Examination of doctoral theses/dissertations: Models, practices, and guidelines

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This study provides an analysis of two current models of dissertation/thesis examination; American and European/British and their philosophical rationale. It brings out the key differences between two models and suggests that there is a need for synchronization of dissertation examination procedures and standards across the countries as globalization proceeds. A conceptual model of dissertation examination followed by a set of key action rules to ensure implementation of the examination model. The study highlights that there are more safeguards in the American model for quality control than in the European one, without concluding that one is superior to other.

Key words: Thesis, dissertation, external examiner, internal examiner, American model, European model.

INTRODUCTION

The award of doctoral or postgraduate degree is not very old and it began from Berlin university which was founded by Humboldt in Germany in 1810 AD as the first modern research university (Wyatt, 1998). Here, the award of doctoral degree required successful attendance at seminars, submission of an acceptable dissertation/thesis, passing of a comprehensive oral examination, and the emphasis was laid on original and creative research (Goodchild and Miller, 1997; Park, 2005). This lured many graduate students from United States to the German universities and who later on returning to home country contributed to raising the profile of academic research in the American universities (Schatte, 1977; Park, 2005).

From 1860s onwards, the United States borrowed various notions of doctoral programs from Germany. The Yale was the first university to adopt the PhD degree in 1861 and later other American universities such as Harvard, Michigan, Pennsylvania followed suit. The Yale PhD required students to do a set of specialized courses, enroll for three years, demonstrate reading knowledge of at least one foreign language, pass a comprehensive examination, submit a dissertation, and pass an oral examination (Buchanan and Herubel, 1995; Park, 2005).

Between 1870 and 1900, American PhD became well established research degree (Simpson, 1983; Park, 2005). After the First World War, the notion of PhD spread to other countries such as Canada, Australia, and Britain (Schatte, 1977; Simpson, 1983; Noble, 1994; Park, 2005). However, not all of them exactly replicated the American PhD model; Australia and Britain modified some features to suit to their local conditions. The dissertation examination procedures are thus inlaid in the historical traditions and academic cultures of the countries. Since then two distinct models of dissertation examination have evolved and are used currently in: (1) Britain, Australia and some commonwealth countries; and (2) North American universities including the US and Canadian higher education institutions.

Although the word “dissertation” or “thesis” are used interchangeably today, the American institutions at large prefer the word “dissertation” while European institutions are accustomed to the word “thesis”. In North America, the word “dissertation” is primarily used for PhD work of a student while the “thesis” is preferred for master’s degree. The thesis or dissertation normally refers to the culmination of a student’s research as a final requirement for the degree sought (Fitt et al., 2009). In some cases, it can be in the form of an artistic performance, a written work such as music or fiction or a painting or other artistic production as well. Normally speaking, the difference between thesis and dissertation is of degree not of kind;
the master’s thesis is not as detailed as PhD dissertation (Glatthorn and Joyner, 2005). The word “dissertation” is preferred in this study as the focus is more on evaluation of doctoral work; the master’s thesis is mere scaling down and evaluation procedure are not as rigorous as in the case of PhD dissertation.

Examination of graduate (doctorate) theses/dissertations is an important academic procedure in maintaining the quality of higher degrees. Ziolkowski (1990) asserted that “the dissertation must continue to be the center of doctoral education” in America. Tinkler and Jackson (2000) had looked at the examination process of PhD dissertation of some 20 universities in Britain and found considerable diversity in policy regulating all aspects of the doctoral dissertation. For example, the weightage assigned to oral or viva examination varied from one institution to other.

Pearce (2005) has discussed the psychodynamics of the doctoral examination process in the European context. Based on Auckland University’s experience in postgraduate supervision, Carter (2008) reported that the examination process of doctoral work is rather private, non-specific, and needs further objectification. The research into graduate (doctoral) dissertation examination has varied facets which include: (1) content analysis of examiner reports (Johnston, 1997; Winter et al., 2000; Holbrook et al., 2004a); (2) internal study of procedures (Tinkler and Jackson, 2000; Carter, 2008); (3) an investigation of standards and quality (Lovitts, 2007; Bourke, 2008); (4) a focus on specific aspects of examination such as viva voce or oral examination (Trafford, 2003); and other miscellaneous aspects such as the conceptual framework about the doctoral work (Holbrook et al., 2004b; Holbrook et al., 2007; Pearce, 2005). Gilbert (2004) has emphasized the evaluation of doctoral curriculum as this has been neglected in the past.

