

Graduate School

**Examining PhDs and
other research
programme theses:
Good Practice Guide**

February 2014

Introduction

The viva can be thought of as the defining moment of the doctoral experience. It is the final assessment of the research, the thesis and the candidate. As a research degree examiner you have the privilege of, and responsibility for, determining whether all three aspects are of an appropriate standard for the award of Doctorate to be given.

The purpose of this Guide is to help you to understand what is involved in the examination process, how it might best be approached, exactly what your responsibilities are (as either internal or external examiner) and the standards you should be looking for. It should also help you to carry out the task with confidence, sensitivity, diligence, and in a thorough but measured way. Hopefully it might also help you to enjoy the experience.

Although this guide focuses mostly on PhD examining, most of the points within it will also apply to examining other types of research degree, such as MPhils and the research element of Professional Doctorates. At the end of the viva, some specific points relating to the assessment other research degrees are included in Annex A.

This Guide focuses primarily on practice at Reading. It complements (and references) the University's formal policy covering this area, which is enshrined in the Guide for Examiners for Higher Degrees by Research¹. However, this guide is also relevant to examining at other UK Universities, although it should not be seen to replace any instructions for examiners that are issued by the University concerned. Examiners should always familiarise themselves with the latest version of the specific institution's notes for examiners of PhD theses at the outset of the examination process.

Those of you who are new to examining should also attend one of the training sessions organised by CQSD and the Graduate School before you examine your first student.

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¹ Available at http://www.reading.ac.uk/web/FILES/exams/Guide_for_Examiners_of_Higher_degrees.pdf

The examination team

Universities vary in terms of who makes up the examining team. In Reading, there is normally one internal and one external examiner. The supervisor may not attend the oral examination unless there are exceptional reasons for this. If this is the case, the external and internal examiners and the student must unanimously agree that the supervisor may be present. However, they can only take an 'observer's' role and cannot be present when the examiners are determining what the outcome should be.

If the candidate is a member of academic staff, then there are normally two external examiners rather than one internal and one external. Two external examiners may also be used in cases where there is no-one in the University with sufficient relevant expertise. In both of these cases, an independent chair from within the institution is also appointed to oversee that due process (in line with Reading's regulations) takes place. Independent chairs may also be appointed in Reading if the internal examiner is performing the role for the first time and the external examiner lacks sufficient experience of the UK system, if the examiners request that a chair is present, or if the viva is a second examination of the thesis following a referral or appeal. In some other Universities, an independent chair and / or supervisors are present in all vivas.

The selection of examiners

Clearly, a number of factors need to be taken into account when deciding who the appropriate examiners are for a PhD thesis. These include the potential examiners' knowledge of the subject area, their previous experience of PhD examining, and their degree of 'independence' from the student and supervisor/s, as well as the specific regulations and customs of the University where the student is registered.

The external examiner will usually be a member of academic staff from another University (either within the UK or elsewhere), but can be from a non-academic organisation. He or she:

- should have sufficient expertise of the subject area concerned to be able to judge the quality of the research and the thesis
- should not be a recent or current collaborator of the supervisor (or the student)
- the external examiner should not undertake the examination of more than two higher degree students under the supervision of the same supervisor within a period of five years. The University Dean of Postgraduate Research Studies may permit this number to be exceeded where exceptional circumstances apply.

The internal examiner will be a member of Reading academic staff who has broad knowledge of the subject area concerned. He or she should possess a PhD or evidence of a similar level of scholarship.

The two examiners should normally have previously examined at least three PhDs between them. Independent chairs need to be appointed if the internal examiner is examining for the first time and the external does not have sufficient examining experience.

The examiners for a particular candidate are suggested by the Head of School (usually after discussion with the supervisor/s), and are confirmed by the University Dean of Postgraduate Research Studies, and are reported to the relevant Faculty PGR Committee.

The role and responsibilities of the examiners

The primary responsibilities of both examiners are to:

- judge whether the work is of an appropriate standard for the award of PhD to be given,
- check that it is presented and discussed appropriately in the thesis,
- reassure themselves in the viva that the thesis is the student's own work and that he or she understands it and can defend it appropriately.

In addition, the external is responsible for ensuring that the work is of an appropriate standard compared with that found in other UK Universities.

The internal examiner also serves two additional roles:

- ensuring that due process (in line with Reading's regulations) has been followed
- liaising with the external and making appropriate administrative / practical arrangements (see below).

