

Double Marking of Coursework Masters Research Projects

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1.0 ABSTRACT

Many coursework masters programs require double marking of thesis. One marker is normally the supervisor and the other marker is a person with expertise in the area that has not been involved with the projects. Until recently the marking by the independent person has been undertaken as a labour of love. With the number of masters programs that have developed over the last ten years and the increase in the student numbers it has become more difficult for Universities to find people who are prepared to be independent markers.

This paper will review the need for the double marking of thesis. The review will be based on the results of double marking of over 60 projects by a group of 10-15 project supervisors and 10 –15 independent markers. The allocation of independent markers was based on topic not on whom supervised the project so that there is a random selection of pairing of supervisors and markers. The results of this paper maybe used to review the current policy of double marking of coursework master projects.

2.0 INTRODUCTION

To ensure the quality of research projects undertaken in coursework many universities have required the double marking of the Masters project reports. Generally these reports have been responsible for approximately 25% of the course work programs. As the number of coursework programs have grown throughout the world it has become more difficult to arrange for this double marking unless the independent marker is paid. Most 2-year research Master degrees require the double marking of theses. This has meant that the coursework Masters research project reports have received as much marking a research Masters degree.

This paper will review the results of two groups of markers. The first group is the marking by the project supervisor and the other is an independently appointed marker who has had nothing to do the project. The students in this program currently have to undertake a number of assessable tasks when completing the research project, they include:

- Progress seminar (marked by peers and tutors)
- Final seminar (marked by peers and tutors)
- Written report on the research project (marked by both supervisor and independent marker)

3.0 METHODOLOGY

The results of two cohorts of students were obtained and include:

- Final seminar results
- Supervisors project mark
- Independent markers mark

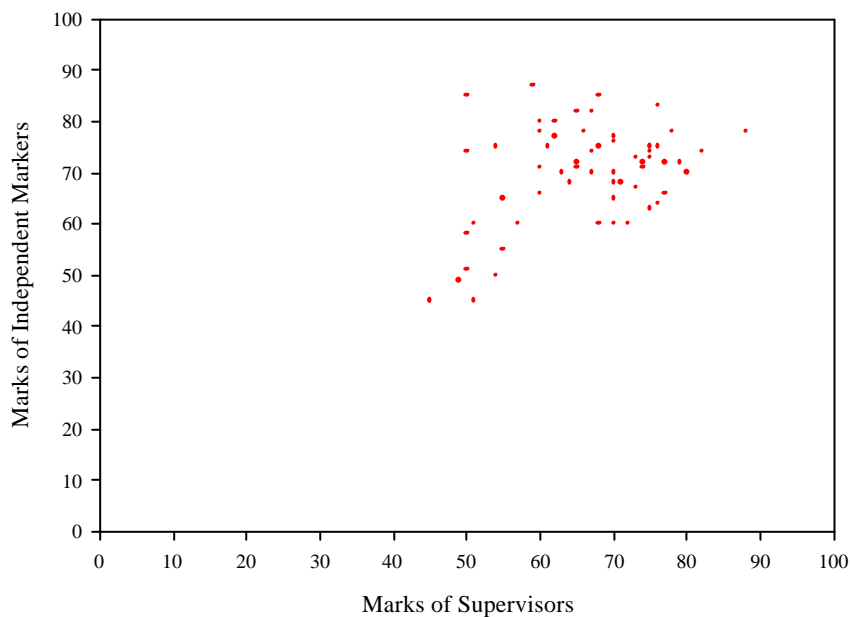
The results of marking of the research project report by the supervisor and the independent markers were compared for differences calculated. The marker results were also compared with the results from the final seminars.

The results of the marking were analysed, compared and graphed using the SigmaPlot software package.

