POSTGRADUATES SUPERVISOR PREFERENCES AMONG PHD STUDENTS USING ANALYTICAL HIERARCHY PROCESS (AHP)

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ABSTRACT

This survey was conducted to identify the criteria in selecting supervisor in University Malaysia Pahang. Besides that, the objective of this study was to identify the factors affecting the selection and to rank the most importance factors in selecting the supervisor also Survey on the postgraduate students with use the AHP analysis in evaluating their criteria to become a supervisor of the project using AHP. Sets of questionnaire were developed and data was collected by hand-distributed. Total sample of 140 respondents was used in this study. The result of this study showed that, for the first criterion which is qualification, the factor of the higher affect the selection. For the second higher after qualification is experience criterion. The factor of knowledge is the third factor higher after the second. For the last factor was the commitment that the factor doesn't affect the selection. After compare and rank all the criteria, supervisor relationship which is criterion number one become the most importance criteria that affect the supervisor selection in University Malaysia Pahang.

ABSTRAK

Kajian ini dijalankan untuk mengenal pasti kriteria dalam memilih penyelia di Universiti Malaysia Pahang. Selain itu, objektif kajian ini adalah untuk mengenal pasti faktor-faktor yang mempengaruhi pemilihan dan pangkat faktor kepentingan yang paling dalam memilih penyelia juga Survey pada pelajar siswazah dengan penggunaan analisis AHP dalam menilai kriteria mereka untuk menjadi penyelia projek yang menggunakan AHP. Set soal selidik telah dibangunkan dan data dikumpulkan dengan tangan-diedarkan. Jumlah sampel 140 responden telah digunakan dalam kajian ini. Hasil kajian ini menunjukkan bahawa, untuk kriteria pertama iaitu kelayakan, faktor yang lebih tinggi memberi kesan kepada pemilihan. Untuk lebih tinggi kedua selepas kelayakan adalah pengalaman kriteria. Faktor ilmu adalah faktor ketiga yang lebih tinggi selepas kedua. Untuk faktor yang terakhir adalah komitmen bahawa faktor yang tidak memberi kesan kepada pemilihan. Selepas membandingkan dan kedudukan semua kriteria, hubungan penyelia yang merupakan nombor satu kriteria menjadi kriteria paling penting yang mempengaruhi pemilihan penyelia di Universiti Malaysia Pahang.

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CHAPTER 1

INTRODUCTION

1.0   INTRODUCTION

This chapter provides an overview of the study and outlines its scope. In this chapter, we will discuss on how to selected supervisor from postgraduate students. This chapter will cover the general overview of the study, background of study, covering the problem statement related to the issue of supervisor preferences, objectives of the study, scope of the study, significance of the study and method of the analysis.

1.1   BACKGROUND OF STUDY

Supervisor selection is one of the most important thing that must be careful to pick anybody to be a supervisor because the supervisor must guide the person under the supervisor also it's a good benefits for a university to select a good supplier. This study attempts to apply the AHP in supervisor selection for PhD students that studying in University Malaysia Pahang (UMP).

In moving a one project final year student, the organization needs the student, supervisor and the project. Students are the main reason why the project can be existing. To choose the correct supervisor that also can be help the student to finish their final project and be a collaborator. The importance of supervisors because the scope or the job for the supervisors is to guide and instruct the students in completing their project. If selection of supervisors was wrong then the project must be delayed or can't be finish. As a supervisor it's your responsibility to clearly and consistently uphold work standards for the people you manage.

Specific supervisory responsibilities include advising on and discussing with the student at the commencement of candidature the research process, aims, scope and presentation of the thesis, and any orientation, course work or supplementary training necessary for the research project. It is also assisting students in planning an appropriate course of collateral reading, suggesting relevant background reading and giving advice on the literature review. Supervisors should also ensure that students are thoroughly familiar with the University resources available to them and that they are able to make full and proper use of literature sources. The criteria of a good supervisor depending on how a supervisor guide the student, their background educational, and the involvement of supervisors in specific areas that will affect the final year project. for my project title, research on post graduate student in finding suitable criteria, the background education, their talent, acknowledgement that suitable that they have the right to become a supervisor, who will guide the students and had some interactions with an undergraduate or postgraduate level.