The role and responsibilities of independent Chairs

The Independent Chair is normally a senior member of staff from the same department (or sometimes a cognate department), as the candidate. They should have experience of the Reading system of research degree *viva voce* examinations for research degrees. They should not have been involved in the supervision of the student.

Apart from making any introductory comments, the Chair will not normally play a role during the viva itself (i.e. whilst the student is being questioned) other than to oversee the proceedings as an impartial observer. He or she should only intervene if there are concerns about the nature of the questioning or the state of the student. This could take the form of a direct intervention (such as "maybe it would be helpful to pursue a different line of questioning?") or, where concerns are more serious, adjourn the viva for a short break so that the Chair can discuss his or her concerns with the examiners.

The Chair should remain present for the duration of the viva, as well as the post-viva decision making and relaying the outcome back to the student. During the decision making

stage, he or she may be called on to provide advice on the institution's regulations, but would not be involved in the decision on the outcome of the examination. .

The primary responsibilities of Independent Chairs are to ensure that:

- The examiners are aware of, and adhere to, Reading's regulations and procedures
- The examiners' pre- and post-viva reports are completed in line with regulations
- The assessment is rigorous, fair, reliable and consistent
- The examiners' questioning is appropriate
- The candidate has an opportunity to defend the thesis.

In the exceptional circumstances when there is no internal examiner, the Independent Chair is responsible for liaising with the External Examiners and making appropriate administrative / practical arrangements for the viva.

The examination process

Although there is some variation between particular Universities, the examination process normally involves the following elements:

- receipt of thesis, supervisor report/s, and convening the viva
- independent 'pre-viva' reports, written separately by the internal and external examiner
- exchange of reports and preliminary discussion (usually over the telephone or by email)
- a pre-viva meeting on the day
- the viva itself
- post-viva decision making
- feedback to the student (and often supervisor)
- final report/s

Receipt of thesis, supervisor report/s, and convening the viva

Having received the thesis, both examiners should have a quick read through it to check that they have the broad expertise to examine it and that the thesis is in an 'examinable form' (for example, in terms of its state of presentation). If either of them feels this is not the case, they should contact the Examinations Office as soon as possible.

The internal examiner is responsible for contacting the external to arrange a suitable date for the viva and for liaising with the student and supervisor/s. The candidate must be informed by the internal examiner, no later than one month after submitting the thesis, about progress with arrangements for the examination, and should be updated regularly until the viva has been arranged. It is usual practice for vivas to be held within three to four months of receiving the thesis. Where no internal examiner is appointed, the independent Chair is responsible for the practical / administrative arrangements.

The examiners will also receive a copy of any supervisor reports that have been submitted. Supervisors are asked to submit a statement reporting any circumstances that might be

relevant to the examiners' consideration of the thesis (for example, denial of access to source materials or key populations).

Pre-viva reports

Having read the thesis, both examiners produce an independent report (typically around 1-2 pages) outlining their preliminary views of the thesis, including its strengths and weaknesses, and identifying areas that will need to be addressed in the viva. These are exchanged in advance of the viva (including to the independent Chair where one is appointed). The purpose of these reports is to ensure that a formal record exists of each examiner's independent view prior to discussion and meeting. Two example (anonymised) reports are shown in Annex B.

Preliminary discussion

It is normal practice for the two examiners to have a preliminary discussion (usually by telephone, but occasionally by email) to follow up the reports and exchange initial views about the thesis and discuss any significant concerns they may have.

Pre-viva meeting

On the day of the viva, the examiners usually meet before the viva (with the independent chair if one has been appointed) to discuss the overall approach to the viva, key lines of questioning, who will speak first, and so on.

The viva

Vivas should be held in a quiet room with comfortable chairs and a table (preferably not the internal examiner's office). There should be a suitable place nearby in which the candidate can wait whilst post-viva discussion is taking place. Most vivas last around two hours, and usually not more than three. If vivas are extended, for any reason, candidates should offered an opportunity for a rest break.