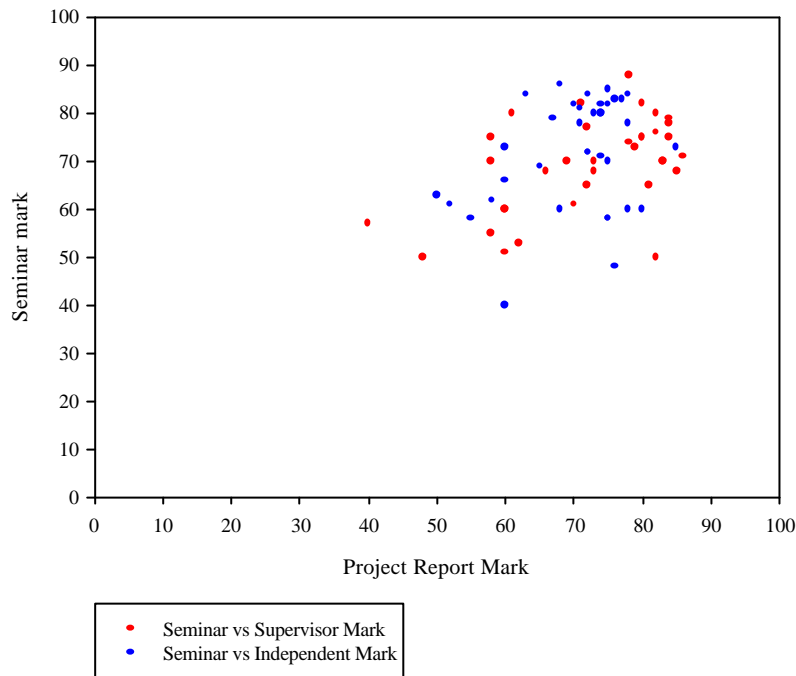
4.0 RESULTS

The results are presented for the comparison of marking 65 research project reports in Graph 1. Raw results are included in Appendix A. The comparison of the final seminars with the research project report marks are shown in Graph 2.

Graph 1 Marks of Supervisors versus Independent Markers



Graph 2 Seminar Mark versus Research Project Report Mark

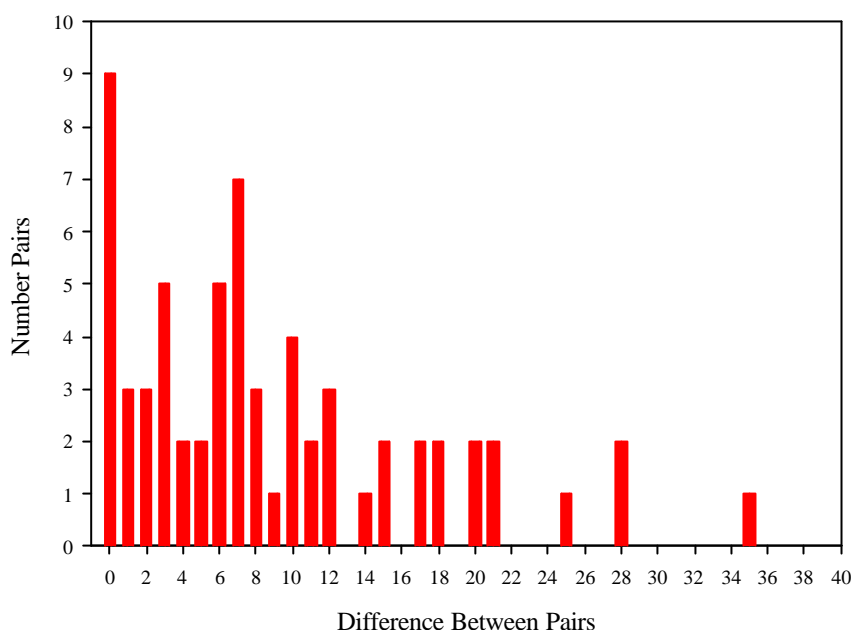


5.0 DISCUSSION

As can be seen from the graphs there does not appear to any relationship between either the supervisor mark and the independent markers mark for the research report or the final seminar and the research report marks.

A paired analysis was undertaken of the independent marker and the supervisors mark for the research project. The average difference is 2.6. This means that the average mark of the independent marker is 2.6 marks higher than the supervisor's mark. There was a large range in the differences such that the standard deviation is 10.3. The minimum difference was 0, which occurred on 14% of occasions. Graph 3 shows the number of occurrences for each difference. It is noted that 40% of pairs have 5 or less marks in difference.