Hence, students that be my survey in this research is which from a PhD students that studying in campus Gambang University Malaysia Pahang (UMP) which was among those never work and experience in a particular field of work experience and learning experience. The experience and knowledge that they have will be an issue or point for me to do a review of the criteria to be a supervisor. Work of the supervisor is to guide students in the practices and ethics of research in the discipline. The supervisor also needs to know when time to push student and when to let student figure it out himself.

In this work, to efficiently evaluate and select the best supervisor for guide student or to help, the analytical hierarchy process technique will be used. The AHP method is based on three principles: first structure of the model, second comparative judgment of the alternatives and the criteria, third synthesis of the priorities. AHP is a widely used multi-criteria decision making tool. One of the major steps in applying the AHP technique was develop a hierarchy of factors impacting the final decision. This is known as the AHP decision model. Unlike the conventional methods, AHP uses pair-wise comparisons which allow verbal judgments and enhances the precision of the results. The pair-wise comparisons are used to derive accurate ratio and scale priorities. It is clearly states that the analytical hierarchy process is the suitable technique to select or choosing the supervisor. The analytical hierarchy process are actually developed by Saaty, T.L. (1980), addresses how to determine the relative importance of a set of activities in a multi-criteria decision problem. The process makes it possible to incorporate judgments on intangible qualitative criteria alongside tangible quantitative criteria. The AHP also provides a proven, effective means to deal with complex decision making and can assist in identifying and weighing criteria, analysing the data collected and expediting the decision-making process.

1.2   PROBLEM STATEMENT

For the selection of supervisor must have many terms and option. Supervisors must be based on lectures from the university or full time supervisor that do not burden with the lecture. Ump faculty need to diversify the selection of supervisors not only the lecturer but from the outside sources too. This is because if we need resources from outside to be supervisor because of the differences in terms of the selection criteria and have different experienced. This will give a conclusion on how the selection to be a good supervisors. Random selection in choosing a supervisor will have an adverse impact because it will affect the actual qualification to become a competent supervisor.

The criteria of a good supervisor depending on how a supervisor to students, educational background, and the involvement of supervisors in specific areas that will

affect the undergraduate project. For my project title, research on post Graduated students in finding suitable criteria that they have the right to become a supervisor, who will guide the students. In these cases, a wrong selection supervisor for guide student is actually can bring bad impact toward a project which is can make the project delay if the supervisor didn't help student to do their project. Supervisors should meet with the student at periods throughout the degree, including where appropriate and practicable with the supervisor. If the selection of supervisors selected based on criteria that qualify a supervisor it would be more beneficial to the person under supervisor. It also does not give rise to various problems such as his example can meet anytime , easy to share knowledge , to have more knowledge and have a good relationship with anyone.

1.3   OBJECTIVES OF THE STUDY

The purpose of this study is to analyse and to study the selection supervisor based on the criteria to be a good supervisor by using Analytical Hierarchy Process. The objective of this study need to be achieved at the end of the study. The specific objective of the study is:

1. Survey on the postgraduate students with use the AHP analysis in evaluating their criteria to become a supervisor of the project using AHP.

2. To identify the criteria in selecting supervisor.

3. To identify the factors affecting the selection.
4. To rank the most importance factors in selecting the supervisor.

1.4 RESEARCH OBJECTIVES

The research questions for this study are:

1. What are the criteria to be a supervisor?
2. What are the factors that affect the selection of supervisor?
3. What are the most importance factors in selecting the supervisor?

1.5 SCOPE OF STUDY

The research carried a study on the application of the analytical hierarchy process for supervisor selection for PhD students that studying in campus Gambang Universiti Malaysia Pahang (UMP). Other than that this research also focus to PHD students that study in Gambang not even men or women. This scope also not just a few faculty but it include all faculty have in campus Gambang Universiti Malaysia Pahang. Besides that, this study also focusing on the PhD students that has been selected and requested to respond to several pairwise comparisons where two categories at a time were compared with respect to the goal. At the terms from students this study will focus to full time students only because the PhD student full time they are not bound to any commitment that can make their to be selected as supervisor. The organization that I choose for my research is more related to the places to learn that can compatible with my research title.

1.6 SIGNIFICANT OF STUDY

This research is actually will revealed the suitable way to select the supervisor. This study will evaluate the measurement criteria available on the use of AHP analysis. Through the analysis process will be able to know the criteria to postgraduate supervisor preference

have need. Besides that it also can help University Malaysia Pahang to create and enhance the quality of supervisor PSM. Even though it is not just among the lectures but also among post-graduate student that have some criteria that have qualifications for being a good and talent supervisor.