Examiners often start out by trying to put the candidate at ease by saying that they enjoyed reading the thesis, or some similar remark. They will also usually say something about how the viva will be conducted, including the fact that the student will be asked to leave the room at the end of their questioning so that they can have a brief discussion about the outcome. Even in the case of a very strong thesis, it is not usual for examiners to tell the student that he or she has 'passed' at the start of the proceedings (although statements about how much you enjoyed the thesis and are looking forward to discussing it in more detail may be a little more strongly worded in such cases). It is good practice to approach the viva as a 'discussion among professionals'. Examiners should never 'talk down' to students, or ask questions aggressively or dismiss responses without due consideration. At the end of their questioning, it is also good practice for examiners to ask the student if there are any questions they want to ask, or any points they want to make about the thesis, the examination process or their supervision.

Post-viva decision making

Once the questioning and discussion has finished, the student is usually asked to leave the room and wait in a suitable nearby location. The examiners then try to make a relatively quick decision about the examination outcome and the main points that will need to be addressed (either as minor or major amendments).

In Reading, the examination outcome takes one of four forms:

- the degree be awarded
- the degree be awarded subject to minor amendments (within three months²)
- the student is required to make major amendments (within twelve months)
- the student not be awarded the degree for which the thesis was submitted (in some cases the examiners might recommend an alternative degree).

In the rare cases that the examiners cannot agree on the outcome, the Senate will appoint an External Adjudicator who will consider the thesis and the examiners' reports, and report back to Senate with his or her recommendation.

Feedback

The student is then asked to return and is informed of the outcome. It is good practice to invite the supervisor to come in at this stage, in order to share the 'good news' in the case of a positive outcome, or to hear for themselves about issues and amendments that will need to be made. Students can become emotional at such points and it is useful to have a second individual hear the examiners' concerns. However, supervisors should appreciate that they are invited in to hear the feedback. In no circumstances, is it appropriate for them to argue with or challenge the examiners' decision and recommendations.

Students are usually informed that the internal examiner will give them a more detailed list of any amendments needed, the following day. They are also reminded that the examiners' decision is only a 'recommendation', which has to be approved by Senate.

Final report/s

Universities vary in what is required in terms of a final report or reports.

In Reading, the form consists of a number of parts, as specified in the Guide for Examiners for Higher Degrees by Research³.

- Form A basically consists of a series of questions that require brief responses, for example confirming that the work presented is such as might reasonably be expected as the result of three years full time postgraduate work for a PhD.
- Form B is a joint written report of at least 100 words, which is forwarded to the candidate, supervisor and Head of School (see Annex C for two examples of anonymised final reports).

The examiners are required to submit the completed report to the Examinations Office within 21 days of the viva. The Examinations Office then notifies the student of the recommended outcome. The outcome becomes 'official' once it has been approved by Senate.

² Except where the candidate has been diagnosed as having dyslexia or dyspraxia, in which case they can request six months rather than three

³ Available at http://www.reading.ac.uk/web/FILES/exams/Guide_for_examiners_of_Higher_degrees.pdf

Assessing the thesis

It is advisable to set aside at least two days to read the thesis and draft the pre-viva report.

According to the QAA, doctoral degrees are awarded to students who carry out original research, extend the forefront of their discipline and merit publication⁴.

In Reading, PhD candidates are expected to demonstrate each of the following:

- the creation and interpretation of new knowledge, through original research or other advanced scholarship, of a quality to satisfy peer review, to extend the forefront of their discipline, and to merit publication in an appropriate form
- a systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of the discipline or area of professional practice
- the general ability to conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of the discipline, and the ability to adjust the project design in the light of unforeseen problems
- a comprehensive understanding of techniques applicable to their own research or advanced scholarship.

In addition, for Professional Doctorates:

- An understanding of how the research informs professional practice and knowledge.

It is important to remember that a thesis does not have to be perfect in every respect. Strengths in some areas can make up for weaknesses in others.

Probably the four key overall attributes for assessment are:

- contribution to knowledge
- originality and creativity
- integration and coherence
- presentation and clarity

The key things to be looking for when assessing the thesis are;

- is the problem worth addressing
- is it being addressed in an appropriate way
- is the literature review comprehensive and up to date, and does it show understanding of the theoretical context
- does the candidate make explicit links between the review and his or her research question/s and study design
- is there evidence of critical appraisal of the studies that are reviewed

⁴ <http://www.qaa.ac.uk/academicinfrastructure/FHEQ/EWN108/FHEQ08.pdf>

- if there is empirical work, are the right methods being used, is the sample large enough, are the data presented clearly and analysed and interpreted appropriately, does the discussion illuminate the results, and do the stated conclusions follow from the results
- if the work is theoretical, is the line of argument coherent, well expressed and does it develop logically
- is the work ethical
- is the work that of the candidate (i.e. not plagiarised).