However, to a great extent, the examination of dissertation depends upon the model of examination chosen and not much has been studied about it. The models that are prevalent-American and European-have different procedures and their examination rationale is also different.

There persists a considerable amount of confusion among academics with respect to dissertation examination procedures in the Higher Educational Institutions (HEIs) at large in developing countries in particular.

Because of lack of clarity about the models and methods of examination of dissertation, a great deal of uncertainty prevails among university administrators and academics in applying these procedures. As a result, inconsistencies in the examination procedures abound and at times they have become public concerns. Thus, there exists a need for better understanding of models of dissertation examination and the implicit philosophical rationale for adopting them.

Furthermore, as the globalization of higher education proceeds, the need for streamlining dissertation examination procedures across universities of the world may become necessary for the purpose of maintaining quality across institutions/universities (Duderstad and Weber, 2008). As the universities develop partnerships with the rest of the world and try to become globally competitive, they will need to align themselves to the internationally accepted practices and norms for dissertation examination procedures.

This may be required to secure international recognition of local degrees and integration of local universities into the global market of higher education. The urgency to do so is intensified as the empirical evidence from World Bank studies confirm that countries that integrate into the global economy experience the increased economic growth and educational level (Dollar and Collier, 2001).

Different countries in Europe follow different research training programs leading to doctoral degree, although a trend of harmonization across them is observed (Kyvik and Tvede, 1998). The Bologna declaration is likely to produce much awaited convergence to a common international doctorate degree (van der Wende, 2000). Some efforts to harmonize the academic standards across Europe and North America and other countries have already been made in this direction under the Lisbon Recognition Convention signed in 1997, to which major European countries, United States, Canada, and Australia are signatories. For example, the Lisbon Recognition Convention of 1997 aims at creating global system of recognition of degrees across countries and synchronization of academic standards (see www.coe.int/t/dg4/highereducation/recongnition/irc_EN.asp).

From the foregoing discussion, it is clear that the better understanding of dissertation examination models, their rationale and application is necessitated in an explicit manner to make them effective. The major objective of this study is to develop a conceptual model of graduate dissertation examination and derive some practical examination guidelines. The more specific objectives are:

1. To discuss and compare the two most prevalent current models of dissertation examination.
2. To discuss the philosophical rationale and ethical basis of these models.
3. To develop a theoretical/conceptual model of dissertation examination and derive a set of action rules for examination of dissertations.
4. Finally, to discuss the policy implications of the study towards streamlining the dissertation examination procedures around the world and the university management.

The material of this study is organized as follows: Subsequently, this study focuses on the current models (American and European) of dissertation examination and their philosophical rationales, after which a
theoretical/conceptual model of dissertation examination is provided. This was followed by the five dissertation examination action-rules to meet the objective of the theoretical model. Furthermore, the study outlines the decision rules of awarding the degree in question, and the major conclusions and policy implications for the HEIs in the light of current globalization trends are finally discussed.

MODELS OF DISSERTATION EXAMINATION AND THEIR RATIONALE

Different variants of dissertation examination models across different countries can be broadly categorized into American and European types. Interestingly enough, the American and European systems of education have different processes of production of doctoral graduates. This shows some innate differences between two educational systems.

A comparison of process of producing doctoral graduates under the American and European systems is delineated in Table 1. The major difference between the two systems is in terms of nature of supervision and PhD candidacy requirements.

In the American system, supervision is done by a team of academics of which the major supervisor is a member as opposed to a single supervisor being responsible for entire supervision under the European model (Table 1). The PhD candidacy is granted only after passing of the comprehensive examination in the American system; while in the European system it is awarded right after the candidate has successfully defended his/her research proposal.

It is interesting to note that in the American system the requirement to meet the PhD candidacy are onerous as it requires roughly 12 to 18 months of course work plus passing of qualifying or comprehensive examination. The comprehensive examination is a major landmark in the American system. Generally speaking, the purpose of comprehensive examination is to test the critical thinking abilities, expert knowledge, and research and teaching abilities of the graduate students (Heidi and Lucas, 2009: 405).

The comprehensive examination consists of several parts, both written and oral, and is designed to ascertain: (1). the student's general knowledge of the discipline, (2). knowledge of research methods, (3). ability to organize and present material, and (4). potential for original research. If a student fails the comprehensive examination, he/she is allowed to write the next comprehensive examination within a year. If the candidate is unsuccessful second time, the doctoral degree candidacy of the student is automatically terminated. At this stage, a student can be culled out if he/she is found not meeting the standards of the discipline, even if the student has passed all the required courses. This mechanism is very powerful for controlling the quality.

