berkonsepkan cantuman tembok penahan (Garden chair design with the concept of retaining wall joints)	Undergraduate	Uni 2	Malay	69
T6	Reka bentuk tempat wudhu inovasi untuk orang kurang upaya (Innovative ablution place design for the disabled)	Undergraduate	Uni 2	Malay	43
T7	The study of automobile interior space for the development of family vacation	Master of Art	Uni 2	English	153
T8	The attributes of Asmaa' al-Husnaa as a conceptual model of Islamic furniture design Assessment	Master of Art	Uni 2	English	231
T9	Performance of real time lip sync animation on viseme based human speech	Ph.D.	Uni 2	English	237
T10	Kajian Identiti Rekaan Perabot Berdasarkan Nilai Semantik dan Metafora Masyarakat Tempatan di Sarawak (Furniture design identity study based on semantic values and metaphors of the local community in Sarawak)	Master of Art	Uni 2	Malay	201
T11	Hampas Sagu Sebagai Sumber Alternatif dalam Reka Bentuk Model Automotif (Sago waste as an alternative source in automotive model design)	Master of Art	Uni 2	Malay	121

The exegeses were written in double-spacing and 1282 pages of texts were analysed. The page count excluded the front and back matter of the theses and focused on the chapters (which ranged from five to seven chapters). The results chapters which sometimes included intellectual property documentation and product validation were reported in one to three chapters.

Instrument

The instrument is a framework for the analysis of the content structuring of design theses, formulated with reference to the *Programme Standards for Creative Multimedia* (Malaysian Qualifications Agency 2011) and the thesis writing guidelines provided by two universities in Malaysia that offer design undergraduate degrees in creative arts. A comparison of the thesis writing guidelines used in Uni 1 and Uni 2 is shown in Table 2. Uni 1's recommended content structure for creative arts thesis is similar to that of thesis written in the social sciences and humanities (see Andersson and Beveridge 2007; Gray and Malins 2004). For example, Gray and Malins (2004) recommended the following chapters in a thesis on arts and design: Introduction, Literature review, Methodology, Outcomes and analysis, and Discussion and conclusion. Only the Results chapter is named differently as Outcomes and analysis instead of the conventional Results and discussion. Uni 2 incorporated elements of the design process into a conventional thesis content structure, such as the proposed approach/technique for new idea in Chapter 4, evidence of the product in Chapter 5 and documentation of intellectual property in the appendix of the thesis.

Although Uni 1 and Uni 2 have their thesis writing guidelines, there is a need to find out what students produce in their writing. To analyse the eleven final year projects and theses in design, the analysis framework shown in Table 2 was employed.

Data collection and analysis procedures

To obtain the final year projects and theses from the industrial design sub-discipline, the second researcher contacted lecturers from the ten universities and art academies offering undergraduate and postgraduate programmes in creative arts in Malaysia. There was not much response to most of the letters and e-mails requesting samples of creative arts theses for analysis. The first researcher also assisted in obtaining the samples. Eventually, eleven exegeses were obtained from lecturers in two public universities. When the theses had been analysed and a tentative conceptual model for creative arts theses had been formulated, the model was shown to two lecturers in design for validation.

Table 2 was used as the analysis framework to analyse the content structuring of the chapters in the eleven theses. The front and back matter were excluded from the analysis. During the analysis, attention was given to writing on the idea generation based on research findings, idea development and design, final idea construction and description of final design. In addition, the exegesis samples

Table 2: Recommended content structuring of creative arts theses in Uni 1 and Uni 2.

| Chapter | University | | Comparison | Gray and Malins (2004) |
	Uni 1	Uni 2		
Front matter	Research title Author declaration Abstract Table of contents	Title page Status endorsement form Endorsement and signature Acknowledgement Table of contents Abstract	Similar	Abstract and other front matter
1	Introduction • Research focal area • Research problem • Objectives of study • Significance of study	Introduction • Background of study • Research problem • Objectives of study • Significance of study • Hypothesis • Study scope	Similarity • Background of study • Research problem • Objectives of study • Significance of study Differences • Hypothesis • Study scope	Introduction
2	Background of research • Background of overall proposal • Review/discussion	Literature review • Review of past studies • Discussion	Similar	Literature review
3	Research methodology • Studio, functions of creative works, design • Research approaches (quantitative, qualitative)	Research method • Quantitative/qualitative research	Similarity • Quantitative/qualitative research Differences • Studio, functions of creative works, design	Methodology

Table 2: Continued.