In thinking about what makes a good thesis, it is also useful to bear in mind what Rowena Murray (2009) describes as the characteristics of a poor thesis;

- lack of coherence
- lack of understanding of theory
- lack of confidence
- researching the wrong problem
- mixed or confused theoretical and methodological perspectives
- work that is not original
- not being able to explain at the end of the thesis what has actually been argued in it.

Finally, a very useful set of criteria for examining PhD theses in Psychology can be found in the British Psychological Society (2008) Guidelines for the Assessment of PhDs in Psychology and Related Disciplines. Many of the detailed criteria that are listed will also be relevant for other discipline areas.

In addition to this general guidance on assessing PhDs (by thesis), some more specific guidance for examiners of PhDs by Publication can be found in our Guidelines on the PhD by Publication⁵

Assessment during the viva

During the viva, the examiners need to reassure themselves that the candidate understands his or her work, how it fits into the wider literature, what is original about it, what has been found, and what potential impact this may have. They also need to check that candidates are aware of any limitations of their approach and how these might be addressed in future work.

It is not essential for examiners to ask questions about every detailed aspect of the thesis. The usual approach is to ask some general questions in the initial phase of the discussion, and then to work through the thesis, often chapter by chapter. Areas of potential concern will need to be probed in more depth. Having worked through any major issues, the examiners will often adopt a 'sampling' approach in relation to more minor queries (bearing in mind how long the viva has lasted so far).

⁵ Need to add link here

Potential questions for different parts of the viva

Frequently asked preliminary questions

- Why did you choose this topic for your doctoral study?
- How did you develop an interest in this topic?
- What motivated you to do research in this area?

Alternatively, some examiners ask students to start the viva with a brief presentation of the main findings of their thesis.

Other general questions

- What are the main findings of your thesis?
- What is original about what you have done and found?
- Who are the other researchers in your field whose work influenced you the most?
- What do you think is your most interesting finding?
- Did this experiment turn out as you expected?
- What have you learned from your doctoral studies?
- How do you see the research field developing over the next five to ten years?
- What would you do differently if you started again?
- What are your publication plans?
- What are you going to do next?

Specific questions for different parts of the thesis

- Have you seen the recent article by Smith & Jones? What do you think of it?
- Was there any reason for not mentioning the Ziki monograph when discussing the feminist approach?
- Do you feel you were a bit hard on Danielli's work?
- How did you derive that specific hypothesis from your research questions?
- Why did you select that method and reject others?
- What precautions did you take against possible sources of bias?
- Are you sure the size of your sample was adequate to draw the conclusions you have come up with?
- Why did you choose that analysis technique?
- Do you think you adequately addressed potential ethical concerns?
- Can you really draw that conclusion from the findings?
- Do your findings help to determine whether a one-route or two-route model might be more appropriate?
- Could a different study design inform on the plausibility of one type of model over the other?

General points on questioning

- Never ask questions aggressively
- Do not ask overly long questions that are made up of several parts
- Ask a mixture of open and closed questions
- If candidates respond poorly, try to restate the question in a different way and give them a second chance to produce a better response

Decision making

In most vivas, the recommended outcome will be that the student be awarded the degree subject to minor corrections. There is no hard and fast rule for what constitutes minor as opposed to major amendments. Minor amendments may range from simply correcting a few typographical errors to being asked to include discussion of one or more additional studies in the literature review, to carry out an additional analysis of one set of data, to increase the documentation of steps in a procedure, or to qualify one or more of the conclusions. The examiners need to bear in mind that the required amendments need normally to be 'addressable' within three months⁶. In exceptional circumstances (e.g. where the candidate has to be out of the country for most of the three month period) the examiners can request to the Examinations Office that the candidate be given a period of up to six months to complete minor amendments.

Once the candidate, has made the required corrections, he or she shows the corrected thesis to the internal examiner who then checks that they have been carried out satisfactorily. The examiner then informs the Examinations Office that the requested amendments have been made to his or her satisfaction.