In the European system, quality control is done through a proposal defense seminar. Here, the course work is not needed after the Masters degree and the potential candidate can simply focus on a good proposal and defend it before the Proposal Examination Committee (PEC). That is, if the candidate is unable to defend the seminar successfully, he/she is not awarded the PhD candidacy.

However, American and European institutions examine the final product—dissertation in a very different manner. In the American model, the dissertation is examined together by a group of academicians, which include members of supervisory committee (including supervisor) and the external examiner(s) (Hall, 2006). External examiners are uncommon to the master’s dissertation in North America. The decision to pass or fail the master’s work is made internally by the supervisory committee alone; that is, all examiners are internal. The doctoral work is, however, subjected to external examiner(s). An oral examination is also administered to doctoral students by the Dissertation Examination Committee (DEC) which comprises all members of supervisory committee, including supervisor, and the external examiner(s).

The supervisor is an important examiner here and the oral examination cannot proceed without his/her presence. In the DEC, the chair is a nonvoting person (see guidelines from a number of universities such universities of Toronto, Concordia and other in the United States). Here the chair has a special role as being a non-voting person and acts as a referee to ensure that fairness, balance, and order have been maintained and that the interest of the student is protected (based on a review of a number of websites of the universities in North America by the author).

The basic postulate, on which the American model is based, is that the supervisor is an intellectual being who is interested in producing an intellectual being through production of a dissertation by the student. Thus, supervisor would be guided by intellectual ethical guidelines, which will ensure the authenticity of the work. That is, as a man produces a child-man, an intellectual produces a child-intellectual. In the American model, thus both supervisors (internal examiners) and external examiner(s) can together decide to pass or fail the dissertation.

However, the external examiner holds the veto power. If the external examiner believes that the dissertation is not of a required academic standard, he or she can veto and fail the student despite supervisory committee's assent—this however, is a hypothetical situation and possibility of this happening is virtually zero as supervisors are also dissertation examiners and they steer the progress of the student to bring to the state of completion. Since the candidate is monitored every step of the way, an incompetent candidate is less likely to reach to the final step of submission of dissertation in partial fulfillment of the doctoral degree; generally speaking weak students are weeded out through the process of qualifying examination.
### Table 1. A comparison of processes of producing doctoral graduates in the American and European models of education.

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<tr>
<th>Particulars</th>
<th>American system</th>
<th>European system</th>
</tr>
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<tbody>
<tr>
<td>1. Degree requirements</td>
<td>Candidate must complete the prescribed coursework plus the dissertation. Dissertation is submitted in partial fulfillment of requirements for graduate degree.</td>
<td>Candidate can enroll into a 100% dissertation led degree or a coursework doctorate degree in which the candidate completes prescribed courses and a dissertation. Here, the dissertation is submitted in complete fulfillment of requirements of the Ph.D/dotal degree.</td>
</tr>
<tr>
<td>2. Dissertation supervision</td>
<td>Dissertation is supervised by a supervisory committee of which the major supervisor is a member and other members are co-supervisors.</td>
<td>Single supervisor is responsible for guiding the student.</td>
</tr>
<tr>
<td>3. Qualifying examination</td>
<td>Candidate is asked to write and pass the comprehensive examination after completion of courses for award of Ph.D candidacy.</td>
<td>There is no comprehensive examination as such. However, in many European schools there is a proposal defense seminar; the successful completion of the seminar allows the award of Ph.D candidacy.</td>
</tr>
<tr>
<td>4. Dissertation examination process</td>
<td>The American model for dissertation examination is applied; this includes both written and oral testing of the candidate.</td>
<td>The European model of dissertation examination is applied; here, both written and oral evaluation can be conducted.</td>
</tr>
</tbody>
</table>

In the European model, the dissertation is examined by the appointed examiners only. Examiners can be: (1) internal to the university (internal examiner); (2) outside from the university but from within the country (national external); and (3) external from outside the country (international external). The rationale of this model lies in the belief that the supervisor is an ordinary human being and he/she is susceptible to making a biased decision by having a close interaction with the student and may have a vested interest in passing the student.

Therefore, the supervisor is not permitted to be an examiner of the dissertation, as opposed to American model in which supervisor plays a major role in the dissertation examination. The Dissertation Examination Committee (DEC) is consisted of Dean/Deputy Dean and other relevant academics from the faculty to assess and summarize the written reports of submitted by the appointed examiners.