In terms of that, this research also can help to evaluate the quality of PhD students that studying in campus Gambang University Malaysia Pahang (UMP) of being a supervisor that which is based on their background, education, acknowledgement, and involvement in academic with using the AHP analysis as the guide for the best or talent selection.

A further advantage of AHP is its stability and flexibility regarding changes within and additions to the hierarchy. In addition, the method is able to rank criteria according to the needs of the PhD student which also leads to more precise decisions concerning supervisor selection. The main advantage of AHP is that the PhD student is able to get a good picture of the supervisor's performance by using the hierarchy of the criteria and evaluating the supervisor. It is actually can bring more benefit to this research which is related to the objective of this study that is about how to select the good supervisor by using analytical hierarchy process in other word it will review the process to select the best supervisor in selecting process.

1.7   METHOD OF ANALYSIS

The method used in this study were analytical hierarchy process (AHP). This study uses AHP as a method to analyse the data because of the method of AHP is a decision-making process of scoring a powerful and flexible way to help make the best decision for the selection criteria of a good supervisor. AHP has been widely used to solve multi-criteria decision making in academic research and in practice. Application of AHP is associated with evaluating and selecting alternative or different options in terms of the criteria that are required prior to the supervisor. In addition, the Trust has performed in

almost all applications related to decision-making and are mostly used in the theme selection and evaluation.

1.8   SUMMARY

In this chapter, generally explained about how this study will be conducted. The purpose of this study is to study the AHP in supervisor selection and assess whether the postgraduate are able to be a supervisor based on the correct criteria supervisor.

CHAPTER 2

LITERATURE REVIEW

2.0   INTRODUCTION

In this chapter, it is review of related article and the past literatures that related to the proposed study that has been published by accredited scholar and researcher were summarized. This chapter covered the literature review on the analytical hierarchy process, studies on supervisor criteria selection, and PhD postgraduate selection criteria in UMP.

2.1   DEFINITION OF ANALYTICAL HIERARCHY PROCESS

Analytic Hierarchy Process (AHP) is one of Multi Criteria decision making (MCDM) method that was originally developed by Prof. Thomas L. Saaty (1980). The analytic hierarchy process (AHP) is an analysing complex and the organizing structured technique which is based on the mathematical and the psychological of a decision making. According to Chien-Wen Chen, Chien-Lung Chan and Chiang-Yu Cheng (2011) the AHP is actually can be used whenever a decision problem can be represented by a hierarchy or cluster of hierarchies resting on the assumption of an overriding object or goal. It is also provides a flexible and easily understood way of analysing complicated problems. The

AHP is actually one of the multiple criteria decision-making techniques that allow subjective as well as objective factors to be considered in decision-making process. Besides that, the AHP also allows the active participation of decision- makers in reaching agreement and gives managers a rational basis on which to make decisions.

AHP is based on the following three principles: decomposition, comparative judgment and synthesis of priorities. Cheng and Li (2002) stated that AHP has two basic applications. Firstly, it is to assign weights to a set of pre-determined elements (e.g., criteria, factors) and then make a decision out of several scenarios or alternatives. Secondly, it can help to prioritize (rank) elements in order to identify the key elements. This is shows that the AHP method is more flexible and eases to use for decision maker.

Analytic hierarchy (AHP) is a process of multi- criteria decision-making methods that were originally developed by Prof Thomas 1. Saaty. His conclusions, it is a method to obtain a scale ratio of paired comparisons. This input can also be obtained from actual measurements such as price, weight and others. This input can also be obtained from actual measurements such as price, weight and others. It is also from subjective opinion such a feeling of satisfaction and preference. AHP also allows some slight differences in judgment because humans are not always consistent. Ratio scale derived from principal Eigen vectors and consistency index derived from the main eigenvalues . Before the Eigen values is done, the process of pairwise comparison done first, followed by the main Eigen values . All it's related from one process to another process to another to completed the AHP process.