Chapter	University			Gray and Malins (2004)
	Uni 1	Uni 2	Comparison	
4	Analysis and findings • Results/analysis (numbers, tables, descriptive texts)	Data analysis • Comparative study • Analysis and pilot test • Proposed approach/technique for new idea	Similarity • Results Differences • Proposed approach/technique for new idea	Outcomes and analysis
5	Conclusion and recommendations • Overall conclusion • Recommendation	Results, conclusion and recommendations • Results • Discussion • Evidence of product	Similarity • Results and outcome of study Differences • Evidence of product	Discussion and conclusion
Back matter	References Appendix	References Appendix • Documentation of intellectual property	Similarity • References • Appendix Differences • Documentation of intellectual property	References Appendix

Source: Universiti Malaysia Sarawak (n.d.) and Universiti Teknologi MARA (2011).

were also categorized based on Milech and Schilo's (2004) exegesis models. The frequency of different section headings and content were tabulated to determine the compulsory and optional elements for the conceptual model of the exegesis for creative arts. The proposed model was presented to design lecturers for their comments, and their feedback was analysed before finalizing the conceptual model for the exegesis shown in Figure 1 (shown in the Results section).

Results and discussion

The Results section presents the content structure of eleven final year projects and theses in design, and the conceptual model of the design exegesis.
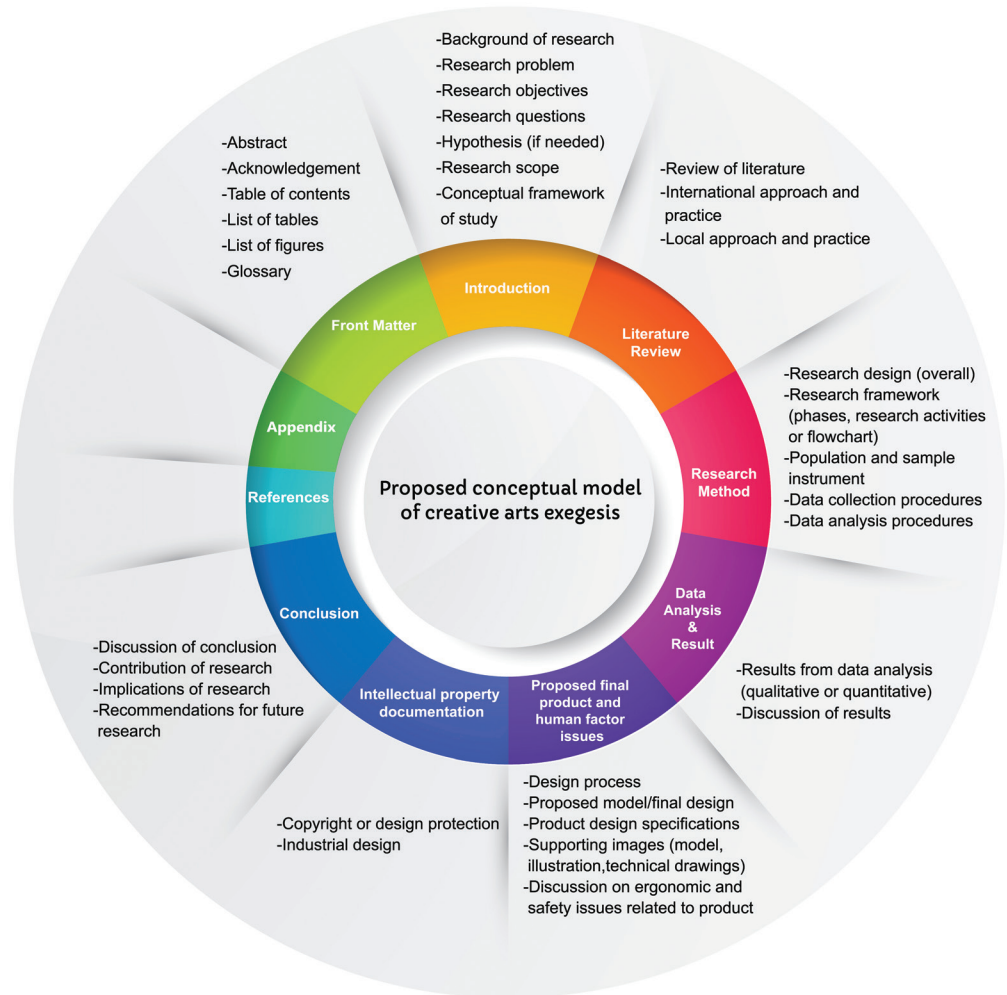
Figure 1: Proposed conceptual model of creative arts exegesis.