Actually speaking, the DEC is just a committee of referees who look at the reports submitted by the appointed examiners and summarize the outcome on the dissertation. The name DEC is hence misnomer in the European model, rather it should be called the Dissertation Referees Committee (DRC). The crux is that the decision to pass/fail the dissertation rests with the appointed examiners only, not with the members of DEC.

In other words, the DEC members can only summarize the results produced by the appointed examiners but cannot make the decision, on their own, to pass or fail the student. The chair here is like any other member of the examination committee and ensures that student’s interest is protected and plays the role of coordinator of the committee.

A comparison between two models of dissertation examination is given in Table 2.

A comparison of both models reveals that the American model is therefore more rigorous and has multistage checks toward controlling the quality of doctoral graduate hence the dissertation. The supervisory committee thus not only plays role of a guide and counselor/mentor but also as an evaluator, critic, and examiner at various stages. In this sense, it provides a more holistic examination of the student’s ability and his/her innovativeness. It is obvious that the American PhD program has more quality control mechanisms than the European one.

### A CONCEPTUAL MODEL OF DISSERTATION EXAMINATION AND EXAMINATION RULES

The epistemological basis of the European and American models is an important background of information that would help to choose the model of dissertation examination. However, choosing a particular dissertation examination procedure/model alone cannot safeguard the academic standard. A schematic model of dissertation examination is shown in Figure 1. As per this, a passed doctoral dissertation must meet two conditions: (1). the necessary condition; (2). the sufficiency condition. The necessary condition is to choose a procedure or model of dissertation examination. The choice will, however, depend upon the basic assumption about the role of supervisor.

One can hence choose either European or American model but this alone is not sufficient to ensure the high academic standard of dissertation. The sufficient condition entails that dissertation submitted/examined makes
Table 2. A comparison between American and European models of dissertation examination.

<table>
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<tr>
<th>Particulars</th>
<th>American model</th>
<th>European model</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Who are examiners?</td>
<td>Members of supervisory committee, including supervisor, and the external examiner(s).</td>
<td>Appointed examiners which could be external and internal and supervisor is excluded from the examination process.</td>
</tr>
<tr>
<td>2. Role of members of dissertation examination committee(DEC/DRC)</td>
<td>Members of the dissertation examination committee (DEC) vote to pass or fail the student.</td>
<td>Dissertation Examination Committee(DEC/DRC) members cannot vote to pass or fail the student. Rather only appointed examiners vote and the task of committee members is to summarize and endorse the results provided by the examiners. Here, the members of examination committee act as referees, not as examiners.</td>
</tr>
<tr>
<td>3. Ethical basis</td>
<td>Supervisor is guided by intellectual ethics. As a man produces a child-man, and intellectual produces a child-intellectual. Supervisor is hence integral part of the examination process and plays a very important role.</td>
<td>Supervisor is an ordinary human being who is susceptible to making biased decision due to close interaction with the student and hence excluded from the process of examination.</td>
</tr>
<tr>
<td>4. Role of chair</td>
<td>Chair is a non-voting person and acts as a referee to ensure that fairness, balance, and order have been maintained and that the interest of the student is protected.</td>
<td>Chair is like other members of the examination committee and plays the role of coordinator as such, none other.</td>
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Choose a model for dissertation examination: European or American

Work must be judged as an original contribution, which shows at least one of the following advancements: conceptual/ methodological/ new empirical approach producing results for policy significance/ it can be a new product/process or a new interpretation of reality.

A passed dissertation must meet: (1) + (2)

Figure 1. A conceptual model of dissertation examination.
an original contribution to the stock of knowledge and learning. The traditional concept of dissertation that it should have a lasting impact on a discipline, the magnum opus, is no longer sustainable; it has been "replaced by a more pragmatic notion that the doctoral dissertation is a manageable piece of work, of a scope and size that a student could reasonably expect to complete within three years" (Park, 2005).

Two important criteria for examining the dissertation are originality and contribution to knowledge (Park, 2005). The dissertation should therefore, be examined with this basic major criteria in mind.

The originality and contribution of dissertation is a difficult aspect to define absolutely but it can be gauged in many ways: (1) a conceptual/theoretical advancement, (2) a methodological/process advancement, and (3) an empirical application of a model or idea (Park, 2005).

As per Council of Graduate Schools in the US (CGS, 1990), the dissertation also serves as a confirmation of "training experience which upon completion shows that the candidate can independently address an important problem in the field". It is hence necessary to design and align the dissertation examination procedures toward sufficiency conditions. Examiners weigh and balance many features of dissertation against their expectations to arrive at a recommendation of pass or fail; and these features in a way are related to the sufficiency conditions at large (Holbrook et al., 2004b). Examiners are also supposed to look at any kind of misconduct of falsification, fabrication, or plagiarism (Redman and Merz, 2008).