2.2   STUDIES OF ANALYTICAL HIERARCHY PROCESS

A review of the literature on Analytical Hierarchy Process (AHP) indicates that there is an explosion of research that has been done in the area in recent times. According to the William Ho (2007) the AHP that has been developed by Saaty (1980), has been studied extensively and used in almost all the applications related with multiple criteria decision making (MCDM) in the last 20 years. In term of that the widespread application

AHP is actually due to its simplicity, ease of use, and great flexibility. It can be integrated with other techniques, for instance, mathematical programming in order to consider not only both qualitative and quantitative factors. Besides that, Bhushan, Navneet and Kanwal Rai, (2004) illustrates that the analytical hierarchy process actually has been used in various areas that are numbered in thousand and produced comprehensive results in problems including resource allocation, planning, priority setting and selection among the alternatives. As an example, Cebeci U (2009) has applying the AHP to evaluate different enterprise resources planning projects in the textile industry.

Other that, the AHP is a subjective decision making tool or method developed by Saaty (1977) that evaluates and weighs a number of criteria and sub criteria which affect the final decision. Unlike the subjective and priority weight assignments in a number of multi-attribute decision models, AHP calculates criteria weights systematically throughout the process itself which reduces subjectivity significantly. Using the same hierarchy and the criteria, one might end up with different criteria weights depending on the strategies or preference. Besides that, according to the Alberto (2000) the Analytical Hierarchy Process is actually provides a framework to cope with the multiple criteria situation involving intuitive, rational quantitative and qualitative aspect. Chan (2003) illustrated that the hierarchical in the Analytical Hierarchy Process is represent a system can be used to describe changes in priority at upper. From the recent studies it is clearly states that by applying the analytical hierarchy process it is indirectly can help the decision maker to make a decision in any aspect.

The AHP has also been a helpful methodology used in solving decision problems in studies such as, supervisor selection, postgraduate students, (Siddharth, Subhas, & Deshmukh, 2007), and has been universally used in solving multi-attribute decision-making problems (Saaty, 1980). In the past, AHP method or tool has been used in several problems solving in decision making for select or priority the criteria in a problem. In this study by applying the analytical hierarchy process in supervisor selection is indirectly can help the selection supervisor and identify the criteria can manage to identify and priorities which supervisor would the best to choose. According to the Meredith and Mantel (2000) they illustrated that the Analytical Hierarchy Process is actually an effective tool for project

selection, other than that the Chang &Yeh, (2001) states that the application of the AHP has been successfully used to solve transportation problems.

2.3   DEFINITION OF SUPERVISOR SELECTION

Supervisor is the key person in your graduate degree program. The principal role of the supervisor is to help students achieve their scholastic potential. The Supervisor will provide reasonable commitment, accessibility, professionalism, stimulation, guidance, respect and consistent encouragement to the student. Supervisors should be available to help their graduate students at every stage, from formulation of their research projects through establishing methodologies and discussing results, to presentation and possible publication of dissertations. Graduate supervisors must also ensure that their students' work meets the standards of the University and the academic discipline.

The main supervisor takes full responsibility for the overall management and direction of the student's research degree in addition to administrative issues relating to the student's registration, attendance, and progress. For most people, the supervisor will be mentors, friends, trust, and counsellors. A depends on when things get tough or when you just cannot see the end of it all and need support and encouragement. So, chances are that the relationship with your supervisor is going to be an intense both professionally and personally. Supervisors should be there to help the graduate students at all levels in terms of the formation of their research projects through the methodology and discuss the results, and also for the presentation. Graduate supervisor must also ensure that their students' work must meet the standards of the university and as an academic discipline.

2.3.1 The highlighted practices of supervisor principles:

- Supervisor involves the fundamentals of good teaching, concern for students, interest in their progress, and the provision of thoughtful and timely feedback. Good supervisors exemplify the characteristics of good teachers in any setting.
- Supervision is an intensive form of teaching in a much broader sense than just information transfer. The sustained complexity of supervision involves much time and energy. Good supervisors are aware of this and of the professional commitment necessary to every student they agree to supervise.
- The supervisor relationship has a particularly personal dimension, especially when students face crises of confidence or personal problems.
- Good supervisors are conscious of their mentoring role. They aim to be a model of teacher for their student.