Content structure of design theses

The analysis of the eleven final year projects and theses in design showed that the content structure reflects that of the social science theses, except for the additional sections providing product description and validation. The common chapters characteristic of social science theses are Introduction, Literature review, Methodology, Results and discussion, and Conclusion. The design information were sometimes provided in the Results and discussion chapter by some students, or in separate chapters by other students, as shown in Table 3.

Pertaining to compliance with university thesis writing guidelines, the analysis showed that the students' theses had roughly the same sections as those specified in their university guidelines. The variations are possibly due to their lecturers' preferences. As shown in Table 2, Uni 1's guidelines basically follow a social science content structure. Uni 2 has research design elements incorporated into the thesis content structure. Seven out of eleven exegeses (T4–T9 and T11) describe the proposed product or proposed conceptual design and the validation in separate chapters. Nor surprisingly, these were all students from Uni 2. The availability of university guidelines helps the students to cope with an unfamiliar genre of writing.

However, as far as the documentation of intellectual property goes, there is not much evidence of such information in the design final year projects and theses analysed. Uni 2 guidelines specify a separate chapter for the documentation of intellectual property but the students did not do this, perhaps due to the lack of awareness on protecting their ideas. Uni 2 is the first Malaysian public university to offer intellectual property as a field of study (UNIMAS jadi IPT pertama tawar bidang harta intelek 2013).

First, the Context Model has been described by Mann and Fletcher (2004), whereby an exegesis presents the historical, social and/or disciplinary context(s) within which the student developed the creative work. Milech and Schilo (2004) are of the view that the Context Model of exegesis may be the dominant model across Australian universities, based on conventional definitions of research used in universities, that is, investigation of theoretical, historical and disciplinary subject matter that yields novel knowledge.

In the context of Milech and Schilo's (2004) model, the results indicated that all the eleven exegeses analysed resembled the Context Model. The content structure of a thesis written based on the Context Model in Milech and Schilo's (2004) model has a description of the context, the research process and the resulting creative work. The Context for the creative work is similar to the research problem or knowledge gap that is presented in the Introduction chapter or section of thesis based on the IMRAD structure. In the present study, the eleven exegeses contextualize the creative works in their historical, social and/or disciplinary contexts in Chapter 1, Introduction. The disciplinary context is not strong, evident in the lack of citations of past related findings to show a knowledge gap.

Table 3: *Content structure of creative arts theses.*

Thesis	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7
T1	Introduction	Literature review	Research method	Data analysis and findings	Conclusion and recommendations	–	–
T2	Background research	Objectives and research methodology	Analysis and findings	Conclusion and recommendation	–	–	–
T3	Introduction	Literature review	Research methodology	Data analysis and findings	Conclusion and recommendations	–	–
T4	Introduction	Literature review	Research methodology	Data analysis	Proposed design	–	–
T5	Introduction	Review of previous literature	Research methodology	Study outcomes	Proposed design	–	–
T6	Study background	Literature review	Research methodology	Data analysis	Analysis of design	Conclusion	–
T7	Introduction	Literature review	Methodology	Data analysis	Proposed conceptual design portable campervan box in automobile space	Validation	Conclusion
T8	Introduction	Current practice of furniture design	Applying Asmaa' Al-Husna attributes in good design	Methodology	Data analysis (+construction of final idea)	Validation and discussion	Conclusion
T9	Introduction	Literature review	Methodology	Findings and discussion	Conclusion (+model description)	–	–
T10	Introduction	Library research	Study approach	Study outcomes	Proposed design	Respondent validation	Conclusion
T11	Introduction	Literature review	Methodology	Experimentation	Data analysis and final product validation	Conclusion	–