One needs to take cognizance of the kernel ideas embedded in the previous model and to ensure that they are not lost or diluted during the implementation stage. The implementation of the model under the European and American systems differs due to different behavioral assumptions made about the role of supervisor.

In the European model, the examiners are different from supervisors or co-creators of knowledge. The knowledge creation and examination processes are kept apart; that is, when the knowledge creation process is completed, the examination process begins. The decision to award the degree is fully in the hands of appointed examiners; therefore, the process can be flouted if examiners are not chosen carefully, particularly if they do not have the expertise related to the discipline/area of the research done by the student.

In the American model, largely the supervising committee performs the role of quality controlling body by providing inputs to the students as he or she proceeds toward completion of the dissertation. However, once the knowledge creation process is completed or dissertation submitted for examination, the same supervisory committee members form the part of the examination committee along with the external examiner(s). The supervisor has thus to perform both roles of supervisor and examiner.

The dichotomy of behavior of supervisor in American and European models can perhaps be attributed to the tradition of learning and academic cultural norms. The academic cultural norms are built over time as the higher education system evolves. In the American system, the norms that are set for the supervisor are high and he/she is expected to live by those intellectual ethical standards. These are not new in the history of humankind. For example, in Vedic India, the student or disciple lived with the mentor or supervisor or Guru to learn under close scrutiny and only when the Guru felt that the disciple had met the standards, he/she was awarded the title of being learned or degree in modern day language (Swami, 1998).

On the other hand, the European system has followed an altogether different route. It is based on the assumption that supervisor cannot afford to become neutral to his/her own student. That is, the alteration of human nature is not possible and supervisor is likely to be a biased examiner. Therefore, the supervisor is excluded from the dissertation examination process. The emphasis is on independency of examination process. The independency of examination process in the American model is guaranteed by the institutional environment which demands a very high standard of ethical behavior on behalf of supervisors.

From the forgoing analysis, two important sets of information appear very pertinent for the dissertation examination: (1). What examiners look for in the dissertation in order to award a pass? (2). What should be some key rules of dissertation examination which will ensure that sufficiency conditions in the conceptual model are met? These key issues are dealt subsequently.

What examiners examine in the dissertation?

A doctoral work must meet the sufficiency conditions. That means it must be original and significant contribution to knowledge and learning. I would like to differentiate between research Ph.Ds and coursework Ph.Ds to discuss the quality assessment issue. As said earlier, in both cases there is a quality check on student performance prior to submission of dissertation.

In the case of European system, which is prevalent in Australia, South Africa and some universities in Asia, the PhD candidacy is awarded only when the candidate has been successful in defending the dissertation proposal. The student here is not required to pass a set of courses after master’s degree and simply enrolled into the doctoral program for completing dissertation. Here, the dissertation is submitted in complete fulfillment of the doctoral degree. A committee of academics in the faculty examines the research proposal and seminar delivered by the potential Ph.D candidate and determines whether
he or she is fit to be awarded the Ph.D candidacy.

In the American system, a Ph.D student is required to complete a set of courses after the master’s degree and pass a set of examinations, commonly known as “comprehensive exam” which consists of two or three types of examinations to be taken by the potential Ph.D candidate. The Ph.D candidacy is offered only after when student has completed all the required courses and passed all comprehensive examinations. Generally speaking, the comprehensive examination has three types of assessment: (1). The first set of exams is in the area of discipline to test the basic undergraduate level material; (2). The second set of exams is designed to test the graduate level courses in the major area and supporting disciplines; and finally, (3). Orals or verbal examinations followed after the written examinations. The first types of examinations are referred as prelims or preliminary examination. The second set of examinations is termed as qualifying examination, and the third is known as orals. The first two sets of exams are sometimes combined in some universities. Both prelim and qualifying examinations put together are known as comprehensive exam.

The nomenclature of these exams is not very rigid. For example, in some universities, the words “prelim” and “comprehensive” exams are used interchangeably. I have thus chosen the term comprehensive examination which covers both written and oral examinations administered to PhD students right after completing the coursework. The passing of comprehensive examination is a must for earning the PhD candidacy in the school/department/faculty. The quality control is thus maintained through the coursework and comprehensive examinations – a relatively more rigorous system compared to that of European model.