Graph 3 Number of Research Reports with Different Differences in Marks



When considering the above it is worthwhile to consider the basis on which the projects were marked and note any differences. A copy of the marking guide sent to the independent markers is attached Appendix B in addition the majority of the independent markers underwent a training session on marking course research reports. The independent markers all had as a minimum a Course work Masters degree in Occupational Health and Safety or Safety Management.

The research project supervisors were supplied a modified marking as shown in Appendix C. This guide gave a specific plan on marking allocation. The project supervisors all had a Masters degree, as a minimum, from a variety of backgrounds but most were based in the engineering area. At the beginning of the supervision of the project reports a number of the project supervisors also underwent training in regards to the supervising masters projects.

Both examiners are required to complete two reports on the research report. The first is attached in Appendix D and the other is a written report highlighting the strengths of weaknesses of the research report. The written report and the marked research report is returned to the student for them to make any changes required before submitting a bound final copy to the located in the appropriate library. If the student fails then they are given a chance to resubmit the report as required by the examiners.

The final project seminar is given about 3 to 4 weeks prior to the student submitting the written research report. At this time any weaknesses in the research are generally picked up and the student is encouraged to strengthen them before submitting their research report. This seminar is given to both supervisors and fellow students and is peer marked.

6.0 CONCLUSION

The results of the analysis show that in many occasions the results of the two markers of the research report are close and on a 40% of occasions they were within 5 or less marks. Since the marks are generally close the issue of double marking needs to be reconsidered. Further data for analysis needs to be collected to ascertain whether double should be discontinued. Also the marking guide needs to be modified for the independent markers to see if that has any impact.

7.0 RECOMMENDATIONS

The main recommendation from this analysis is that if further data needs to be collected and analysed to be able to make a firm decision in respect to discontinuing double marking.

The other recommendation is the guide to the independent markers be modified to be more similar to the project supervisors guides.

8.0 REFERENCES

SigmaPlot, 1999, SigmaPlot for Windows Version 5.00

APPENDIX A

Supervisors Code	Supervisors Mark	Independent Markers Code	Independent Markers Mark	Difference
S1	65	M1	71	6
S1	65	M1	72	7
S1	70	M4	68	-2
S1	54	M4	50	-4
S1	79	M4	72	-7
S1	75	M8	75	0
S1	45	M14	45	0
S2	55	M10	65	10
S3	50	M1	74	24
S3	73	M6	67	-6
S3	62	M7	77	15
S3	74	M7	71	-3
S3	72	M10	52	-20
S3	64	M11	68	4
S4	45	M1	45	0
S4	50	M7	51	1
S4	54	M8	75	21
S4	71	M10	68	-3
S4	65	M13	82	17
S5	75	M1	63	-12
S5	75	M17	73	-2
S6	70	M12	60	-10
S7	60	M5	66	6
S7	60	M6	78	18
S7	51	M7	60	9
S7	70	M10	77	7
S7	80	M10	70	-10
S7	49	M15	49	0
S8	74	M5	72	-2
S9	60	M7	80	20
S9	76	M8	75	-1
S9	78	M11	78	0
S10	67	M1	82	15

S10	70	M3	65	-5
S10	77	M6	72	-5
S10	76	M8	83	7
S10	67	M13	74	7
S10	77	M15	66	-11
S11	75	M12	74	-1
S12	82	M3	74	-8
S12	60	M5	71	11
S12	88	M8	78	-10
S12	62	M16	80	18
S13	68	M4	60	-8
S13	55	M9	55	0
S14	72	M4	60	-12
S14	57	M7	60	3
S14	66	M8	78	12
S15	61	M3	75	14
S15	59	M11	87	28
S16	50	M8	85	35
S16	68	M8	75	7
S16	51	M11	45	-6
S16	73	M11	73	0
S16	70	M11	76	6
S16	68	M12	85	17
S17	67	M2	70	3
S17	63	M5	70	7
S17	50	M7	58	8
S18	75	M6	75	0
S19	80	M4	52	-28
S20	76	M13	64	-12
S21	30	M7	51	21
S23	70	M14	70	0
Average	64.56	Average	67.16	2.59
Standard Deviation	10.66	Standard Deviation	10.49	10.29

APPENDIX B
Occupational Safety and Health Academic Group
Draft Guidelines for the Grading
of
Master of Applied Science (Safety Management)
SC803A Research Project Thesis

The examining of a thesis in the field of Occupational Safety and Health is difficult in that they do not usually fit a defined model like a science or engineering project. The following is a guide for marking but take into account that the format of the thesis may be different to the form to that listed.