However, design final year projects and theses are more towards applied research rather than basic research. Therefore, it is reasonable that the social context is stronger in the exegesis analysed. All eleven exegeses begun with the researchers' observations of ergonomical problems. Some students cited research findings to support their observation of the weaknesses of certain products or designs, while others cited findings to support their arguments.

Jones (1992) emphasizes the importance of creative work starting from research findings. It is not surprising that the Malaysian design final year projects and theses largely fall into the Context Model because Milech and Schilo (2004) had noted that the Context Model of exegesis also dominates across Australian universities that offer creative arts programmes. The content structure of the final year projects and theses in design analysed do not reflect the Commentary Model where the creative work takes prominence. The eleven exegeses analysed in the present study also do not reflect Milech and Schilo's Research Question Model where 'the written and the creative component of the thesis are conceptualised as independent answers to the same research question' (2004: 9). It is not easy to achieve this level of integration where neither the exegesis nor the creative work takes prominence.

Common weaknesses in the writing of the exegesis

Further analysis of the creative arts theses revealed some common weaknesses in the writing of the exegesis. Table 4 shows weaknesses in various sections of design theses but language and grammatical shortfalls are not included because they are not related to content structure.

Some problems were found in a majority of final year projects and theses in design but others surfaced in only one or two of them. The most common problem with the Introduction chapter is the weak research problem where students were unable to use the research findings to make a coherent argument to show a need for their proposed design or conceptual model.

The Literature review chapter suffers from a lack of subject matter knowledge where topics related to the research are included but the relationship between them is not clearly explained to show the practical need and the research basis for the proposed design or conceptual model.

The weaknesses in the Methodology chapter seems to be due to confusion over the content of the Participant, Instrument, Data collection procedures and Data analysis procedures sections. The postgraduate students put the correct contents in the Results chapter but the undergraduate theses (T1–T4) had content that should appear in the Methodology chapter (i.e. respondent profile, instrument and data analysis procedures).

The Conclusion chapter is too brief in the description of the product or conceptual design and fails to make a strong case on the contribution of the creative work to solving practical problems. The analysis identified sections where design students had problems with the thesis structure, despite the provision of guidelines for the writing of the final year project and theses.

Table 4: Weaknesses in various sections of design theses.

Chapter	Weakness
1. Introduction	• Research problem is weak. • Limitations of study wrongly put here instead of Methodology chapter. • Research objectives and questions do not match. • Research objectives and hypotheses are not clearly written.
2. Literature review	• Topics are disjointed from one another. • Operational definition of terms are wrongly put here instead of Introduction chapter.
3. Methodology	• Research objectives and questions are wrongly put here instead of Introduction chapter. • Conceptual framework, theoretical framework, progress flow chart and activity flow chart are mixed up and sometimes redundantly included. • Research problem and significance of study are wrongly put here instead of Introduction chapter. • Results of study are wrongly put here instead of Results chapter. • Confusion over the content of the Participant, Instrument, Data Collection Procedures and Data Analysis Procedures sections
4. Results and discussion	• Respondent profile is put here instead of the Methodology chapter. • The instrument (e.g. questionnaire) is wrongly put here instead of the Methodology chapter. • Data analysis procedures are wrongly put here instead of the Methodology chapter.
5. Conclusion	• Results and product description are too brief. • Lack recommendations for future research due to focus on creative work. • Contribution to solving practical problems is too brief.
6. Other design-focused chapters	• Intellectual property description is in point-form.