Where the work needed to improve the thesis is felt to be of a greater scale, the examiners may request that major amendments be made. Major amendments may involve further experimental work being carried out, the data being analysed using a different analysis method, or a major theoretical recasting being required. The candidates have a maximum of 12 months to carry out the amendments and resubmit the thesis to the Examinations Office. Clearly, this is a maximum period and candidates may well submit well before the end of the period.

In the majority of cases, the thesis is then sent to the original examiners who determine whether a second viva is needed. In Reading, a second viva must be held if the examiners feel that, having read the amended thesis, the candidate should not be awarded a PhD.

Occasionally, the outcome of either the first or second examination is that the examiners recommend that no degree be awarded or that an alternate degree be awarded. If the

⁶ See footnote 2

examiners want to recommend that an MPhil rather than a PhD be awarded, they need to reassure themselves that the candidate has demonstrated the qualities specified in Annex A.

Issues that might arise

In some cases, the examiners may feel that the outcome of the examination is partly attributable to some other factor/s, other than the ability of the student. Issues that might arise include:

- The work is felt to be inadequate in some way but the examiners suspect that the supervisor is as much to fault as the student
- The candidate lacked access to critical facilities or subject populations, which has affected the amount of empirical work reported
- Serious health or other personal problems have affected the candidate's ability to carry out their doctoral research to the necessary standard

In general, any such extenuating circumstances should never lead examiners to award a PhD where the work is not felt to be of an appropriate standard. However, such factors should be taken into account when determining what amendments are needed and what support the student may need in order to complete them. Any extenuating circumstances should be reported in Part B of the examiners' joint report.

Another issue that might arise is that the two examiners cannot agree on the recommended outcome. As mentioned above, in such cases they produce separate reports for the Examinations Office. Senate is informed of the outcome and will appoint an External Adjudicator, who will read the thesis and the reports and make a recommendation to Senate.

Appeals

Students may appeal against the recommended outcome of the examination if he or she believes that:

- There was some procedural irregularity in the conduct of the examination of such a nature to cause doubt about whether a different outcome could have pertained if irregularity had not occurred
- An unfair or improper assessment was made.

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Dean of Postgraduate Research Studies

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Further reading

British Psychological Society (2008). Guidelines for the assessment of PhDs in Psychology and related disciplines. BPS. (*Available at bps.org.uk*).

Murray, R. (2009). How to survive your viva. 2nd Edition. Maidenhead: Open University Press.

Delamont, S., Atkinson, P. & Parry, O. (2004). Supervising the Doctorate: A guide to success. Maidenhead: Society for Research into Higher Education & Open University Press.

Philips, E.M. & Pugh, D.S. (2010). How to get a PhD: A handbook for students and their supervisors. 5th Edition. Maidenhead: Open University Press.

Annex A: The assessment of MPhil / LLM degrees

As noted at the outset, although this Guide focuses on PhD examining, many of the general points (e.g. about the responsibilities of examiners, conduct of vivas, reporting process) are also relevant for other types of research degree. Clearly, however, the assessment criteria will differ.

In Reading, for MPhil / LLM degrees, candidates are expected to demonstrate each of the following:

- a systematic understanding of knowledge, and a critical awareness of current problems and / or new insights, much of which is at, or informed by, the forefront of their academic discipline, field of study or area of professional practice
- a comprehensive understanding of techniques applicable to their own research or advanced scholarship
- originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline
- conceptual understanding that enables the student to do each of the following
 - to evaluate critically current research and advanced scholarship in the discipline
 - to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

Professional Doctorates

The criteria for Professional Doctorates are the same as those for PhD, apart from there being one additional criterion for Professional Doctorate degrees:

- An understanding of how research informs professional practice and knowledge.

Annex B: Two example 'pre-viva' reports

*Initial report on *****'s PhD thesis by Professor xxxxxx, University of Reading*

Although Parkinson's disease (PD) was initially considered to be a disorder of movements alone, more recent work has demonstrated a variety of perceptual and cognitive deficits in the illness. The thesis is a very thorough piece of work which reports a range of tests of cognition, emotion, motor ability, and sleep disturbance in PD. The candidate develops a model of how various abnormalities in these factors may be related to hallucinations, in that participants may experience disturbances of sleep and circadian rhythm, type of motor pathology, errors in verbal visual memory and misidentification of visual objects.

The study goes beyond existing work in suggesting that a wider range of variables needs to be considered when trying to explain hallucinations. The work is potentially important for understanding and managing PD, and for understanding hallucinations in general, and the candidate sensibly discusses the potential impacts of the work. I am confident that the research should be publishable as one or more journal articles.