Examiners should consider the following criteria when they are examining the thesis.

- 1. SCIENTIFIC, TECHNOLOGICAL, MANAGERIAL VALUE** (Suggest that section is worth approx. 30 % of marks)

Aims and Objectives: Are they clearly stated? Are they fulfilled?

Methods and Results: Are the methods appropriate and current? Are the results analysed satisfactorily?

Project Management: Is the project appropriate for the Honours level? Were unforeseen difficulties encountered and, if so, were they overcome? Is the project publishable in a refereed journal? Has the student demonstrated a thorough understanding of the topic?

- 2. FORMAT AND CONTENT**
(Suggest that section is worth approx. 50 % of marks)

Title: Does it reflect the content?

Abstract: Does the Abstract provide a clear and concise summary of the study? Is the Abstract informative with actual results and conclusions presented? It should not introduce ideas not in the text.

Acknowledgments: Are all people/institutions/funding sources suitably acknowledged?

Table of Contents: Is one present? Are lists of tables, figures and appendices provided? Are they correct?

Introduction: Does it put the study into perspective? Are aims and objectives clearly stated? Are relevant papers referred to? Is the literature adequately reviewed?

Materials and Methods: Is sufficient information given to allow repetition of the work? Are they presented in a clear and concise manner without unnecessary detail? Are they written in the past tense?

Results: Are the results described in words with references to appropriate figures, tables and appendices? Are the main trends and irregularities described? Are figures, tables and appendices numbered consecutively? Do figures, tables and appendices have full legends?

Discussion: Does the student demonstrate an understanding of the value and relevance of the study? Are the results adequately explained and set into the context of previous studies? Are recommendations made for further studies?

References: Are all papers referred to in the text listed in the References? Are journal articles and books listed correctly and consistently?

Appendices: Is all relevant raw data included in appendices?

Illustrations: Are they clear? Do they have a full caption? Are they well drawn? Are they relevant? Maps with scales and direction? Graphs with axes labelled with title and units? Are SI units used? Are sources given, where appropriate?

3. GENERAL

(Suggest that section is worth approx. 20 % of marks)

Is the thesis well written?

- grammar
- spelling
- typographical errors

Is the thesis well presented?

- layout
- appropriate headings
- appropriate numbering

Are abbreviations clearly defined?

- Are mathematical formulae carefully typed?
- Is there adequate spacing with all symbols defined?
- Is the biological nomenclature correct?

APPENDIX C
UNIVERSITY OF WESTERN SYDNEY, HAWKESBURY
Occupational Safety & Health Academic Group

GUIDELINES FOR THE EXAMINATION OF A
16 CREDIT POINT OHS COURSEWORK MASTERS THESIS (SC803A)

Nature of the project thesis

Coursework Master's students complete a two-semester research project which represents a substantial part of the coursework Masters program. This project is then presented in a thesis format.

The project thesis represents 25% of the overall coursework requirements. Therefore it is not expected to be as broad in scope as a major thesis generated by a student undertaking a Master's degree wholly by research as it is produced as part of a wider program of postgraduate studies. It should, however, provide evidence to the examiner that the student is able to contribute to the literature of the discipline or field of study in which they are studying.

The project thesis may be, but is not necessarily, a contribution to new knowledge in the sense of reaching conclusions that have a wide ranging application (eg. testing of a general hypothesis or theory). It should, however, be an original contribution - for example, a critical review of work in the area, or a critical account and analysis of practice in the field - or should undertake a properly conducted but small scale investigation which arises from a practical or theoretical problem. The student should be able to demonstrate that they can place the work for the thesis in its context, can clearly outline and define its underlying assumptions, and can give definition and boundaries to the particular work.