Proposed conceptual model of creative arts exegesis

Figure 1 shows the proposed conceptual model of creative arts exegesis. Chapters 1–4 and the last chapter are similar to existing guidelines of Uni 1 and Uni 2, including conventional social science thesis structure. The last Conclusion chapter contains the expected sections, namely, discussion, contribution of research, implications of research and recommendations for future research. These

are the conventional contents of thesis written based on the IMRAD structure. However, two additional design-focused chapters are inserted before the conclusion chapter in the proposed exegesis, and attention will be given to these two chapters next.

Chapter 5 highlights the design process and is titled 'Proposed final product and human factor issues' to give prominence to the design aspect. Chapter 5 needs to be a stand-alone chapter and cannot be integrated with the Methodology chapter. The design process looks like it can be placed in Chapter 3. Indeed, the research framework (phases, research activities and flowchart) is in Chapter 3. However, in Chapter 5, the design process is merely a recap of the main processes to provide a context for readers to understand the next part, which is the proposed model/final design.

Chapter 5 comes after Chapter 4, Data analysis and results because empirical evidence needs to be provided first to show that the creative work is feasible. For example, students may present results of questionnaires distributed to potential users of the products to obtain their perceptions on the usability and aesthetic value. Then the empirical results are discussed in relation to existing literature on the product in Chapter 4 to show how and why the product is an improvement over existing designs. The references to previous research is important to show that the product was designed with full knowledge of the existing literature in the field. When the empirical basis for the product has been provided in Chapter 4, the product is revealed to the audience in Chapter 5.

The proposed contents of Chapter 5 are the design process, the proposed model/final design, supporting images (e.g. model, illustration, technical drawing) and discussion on ergonomic and safety issues related to the product. The readers would be interested to read descriptions of the creative product. Sketches, designs, images and technical drawings may be included along with commentaries. However, the other important component of Chapter 5 is the human factors issues, referring in essence to the ergonomic and safety issues. Considering that the product is designed to solve some problems in daily life, it is important for students to describe the human factors in design so that the audience understands the rationale for the ergonomic and aesthetic factors that influence the design of products. This kind of information will help the readers to appreciate the product and understand why it is better than existing designs.

The other new chapter in the proposed conceptual model of creative arts exegesis entitled 'Intellectual property documentation' strengthens the new primary position of the creative work. Chapter 6 is particularly important for postgraduate theses which result in the production of a product or industrial design that is in need of copyright or design protection. Undergraduate final year project reports may not need to have an intellectual property documentation chapter. Intellectual property documentation is an important chapter in the exegesis because the production of the creative work is the primary reason for the exegesis to be written. The purpose of having Chapter 6 is two-fold. First, it trains design students to provide the appropriate types of information to apply for copyright or design protection as this knowledge will be useful for them later in their working

life. Second, it provides evidence of intellectual property application, which tells the audience that the process is in progress for the design to be copyrighted. The registration of intellectual property takes time and the final year projects and theses are usually submitted for assessment before the process is through. However, students may choose not to declare the intricate details of the industrial design because they would run the risk of plagiarism before the copyright protection application is approved by the Intellectual Property Corporation of Malaysia (MyIPO or Perbadanan Harta Intelek Malaysia). Essentially, the document that students need to include in Chapter 6 is the notification of copyright in a work based on the Copyright Act 1987, subregulations 5(2) and 5(3). This MyIPO form is signed by the owner of the copyright in the work, which may include the student and the supervisor who may have given the idea for the creative work and provided intellectual input in the process. The form also needs to be endorsed by higher authorities in the university in charge of the research innovation unit, which will pay for the copyright registration fee. For purposes of protecting the design, students can choose not to include the supporting documents on the copyrighted material in Chapter 6.

Validation of proposed conceptual model of creative arts exegesis

The proposed conceptual model of creative arts exegesis shown in Figure 1 has been validated by two lecturers (L1, L2). The data validation results show that they agreed with the proposed exegesis model and they believed that the model would help students in their academic writing. Table 5 shows the lecturers agreed with the conventional chapters of a thesis following the social science model: Introduction, Literature review, Methodology, Results and discussion (but referred to as Data analysis and results in design exegesis) and Conclusion. These conventional chapters are anchored in the IMRAD structure, and the impetus for the research is built on the research problem. In the context of the ongoing struggle for creative arts discipline to gain recognition as research, the proposed conceptual model contextualizes the creative work in research.

