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MASTER'S THESIS/PROJECT PROPOSAL WRITING GUIDE

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1. General notes

Master's Thesis/Project proposals should be written in academic writing style and submitted in typescript and free of any typographical errors. Acceptance of the Master's Thesis/Project proposal depends on many factors, including the nature of the proposed research, the quality of the ideas, student's ability to commit to an demanding period of research study, the methodology used and, last but not least, student's ability to communicate her or his ideas to the committee. Please note that this guide encompasses general writing guidelines and rules and that it does no guarantee committee acceptance and defense scheduling. Please, pay attention to the publication requirements listed in the end of this document, which are prerequisites for Master's Thesis/Project defense.

2. Sections of Master's Thesis/Project Proposal

The Master's Thesis/Project proposal should be comprised of the following¹:

1. **Title** – Title of the Master's Thesis/Project
2. **Summary** – Using 200 words, describe the purpose, theoretical background on which you are grounding your research, sample and methodology used, expected results and possible limitations.
3. **Introduction** – Briefly explain the background of the research, clarify the major issues and the reasons why you decided to focus on them. Concisely present your research statement.
4. **Theoretical Background** – Reference works that are necessary for the analysis and are crucial to your research. (Optional)
5. **Literature review** – Describe, in detail, the development of the field of your interest in terms of research that has been conducted in your field of choice so far. Be sure to include most of the recent research.
6. **Hypotheses (Research Questions) and Research Model** – Present the hypotheses/research questions you have developed based on the literature, as well as model you are proposing.
7. **Methodology** - Present your sample design and data collection, research instrument(s), research material used, means of data analyses. Present these within the context of your research (in terms of data collection)
8. **Data and findings** – Describe the data you have collected and the findings of your research.
9. **Conclusion** – In short, present the conclusions of your research.
10. **References** – List all resources you have consulted during your writing².

¹ Sections may slightly vary according to the nature of your research

² See the sample proposal

Table 1: Master's Thesis/Project Proposal Checklist

WRITING MASTER'S THESIS/PROJECT PROPOSAL – CHECKLIST³		
Main Section	Subsections	Checked (Put Tick)
Abstract	The objectives	
	The methodology you will use	
	The Suggestions you possibly have	
	The overall conclusion you can make	
Introduction	The need for research for your selected topic	
	The importance of your research	
	The objectives of your research	
	The methodology you will use	
	Expected Contributions of your research to the field	
Literature Review	Introducing the remaining sections of your research proposal	
	Introducing the Literature Review Section	
	Reporting the relevant past research (10 works at least)	
	Giving the summary of the reported relevant past research (10 works at least)	
Research questions and model	The variables and sub-items table with references (or any other extraction from your literature review based on which you will make your research)	
	State research questions/hypothesis developed out of literature and present a model with relations (if applicable for the nature of your research)	
Data	Data Characteristics	
	Respondent Characteristics	
	Company Characteristics (if applicable for the nature of your research)	
Methodology	Giving brief information about the used technique	
	How the technique is applied	
	The response rate (if applicable for the nature of your research)	
Results	Reporting the results of the applied technique	
Discussion	Comparing your results with the results of the others (reported in your literature review)	
Conclusion	Whether your research become successful and why	
	The limitations of your research	
	The benefits of research for science (if applicable for the nature of your research)	
	The benefits of research for considered companies or other beneficiaries (if applicable for the nature of your research)	
	The benefits of research for government (if applicable for the nature of your research)	
	The benefits of research for society	
	The benefits of research for future research	
	Suggestions for future research in the same field	

³ This checklist aims to help you in writing progress. The sections may vary based on the context of the research. This is a merely general guideline that can be adjusted according to the characteristics of your research (i.e. within the scope of basic sciences introduction and literature review might just be one section. Please consult within your department for details).

3. Other instructions

Please use Times New Roman, 12 pt., margins narrow, spacing 1.0 with headings in uppercase and bold and subheadings in italic. Number of pages cannot be less than 5 nor bigger than 7 pages (not including title page, list of references and appendices). Title page should be prepared according to the standard University guide.

4. Example of Master's Thesis/Project Proposal

INTERNATIONAL BURCH UNIVERSITY

FACULTY OF ...

DEPARTMENT OF ...