Examination of the Project Thesis

Examiners should complete the summary assessment of the thesis and attach a written report. In completing the assessment summary for a satisfactory project thesis the following grades are used:

Grade	Percentile
High distinction (H)	85 +
Distinction (D)	75–84
Credit (C)	65-74
Pass (P)	50–64

What is required in the examiner's report?

In the accompanying report the examiner should state as explicitly as possible the grounds on which they base the recommendations given, indicating the strengths and weaknesses of the thesis and including, as appropriate, details of any corrections, amendments or further examination which should be required. Examiners should attempt in their critical comments to distinguish between those points that require amendment of the thesis and those which are made in the spirit of collegial or professional debate.

The examiner's report should specifically address the following:

1. to what extent and how the thesis contributes to the knowledge of the subject to which it deals;

2. the ability of the candidate to critically review the relevant literature and to document their findings adequately;
3. the ability of the candidate to state their objectives clearly, to pursue them methodically and to argue clearly and critically;
4. to what extent the student has met their stated research objectives; and
5. whether the literary presentation of the thesis is satisfactory.

UNIVERSITY OF WESTERN SYDNEY, HAWKESBURY

16 CREDIT POINT OHS COURSEWORK MASTERS THESIS (SC803A)

Marking Sheet

Name of Candidate: _____ Student No. _____

Project Title: _____

Examiner(s): _____

<i>Assessment Factor</i>		<i>Max. (%)</i>	<i>Score (%)</i>
1	To what extent and how the thesis contributes to the knowledge of the subject to which it deals	10	
2	The ability of the candidate to critically review the relevant literature and to document their findings adequately	20	
3	The ability of the candidate to state their objectives clearly, to pursue them methodically and to argue clearly and critically	20	
4	To what extent the student has met their stated research objectives	30	
5	Whether the literary presentation of the thesis is satisfactory	10	
6	Management of project	10	
Total		100%	

Examiner's Report

Please USE SEPARATE SHEETS for the report.

(In the EXAMINER'S REPORT, please state as explicitly as possible the grounds on which the recommendations are given, indicate the strengths and weaknesses of the thesis and include, as appropriate, details of any corrections, amendments or further examination which should be required. Examiners should attempt in their critical comments to distinguish between those points that require amendment of the thesis and those which are made in the spirit of collegial or professional debate.)

Assessor Signature: _____ Date: _____

Comments by Moderator of marks changed or if assessors appear inconsistent:

.....

APPENDIX D

MASTER OF APPLIED SCIENCE (SAFETY MANAGEMENT)

**Report of examiner of a 16 credit point project thesis (SC803A)
submitted in partial fulfilment of the requirements for the degree**

Name of Candidate:Student Number:
.....
Title of project thesis:
.....
.....
Names of
Examiner:.....

Summary Assessment of the Thesis *(please tick the appropriate box & enter grade).*

In light of my accompanying report, I recommend that:

a) the project thesis should be classified as PASSED and the candidate awarded the grade of ____ (mark ____%) without amendment or further examination. *(This category would include a project thesis for which the examiner notes a relatively small number of typographical errors or other minor amendments to which the candidate would be expected to attend.)*

OR

b) the project thesis should be classified as PASSED and the candidate awarded the grade of ____ (mark ____%) without further examination but subject to the amendments required in my report being made to the satisfaction of the Postgraduate Course Co-ordinator. *(this category would include a project thesis for which the examiner notes a substantial number of typographical errors or other minor amendments requiring attention, or specifies changes of substance which, in the opinion of the examiner, are not sufficient to justify deferral and re-examination.)*

OR

c) the candidate should be required to pass an oral examination on the subject matter of the project thesis. *(When recommending this category, the examiner is asked to identify the types of questions and their purpose bearing in mind that an oral examination is not a standard part of the project thesis examining practice and, when used, is not intended to test a candidate in wider, more general areas of knowledge).*

OR

d) the project thesis should be classified as a RESUBMIT and the candidate asked to revise and resubmit the project thesis for examination. *(When recommending this category, the examiner is asked to specify detailed Revision Guidelines).*

OR

e) the project thesis should be classified as FAILED. *(the examiner when specifying this category, is asked to support the recommendation as fully as possible.)*