As for the two new chapters in the proposed model, the two lecturers were also in support. L2 was in strong support of having Chapter 5 (Proposed final product and human factor issues) and even stated that students 'need to explain proposed design in detail, including product design specifications and human factors'. L1 emphasized that the proposed conceptual model of creative arts exegesis is a move away from the research-focused writing in conventional social science theses. As for Chapter 6 (Intellectual property documentation), L1 said '[i]f students' work has intellectual property value, then they should write this chapter because early exposure to intellectual property documentation is important'. Both lecturers believed that the documentation of intellectual property needs to be in a separate chapter. The content is different from the foregoing chapters because the purpose is for legal protection of the creative work.

Table 5: Comments by lecturers on the proposed conceptual model of exegesis during validation.

Chapter	Validation: comments by creative arts lecturers
Front matter	Agree (L1, L2). Front matter content is subject to university guidelines (L2).
1. Introduction	Agree (L1, L2). Should emphasize qualitative data and hypothesis should be optional (L1).
2. Literature review	Agree to use the term *Kupasan Literatur* ('Literature review') (L1, L2) because other potentially confusing Malay terms are used (*Sorotan perpustakaan, Sorotan kajian, Sorotan literatur* and *Tinjauan literatur*).
3. Research method	Students should be clear in description of appropriate sub-sections of Methodology (L1, L2).
4. Data analysis and results	Students need to clearly explain the methodology details (L2). Need to explain research findings and strategies to describe the proposed design (L1).
5. Proposed final product and human factor issues	This section is not related to academic writing in industrial design (L1). Need to explain proposed design in detail, including product design specifications and human factors (L2).
6. Intellectual property documentation	Documentation of intellectual property needs to be in a separate chapter (L1, L2). If students' work has intellectual property value, then they should write this chapter because early exposure to intellectual property documentation is important (L1).
7. Conclusion	Agree with components of conclusion chapter.
References	Agree (L1, L2).
Appendix	Agree (L1, L2).

The two additional chapters give prominence to design processes but since our proposed conceptual model of creative arts exegesis retains the chapters that are present in a research-based thesis, it can emphasize both innovation and argumentation and fulfil the requirements for a Ph.D. To cite Kroll:

> The most important principles for a PhD are that the thesis will demonstrate 'wide reading and the power to integrate information obtained from various sources into a unified whole' (statute 2); that it will demonstrate 'a higher degree of independence of thought and approach' than a Masters; and finally that it make 'a significant original contribution to knowledge'.
>
> (2014: par. 42)

Conclusion

The study showed that Malaysian final year projects and theses in design are largely based on the Context Model (Milech and Schilo 2004) where the creative work is set in its historical, social and disciplinary context. The thesis structure of having a description of the context, the research process and the resulting creative work is reflective of theses patterned after the science and social science thesis structures. In other words, there is a strong theory-practice divide, with greater emphasis on the exegesis and less emphasis on the creative work. In the case of Malaysia, this is partly because of the programme standards produced by the Malaysian Qualifications Agency (2011) and the university thesis guidelines which are conventional. The point of departure from the science and social science thesis content structure is probably the practical significance of the design studies which are inclined towards applied research rather than basic research aimed at having a theoretical contribution to the field. The applied nature of the creative arts research naturally places more importance on practical solutions to problems. The Context Model inclination of the design exegesis suggests that the creative arts discipline in Malaysia is still quite far from developing a thesis structure that is unique to the discipline. This is why Milech and Schilo's (2004) Commentary Model was not seen among the final year project reports and theses analysed, that is, the Malaysian exegeses still do not treat the creative work as primary and exegesis as secondary in giving a critical commentary. On the basis of the present study, the design exegeses also do not achieve a balance in the importance of the written and creative components of the thesis, the Research Question Model (Milech and Schilo 2004). We see the dominance of the Context Model in the Malaysian context (our study) and Australia (Milech and Schilo 2004) as the influence of the conventional science and social science thesis structures, and it will take a while for a distinctive thesis content structure characteristic of the creative arts discipline to emerge and take root.