Having passed courses and comprehensive examinations, the next step is the dissertation examination. The dissertation examiners thus set the standard of doctoral dissertation. The dissertation examination has normally two components: (1) A written assessment of dissertation by examiners; and (2) an oral or viva-voce examination to further make inroads into the candidate’s intellect and his/her understanding of the work. The focus of examiners is to assess the quality of work in terms of original and significant contribution to knowledge and thus has been discussed by various researchers in United Kingdom (Mullins and Kiley, 2002; Kiley and Mullins, 2004; Winter et al, 2000) and in the US (Lovitts, 2007; Maki and Borkowski, 2006). Bourke (2008) has identified 10 practical indicators of dissertation quality which are grouped into four main assessment areas—contribution, literature, methodology and presentation. A high quality dissertation was found to be related to positive comments by examiners on the foregoing four categories. It is, however, recommended that this scale should not be used to make distinctions between dissertations across the spectrum of quality.

**DISSERTATION EXAMINATION RULES**

In order to design/align examination procedures to sufficiency conditions to ensure the high academic standards, a set of basic operational decision rules are required. These procedures are constructed in the spirit of conditions set under the sufficiency conditions in the conceptual model (Figure 1). The author has collected these rules after reading the dissertation examination procedures of various universities in North America and Europe; and, the proper credit has been given where direct information has been quoted. Some five key action rules which ensure the implementation of conceptual model are suggested:

R1: The rule of fair selection of examiners.
R2: The rule of continuity of examiners until the final award on dissertation.
R3: The rule of consultation between examiners with divergent evaluations so as to concur or differ consciously.
R4: The rule of extra independent examiner (s) to break a tie between divergent examiners (R4).
R5: The rule of oral examination to ensure the integrity of the work as a final validation.

**Examination rule 1 (R1): Fair selection of examiners**

The process of dissertation examination starts with appointment of the examiners under both American and European models. The appointed examiner or examiners as the case may be, are provided with a copy of dissertation with clear guideline as how to proceed with the dissertation and how to examine the submitted work. Generally, these guidelines include whether study meets the academic standard of the university or HEIs.

The examiner is generally asked to look at: Whether clear objectives are identified; a critical appraisal of the published works and experimental results is done and the need for the existing study is justified; a proper model/methodology is used and thorough understanding of the technique is exhibited in the work; results are sensible in the light of model and are of significance; and, finally, whether study makes an original and significant contribution to the existing body of knowledge. This can only be done if the examiners are sought carefully who are experts in the chosen field and who themselves have established an authority and who enjoy high academic integrity in the national and international academic circles.

It is important that these rules are not misread and used at face value. For example, an international examiner is not to be understood as simply an examiner from some other country but who is an internationally established researcher. For example, a dissertation on stem-cell research in South Africa will entail seeking examiners from a country where such an advance
research is currently taking place. Such an examiner is most likely to be chosen from a highly scientifically advanced country that is US or Europe, and not from Leoso or Somalia.

Generally speaking, supervisor or supervisory committee come up with names of examiner/examiners and recommend to the Head of School/ Dean as the case may be. If selected examiners lack the required knowledge, the probability of assessing the work fairly is very low. It is hence the most important and consequential step in the dissertation examination process. And, hence the selection of the examiners should be vetted and decided upon judiciously. The examiners should be knowledgeable in the relevant discipline and recognized in their fields.

Based on Australian data, it was found that examiners were chosen for multiple reasons, the most common criteria being in descending order: expertise (77%), reputation (59%), publications (40%), and experience (36%) (Bourke et al., 2001). Similar criteria are used by various other universities around the world.

The number of external examiners varies from country to country. For example, in United States and Canada, they generally call for one and only external examiner (Hall, 2005). The Australian Council of Deans and Directors of Graduate Studies (2005) calls for two or three external examiners. One should note that American model stresses more on internal evaluation and less on external assessment, unlike European (Australian, South African etc) model which excludes supervisors from the examination process. This difference emanates from the different philosophical basis that they use (as discussed).

Examination rule 2 (R2): Independence and continuity of examiners

The selected examiners should be independent and should not contact with each other. Their decision on the dissertation should be written down and forwarded to the coordinator of the dissertation examination/referees committee (DEC/DRC). In case the dissertation is failed and candidate is asked to resubmit the work with major revisions, the same examiners should be used so that the continuity of examiners is maintained.