TITLE OF THE MASTER'S THESIS/PROJECT PROPOSAL

MASTER'S THESIS/PROJECT PROPOSAL

STUDENT NAME AND SURNAME

Supervisor

Supervisor's title, name and surname

SARAJEVO

June, 2016

SUMMARY

Because of the growing effects of the globalization in various business environments, the manufacturing industry is expected to be effective and yet efficient. According to this, in planning, scheduling and controlling a project, which is a combination of various activities, project management techniques (PERT and CPM) are used. Therefore, the research question is how will the implementation of CPM and PERT influence the effectiveness and efficiency of furniture company "Dallas"? The answer to this question is relevant in order to point out the importance of those methods in reducing the project completion time and costs. The data are taken from the furniture company "Dallas" and it will be combined with literature reviews. The research study is fueled by the following objectives: First is to determine the activities that are involved in the manufacturing process in selected company. Second is to demonstrate the benefits, as well as the drawbacks that those methods might create in the organization. And third is to demonstrate the influence of CPM and PERT in the entire furniture industry and its competitiveness. Implications of this research paper are evaluation of the project completion time and control of the resources, in order to see that the project is completed within the planned time and cost by using mentioned methods. At the end of the study, the result is expected to help all the individuals as well as the companies to understand more the concept of CPM and PERT methods in reducing the project completion time and costs.

Keywords: CPM, PERT, Furniture Company, Optimization

INTRODUCTION

Planning, Scheduling (or organizing) and Control are considered to be basic Managerial functions, and CPM/PERT has been rightfully accorded due importance in the literature on Operations Research and Quantitative Analysis. Far more than the technical benefits, it was found that PERT/CPM provided a focus around which managers could brain-storm and put their ideas together. Most important, it became a useful tool for evaluating the performance of individuals and teams. There are many variations of CPM/PERT which have been useful in planning costs, scheduling manpower and machine time.

The research study is fueled by the following objectives: First is to determine the activities that are involved in the manufacturing process in selected company. Second is to demonstrate the benefits, as well as the drawbacks that those methods might create in the organization. And third is to demonstrate the influence of CPM and PERT in the entire furniture industry and its competitiveness. This paper comprises the possibility to generate importance of CPM and PERT methods in reducing the project completion time and costs in furniture industry. The study can gain advantages that are helpful in the continuous progress of the investigation. One of those advantages is to cover the literature gaps concerning the past studies related to the same subject. In addition, through the collection of information, the study can emphasize the idea about the methods applied in production process in furniture industry.

THEORETICAL BACKGROUND

This study directly or indirectly deals with systems theory and TQM theory which are explained in more detail under following sections. Systems theory has been developed by Ludwig von Bertalanffy in his article "General Systems Theory: A New Approach to Unity of Science" in which he presented the foundations for new theory (Bertalanffy, 1951). The origins of TQM theory go back to the work of W. Edwards Deming. His practice of TQM in industry and development of TQM as a discipline of study is significant for scholars and practitioners (Rungtusanatham, et al., 2003).

LITERATURE REVIEW

Since the development of CPM and PERT during the 1950s, the techniques have been the subject of hundreds of research papers, but little work has been done in the area of the time-cost problem in furniture industry. Research has generally been focused on PERT, since the deterministic CPM presents few problems of interest. Van Slyke (1963) demonstrated several advantages of applying simulation techniques to PERT, including more accurate estimates of the true project length, flexibility in selecting any distribution for activity times, and the ability to calculate "criticality indexes," which are the probability of various activities being on the critical path. Pritsker and Happ (1966) developed a modification of PERT called the Graphical Evaluation and Review Technique (GERT). GERT allowed activity times to follow several different distributions. Project completion time distributions were computed through Monte Carlo simulation.

Kennedy and Thrall (1976) developed a modification of GERT called Project Length Analysis and Evaluation Technique (PLANET). PLANET added the ability to calculate the probability of activities being critical and find the distribution of completion times for each activity. Ramini (1986) proposed an algorithm for crashing PERT networks with the use of criticality indices. Bottlenecks traditionally have multiple feeds into a very narrow path that is critical to the project's completion. Johnson and Schon (1990) used simulation to compare three rules for crashing stochastic networks-also involving the use of criticality indices. Feng, Liu, & Burns, (2000) presented a hybrid approach that combines simulation techniques with a genetic algorithm to solve the time-cost trade-off problem under uncertainty. Lu and Li (2003) suggest that redundant relationships be removed before the backward pass, but they do not provide a procedure as to how to remove them. Lu's method may generate a large number of redundant resource links as demonstrated in the example because it does not consider original technological links of the CPM network when resource links are identified.

Additional authors which have studied various PERT problems via simulation include Klingel (1966), Gray (1969), Burt (1971), Herbert (1979), Schonberger (1981), and Dodin (1984), and Kidd (1986).

RESEARCH QUESTION/ HYPOTHESIS

The following is the basic question of research paper: *How will the implementation of CPM and PERT influence the effectiveness and efficiency of furniture company "Dallas"?*

If there is a single critical path, there is still only a 50% probability of the project being completed by the target date, since mean activity times are used to calculate the completion time of the project.

If there are numerous possible critical paths the probability may be much less than 50%. This may be costly if there are penalties for late completion of the project. The complete distribution of project completion time needs to be considered when crashing. Since there may be numerous possible critical paths, crashing a given activity by one time period will not necessarily reduce the completion time of the project by one time period. The expected reduction in project completion time must be considered in addition to the time/cost slope when selecting an activity to be crashed.