In summary, the thesis reports a body of work whose extent amply justifies the award of the PhD degree, and which appears to have been carefully carried out. The work is very fully reported and discussed. There are some issues to be taken up at the viva (e.g. aspects of the statistics, the exact choice of measures). However, my initial view is that the degree should be awarded, subject to minor corrections, provided that the candidate demonstrates appropriate ownership of the work in the viva.

*Initial report on ****'s PhD thesis by Professor *****, University of Reading*

The thesis reports six experiments on the effects of modulating inter-aural time differences. The work has some merits in that this is a technically demanding area, in which a student had to learn some difficult stimulus presentation and response recording techniques. The amount of work seems to be adequate for what might be expected following three years of study for a PhD. In places, the candidate shows that he can think critically about the data, suggesting apparently sensible alternative hypotheses, and pointing out shortcomings in his experiments. However, sometimes this honesty reveals potentially serious errors; for example, that the noise levels in two experiments were actually the same on every trial so that many of the participants learned how it sounded. It will be necessary in the viva for the candidate to talk the examiners through the experiments, so that he can clarify exactly what was done, as well as what he thinks the data mean.

One major concern is that the quality of presentation of the thesis is appalling. The list of references illustrates this nicely. About one third of the references mentioned in the text are missing. Of those which appear, more than half lack full publication details. Unfortunately, this catalogue of errors reflects the lack of care with which the rest of the thesis was written. Many important details are missing, including omissions which would

disgrace a Year1 practical report. Methods sections are missing altogether or abbreviated to the point of parody. Not until Experiment 5 (I think, the numbering is not consistent) are we told how many observers were used in each experiment. Nowhere are we told how, if at all, they were selected and screened for possible hearing impairments. The experimental designs are not spelled out in the early experimental chapters, so that one has to infer from the degrees of freedom associated with an F ratio that a repeated measures ANOVA, with say five subjects, was used for analysis. The general summary (what in most theses would be called Discussion and Conclusions) is less than a page in length (in fact, scarcely longer than the Abstract), and reveals nothing about the candidate's ability to relate his data coherently to a wider body of literature.

It is not possible at this stage to be confident that the work is in principle worth the award of the PhD.

Annex C: Two examples of 'post-viva' reports

*Joint Report on *****'s PhD viva*

We examined the candidate for just over two hours, satisfying ourselves that the work reported in the thesis was indeed her own, and that the thesis had been written by her. She demonstrated an excellent grasp of her research area and associated areas of knowledge, and was able to engage with the examiners in detailed and technical debates about all aspects of the work. She confirmed us in our initial view that the thesis represents a significant contribution to knowledge in an area in which it is not easy to make advances, and we applaud her plans to publish suitably modified parts of the thesis as journal articles. Particularly noteworthy aspects of the thesis are the initial literature review, and the concluding chapters in which she discusses her neuropsychological evidence and presents her statistical model of the causes of hallucinations. The candidate defended the thesis extremely well at the viva, and we have no hesitation in recommending the award of the PhD degree, subject to minor corrections.

*Joint Report on *****'s PhD Viva*

We questioned the candidate at length about the concerns raised in our preliminary reports. The most serious concerns regarded the experimental designs. Unfortunately, the candidate not only could not address the issues, but in some cases did not seem to grasp the point (for example the implication of order effects which made two of the four studies uninterpretable).

A second major problem was the over-interpretation that followed the lack of significant findings in all but one study.

Of the four studies only the fourth is novel and again here effects were over-interpreted. Additionally, all the tasks had experimental constraints that were not acknowledged despite prompting (for example potential confounds in scoring procedures in Experiment 1 and more general points such as, is stylus aiming the same as pointing).

Despite the lengthy analyses, some crucial aspects of the patients' performance was not analysed (such as a comparison of early and later trials in the different conditions). In particular in Experiment 4, the initial ANOVAs showed no interaction between group and delay. Despite this, assertions were made that the slopes of the regression lines were different.

Only the final experiment did not have flaws, yet was still incorrectly interpreted. In our opinion, a revised thesis could only contain a reanalysed Experiment 4 plus the neuropsychological data. As this clearly would not be sufficient for a PhD we recommend resubmission for an MPhil.