The practice of choosing a different set of examiners to get the desired result will be faulty one and this will be deemed as wrongly maneuvering a process or procedure of examination. In the context of the conceptual model, this will amount to not meeting the sufficient condition. Examiners should therefore, be requested and warned that they cannot opt out in the middle of the process of examination.

Examination rule 3 (R3): Consultation between differing examiners

If examiners pronounced two diametrically opposed assessments of dissertation, then arriving to a final conclusion becomes difficult. The coordinator/chair in this case can facilitate consultation between the examiners. This is particularly important in the case of European model. In American model, the probability of such disagreements is very small for the reasons discussed due to multistage checks in terms of course work and comprehensive examination, prior to the assessment of dissertation examination.

Examination rule 4 (R4): Extra examiners for breaking the tie

In European model, none of the members of the examination committee are entrusted with a power to pass or fail the student. The coordinating role of the committee becomes difficult if the examiners provide divergent reports. Under such a situation, the dissertation is submitted to other examiners in the field for independent evaluations. Finally, the majority decision/vote of examiners rule is applied to award/not award the degree.

In the American model, the problem of divergent assessment of dissertation in the final examination is prevented beforehand as such differences between examiners/supervisors are sorted out in various stages through the consultative process between student and supervisory committee before the final dissertation examination. The consultative process demands that the student is able to convince all members of supervisory committee before he/she can proceed further. Interestingly enough, the PhD degree candidacy of incompetent candidates in the American system is terminated prior to dissertation final examination through a rigorous process of course work and comprehensive examination.

However, vote by the DEC members is cast if there is no unanimous decision is possible. And, in this case, student fails if they get more than one negative vote (Personal communication with TG Johnson, 6 November, 2009).

Examination rule 5 (R5): Administering oral examination as the final validation of the integrity of dissertation

An oral examination or viva-voce is an integral part of PhD dissertation examination in the North America and United Kingdom and Europe. However, oral examinations are less common in Australia and South Africa. Finally, an oral or viva voce examination is conducted to ascertain the integrity of the work and to ensure the understanding of the work by the student. Many universities do not opt for the oral examination for practical reasons such as high costs of getting all examiners at one place. In many universities, the doctoral or masters
degrees are done on part-time basis and students are not supervised on full-time basis and there lies the danger of work being outsourced by the student and later presented as his/her own work. Issac et al. (1992) state, "final oral examination serves the function of assuring the examination committee that the work is in fact that of student and not simply a mindless transcription of material accumulated by virtue of access to the research team". In many universities in the US, it is not simply the "rite of passage" or mere formality (Issac et al., 1992). Joughin (1998) noted six dimensions of oral assessment that should be emphasized: Content, interaction, authenticity, structure, examiners, and orality. It is hence essential to conduct an oral examination for the final validation of student's work.

There is no such thing as a typical oral examination (Cryer, 2000). Although there are wide variations in the oral examination, some key components of oral examination are knowledge, skills, content, and conduct related components (Tinkler and Jackson, 2002). As per Pole (2000), the PhD students are expected to acquire "substantive knowledge" of the discipline, knowledge of the techniques and craft knowledge (capacity to manage research project). In terms of skills, candidate is required to have good verbal skills so as to defend his or her work. It is also designed to teach whether the candidate can perform well under pressure. In order to have clear articulation, candidate should be able to "think on one's feet" and be able to defend one's ideas (Tinkler and Jackson, 2002).

The content part of the viva is not very clear. One major purpose of the viva is to prove that work is his/her own and he/she can defend the work (authentication). The candidates are therefore, expected to explain and justify their work and the interpretations (Tinkler and Jackson, 2002). For a good pass dissertation, the oral examination is done to authenticate the work, clarify points and advice on publications (Tinkler and Jackson, 2002).

For a borderline pass dissertation viva is used to authenticate the work and decide whether candidate's work is of right standard and magnitude to make a doctoral award, whether candidate can reflect intrinsically on research issues and whether ways to beef up the standard can be discussed. The viva is also used to confirm the fail and explain whether he/she deserves a fail (Tinkler and Jackson, 2002).

Considerable variations in conducting oral examination exist (Phillips and Pugh, 2000). To a great extent, it depends on the examiner's value system. Some examiners believe that candidate should be able to handle the controversy and heated discussions; while others believe it is not appropriate (Tinkler and Jackson, 2002).

In many European universities and some North American institutions as well, the oral examination is preceded by a public seminar by the doctoral candidate. The precise objective of public seminar and oral defense is to test the knowledge in the discipline relevant to dissertation. The dissertation examination committee's role is hence to evaluate the originality of the contribution and to ensure that a significant contribution has been made to justify award of the doctoral degree.