Hypothesis: CPM and PERT considerably reduce the project completion time in furniture company Dallas. At the end of the study, the result is expected to help all the individuals as well as the companies to understand more the concept of CPM and PERT methods in reducing the project completion time and costs. Apparently, it is expected that final, quantitative results will point out the importance of implementing those methods in planning, scheduling and controlling a project in terms of providing effectiveness and efficiency of furniture company. To test hypothesis, six products from different product lines have been selected. In order to define ‘critical path’, project duration and cumulative project costs for all of this products, time and cost of all activities in production process need to be presented in table. To do the research successfully, literature reviews related to this field in other industries will be used. Unfortunately, there is a lack of literature reviews of CPM and PERT in furniture industry, which presents a great challenge. The obtained findings are expected to show that these techniques considerably reduce the project completion time. All findings will be compared with previous data of the company (project duration and cumulative project costs of selected products). If they confirm the hypothesis, this paper will help to all managers in furniture industry to implement CPM and PERT to their projects, and by doing that, they will improve effectiveness and efficiency of their organizations. Furthermore, it may challenge other researchers to fulfil gaps in literature reviews related to this topic.

METHODOLOGY

The applied method in the study is the processing of primary data as a result of direct interview with an expert team in furniture company. The data will be selected respecting the Time schedule (Table 1). In primary data collection, qualitative and quantitative methods can be used, as primarily quantitative study may uses qualitative results to help interpret or explain the quantitative findings. The key point here is that the collected data are unique to this research and, until it is publish, no one else has access to it. It is important to know in advance what questions to ask/areas to cover – they are ‘imposed’. When all needed data are provided, then the steps of CPM and PERT can be followed. Through this method, the study can gain advantages that are helpful in the continuous progress of the investigation. It is also important to discover the literature gaps because of the review done to the past studies concerning the same subject. In addition, through the collection of information, the study can emphasize the idea about the CPM and PERT applied in furniture company.

DATA AND FINDINGS

In this part the results of the data analysis are presented. The data were collected and then processed in response to the problems. Two fundamental goals drove the collection of the data and the subsequent data analysis. Those goals were to develop a base of knowledge about the technology education curriculum organizer, construction, as it is perceived and utilized relative to other curriculum organizers, and to determine if current perception and utilization are consistent with the basic goals or principles of technology education. These objectives were accomplished. The findings presented in this chapter demonstrate the potential for merging theory and practice.

CONCLUSION

The aim of this study was to find correlation between...Sample was comprised from...Data was collected through the means of...Data were processed analyzed with usage of ... method. Findings showed that...Therefore we can conclude that...

This study will bring benefit to the several key groups. Benefit for government is...On the other hand benefit for scholarly world and future research is...

5. Publication Requirements Before Master’s Thesis Defense⁴

Table 2: Publications as Prerequisites to Defense

II CYCLE	2013/14	2014/15	2015/16	2017/2018
Faculty of Economics and Social Sciences		<ul style="list-style-type: none"> With co-authorship of supervisor, student must publish <u>one article in proceeding</u> of international conference, or international scientific <u>journal</u>.⁵ 	<ul style="list-style-type: none"> Master with thesis (4+1) i (3+2): <u>1 article</u> published or accepted by <u>international indexed journals or international conference</u> (with co-authorship of supervisor); Master without thesis (4+1): Publication is not prerequisite for final work defense.⁶ 	<p>Master’s with Thesis (4+1 and 3+2); one article related to the topic of thesis published or accepted in internationally indexed journals or published/accepted from the international conference (in co-authorship with the supervisor)</p> <p>Master’s without Thesis (4+1); not necessary to publish an article for a purpose of defense.</p>
Faculty of Engineering and Natural Sciences			<ul style="list-style-type: none"> Publication is not prerequisite for final work defense.² 	<p>Master’s with Thesis (4+1 and 3+2); one article related to the topic of thesis published or accepted in internationally indexed journals or published/accepted from the international conference (in co-authorship with the supervisor)</p>
Faculty of Education and Humanities			<ul style="list-style-type: none"> <u>1 article</u> published or accepted by <u>indexed international journal or international conference</u>.² 	<p>One article or a conference paper related to the topic of thesis must be published in a scientific indexed journal or international conference proceeding book (with a conference presentation⁷) (in co-authorship with the supervisor). Article/Conference paper’s acceptance letter is acceptable for the defense</p>

⁴ There are no publications requirements for Master's Project

⁵ Article 24, Rules of Study for II Cycle at International Burch University 2013/2014 – Adopted by Senate in LXVIII session

⁶ Article 28, Rules of Study for II Cycle at International Burch University 2015/2016 – Adopted by Senate in C session

⁷ Obligatory for the article to be accepted.