Our study also showed that the design students at undergraduate and postgraduate level in the two Malaysian universities have problems complying with the thesis content structure. They could not place information in the correct chapter, particularly aim and objectives of the study, method information (respondents, instruments) and limitations. Their problems may be alleviated by a clear content structure for the thesis. The proposed conceptual model of creative arts exegesis comprises six chapters: Introduction, Literature review, Research method, Data analysis and results, Proposed final product and human factor issues, and Intellectual property documentation.

The two additional chapters that are not found in conventional social science theses are Proposed final product and human factor issues, and Intellectual property documentation. These chapters give prominence to the design processes. First, the chapter on the proposed final product and human factor issues allows the context for the creative work to have a legitimate place in a thesis. Edith Cowan University (n.d.) guidelines on exegesis writing states that it is important to give room to

the cultural and personal ideas which inform the work, the practical constraints on the creative work and the physical context of the work. To Jones (1992), it is important that a creative arts thesis highlights the society-oriented issues which triggered the generation of ideas for a new product design. In their proposed design-focused exegesis, Hamilton and Jaaniste (2010) also call attention to the context for the product creation, seen in their recommendation to have separate chapters for the situation concept and the practical context. In fact, Hamilton and Jaaniste (2010) also proposed Researcher's creation to be a separate chapter. This is where sketches, illustrations, technical drawings, 3-D models, mock up and prototype models are included to show the progression of ideas and the final product after validation. Having a separate chapter for describing the final product and human factor issues is good to condition students, and researchers, in creative arts to describe their creation in detail.

Second, the chapter on intellectual property documentation is gaining ground, particularly in Canadian universities. For example, our literature search showed that graduate students are given Intellectual property guidelines by the University of Manitoba (2009), Lethbridge University (2016) and Athabasca University (2022). The inclusion of this chapter will create the conditions for students to be informed about intellectual property issues so that they know how to protect their own rights and respect the rights of others when working with funding agencies or others with an interest in the work (University of Manitoba 2009). Guidelines for the legal protection for creative work is also given by Monash University, Australia (2017). This is an area which requires more attention because graduate work can produce novel products, and it is important for the exegesis to include this component.

Having a clear content structure that allows research as a starting point for the creative work and design processes to take centre-stage will make it easier for students to integrate the creative and research aspects of their project. Our conceptual model for creative arts exegesis reflects Milech and Schilo's (2004) Context Model. The model also enables creative works to be established as research that can contribute to theoretical knowledge in the field and resolve practical issues in the society. Having a definitive exegesis model that clearly structures the design processes and research processes resolves issues on wide-ranging variations and unclear expectations. A clear exegesis model that is widely accepted in the design sub-discipline, or more broadly in the creative arts discipline, will enable the creative arts discipline to break away from the current IMRAD-based thesis content structure. The changes in the discipline will lead to rewriting of the thesis guidelines and even the programme standards at the national level. This means that when the official policies are in place, the research method courses and lecturers will naturally comply and teach the unique structure of creative arts thesis, which consists of an exegesis and the creative work. Then when the students embark on their final year projects or postgraduate studies, the supervisors will reinforce what has been taught on the thesis structure through their individual feedback. There will be

variations in the emphasis on the exegesis and the creative work in different universities, but the clarity of the structure of the exegesis will facilitate research training of creative arts students in a manner befitting of their own discipline.

The practicality of our proposed conceptual model for creative arts exegesis should be verified in further research to investigate whether it reduces the prevailing common weaknesses evident in theses written by creative arts students at undergraduate and postgraduate levels. These findings on research writing practices in creative arts will also offer a new angle on reporting of research involving creative works, of which not much is published. Other researchers in future can use the conceptual model for creative arts final year project reports to design a software to assist undergraduate students in their writing of these project reports.

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