Generally speaking, the oral exams also serves to improve the quality of written dissertation and pass is often conditional on rewriting and re-working the dissertation.

THE DECISION PROCESS OF AWARDED THE DOCTORAL DEGREE

Examiners are asked to evaluate the dissertation using a number of criteria and also to provide a final assessment/ judgment. Generally speaking, there are three categories of assessments: (1), A pass is awarded with no changes; (2), a pass is awarded with minor changes; (3), a fail is awarded when the dissertation requires major or substantive changes and re-submission is permitted; and (4), finally, a fail is awarded and re-submission is not allowed. Some universities also ask the examiners whether dissertation can be classified as distinguished work or equivalent.

It is important to specify to what constitutes 'major' or 'minor' changes in the dissertation. Major changes normally constitute content-related changes. Such changes will require a new study or experimentation or methodology or revision of basic conceptual model. Stylistic or editorial changes are normally not considered major changes and are referred as minor changes (for example, see McGill thesis examination rules at http://www.mcgill.ca/gps/current/programs/thesis/guideline/s/examiners).

Based on 2121 examiner reports on 804 theses across 10 broad fields of study in Australia, Bourke (2008) found a 5-point scale for examiners' recommendation on a dissertation. These include: (1). Accept the dissertation submitted on its own (13% of total responses), (2). accept the dissertation with minor corrections (47% of total responses), (3). accept the dissertation subject to major corrections (38% of total responses), (4). require that dissertation be revised and resubmitted for further examination (3% of total response), (5). fail the dissertation and withdraw the opportunity for revision (less than 1% of total responses). Bourke et al. (2004) found in their study of 804 examiners reports on a total of 301 dissertations from three Australian universities, that the proportions of recommendations were as follows: accept the dissertation submitted on its own (32%); accept the dissertation following minor corrections (38%); accept the dissertation subject to major correction (23%); require that dissertation be revised and resubmitted for further examination (6%); and, fail the dissertation withdraw the opportunity for revision (1%).
Having completed the examination process, the chair under both models has the responsibility to summarize the DEC/DRC and recommend/not recommend the award of the degree to the relevant academic body for approval. The procedure for informing student about the outcome of oral examination can vary.

In American situation, it is done instantly after the successful completion of oral examination by the student. Generally speaking, the chair will congratulate the candidate by prefixing the title of doctor before the name of the candidate. In European systems, candidate is informed only after the decision of the DEC/DRC has been approved by the relevant academic body in the institution.

CONCLUSIONS AND POLICY IMPLICATIONS

Both models of dissertation examination have their limitations and largely their strength lies in what assumptions they make about the human behavior of the supervisor(s). The European model is grounded in the self-interest underlying human behavior and while the American model underscores that, with the advancement and absorption of knowledge, one becomes or learns to understand the value of knowledge and thus shuns the selfish behavior for a higher cause of creating knowledge. It seems to work well in the United States and country generates a large stock of knowledge and research innovation; United States also claims the highest numbers of Nobel prizes. For example, about 38% of the total Nobel prizes have gone to the United States by July, 2008 (Based on data obtained from http://www.nationmaster.com).

The simple transplanting of American system in countries where knowledge industry and research ethics are in a developmental stage is not possible as norms of the higher education sector are not elevated enough to uphold the integrity of the dissertation examination process. In these countries, it is safer to begin with European model but as the knowledge industry reaches a critical minimum level of standard, then one can switch to the American model to enhance the gains from the education to the society.

The American PhD certainly provides a good grinding in the discipline through courses; and, the comprehensive examination ensures that the candidate has good general knowledge of the discipline. This explains why many universities strongly prefer to hire American PhDs over others in many parts of the world. In some other parts of world, the American system is being planted for its efficacy.

For example, many Indian institutions such as Indian Institutes of Management (IIMs) and Indian Institute of Technology (IITs) have adopted the American model of doctoral education. As the globalization proceeds and academic standards will need to be aligned across countries. Some conscious efforts are already being made under the Lisbon Recognition Convention. The American model hence looks promising and could become popular.

The institutional evolution of universities (from local unknown to world class university) is hence very important in attaining the reputation. University’s motivation toward achieving reputation thus requires strong alumni. And, alumni are hard to get without reputation. This is hence chicken-egg type question. University management has therefore to create its reputation so as to build strong alumni. This requires a large investment on human capital and institutional culture of learning. High quality dissertations at the universities thus generate and add to the reputation of the institution.

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