2.3.2 What students expect of their supervisors

By Philips E.M and Pugh D.S (1987), students expect supervisors:

- To read their work well in advance
- To be available when needed
- To be friendly, open and supportive
- To be constructively critical
- To have a good knowledge of research area
- To structure the situation so that it is relatively easy to exchange ideas
- To have sufficient interest in their research to put more information in student's path
- To be sufficient involved in their success to help them get a job at the end of all

2.3.3 Supervisor responsibility

- Assist students in planning his program
- Assist in ensuring that students are aware of the program all requirements, degree regulations, and general regulations.
- Stay informed students' research and development activities.
- To ensure that students carry out research in an effective, safe and productive way.
- Provide program.
- Arrange and attend all meetings of the supervisory committee and exam candidates.
- Review the thesis in both draft and final form.
- Avoid conflicts of interest.

2.4 PhD POSTGRADUATE CRITERIA FOR SUPERVISOR SELECTION

A graduate degree in education means beyond the undergraduate level. Postgraduate qualifications are higher after the first degree, such as Masters and PhD. Postgraduate education involves learning and studying for a degree, professional certificate or academic or other qualifications for which a first or Bachelor's degree generally is required, and it is usually considered as part of higher education. To achieve a PhD, one must accomplish two things, namely master a specific subject completely and expand knowledge about the matter. Each university to come up with some general guidelines those students must follow to obtain a PhD.

2.4.1 Studies of postgraduate supervisor criteria selection

There are more criteria selection related to supervisor. The focus of this research is the criteria of selecting a good supervisor. It was identifies university supervisor following as the criteria:

1) Knowledge

The selection criteria , knowledge is the norm in any election because it is the awareness or understanding of someone or something as a fact, information, evidence or skills acquired through experience or education . Knowledge can also refer to the theoretical or practical understanding of a subject. The selection criteria are very important knowledge because it will show an expertise in a particular subject. It can also be implicit or explicit in the words of the additional payment with practical skills or expertise. Definition of knowledge is a matter of ongoing debate among philosophers in the field of epistemology. It also states that a statement must meet three criteria to be considered knowledge that it must be allowed, truth and trust.

2) Qualification

The qualification means education degree, diploma, certificate and professional titles are also individual has acquired either through full-time study or part-time study. It has a different way to achieve educational qualifications. Besides that, there is also provided by the educational authorities, special examining bodies or professional organizations. The acquisition of educational qualifications that reflect success to complete a course of study or training program. Professional qualification requires a combination of original academic preparation and relevant professional experience coupled with activities that will restore or establish preparation for current teaching or concern for achieving and dedicated supervisors. The professional qualifications also require a master's degree or higher in a relevant discipline with teaching assignments or tasks in a supervisor. Professional experience   also related to their teaching faculty, which is important in the duration and level of responsibility.

3) Commitment

The criteria to be a supervisor must have a commitment. It is also an important thing because if a supervisor does not have the commitment in their work then it will be looked upon with a negative outlook. Besides that, the selection should be viewed in terms of the commitment that they will give as evident in the time, manner, responsibility, responsiveness and others. If they are unable to commit to their work, they may also be regarded as a failure in the job.

4) Experience

Experience comprises knowledge of or skill of some thing or some event gained through involvement in or exposure to that thing or event. Work experience is any experience that a person gains while working in a specific field or occupation. Though the placements are usually unpaid, travel and food expenses are sometimes covered, and at the end of the appointment, a character reference is usually provided.

2.5   SUMARRY

Based from the literature review, the analytical hierarchy process has been review other than that, the supervisor criteria selection also has been review. This is actually help to build or developed the hierarchy structure for the next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.0   INTRODUCTION

This chapter is actually consisting of the research design, data collection technique, research method, population and sampling, data analysis, and lastly conclusion. In general, the basic methodology of this study is to use the analytical hierarchy process and explain in more detail about setting aside questionnaire interview methods are also discussed in this chapter. The main method used in the approach introduced and explained it in more detail about the instrument or method to analyse the application process analytical hierarchy process in the selection of supervisors. In this chapter, I will specifically discuss the methods that will be carried out to obtain data and analyse the selection of supervisors. This section is divided 2 parts, instruments and methods of data analysis. The first method of instrumentation methods I will show in the form of data collection methods and in terms of the questionnaire. I also use the AHP method in which I use the method of decision-making. These methods are also linked to how the selection takes place and how supervisors pairwise comparisons. I will further explain in more detail about the method used to analyze the collected information. This chapter is actually consisting of the research design, data collection technique, research method, population and sampling, data analysis, and lastly conclusion. In general, the basic methodology of this study is to use the analytical hierarchy process and explain in more detail about setting aside questionnaire interview methods are also discussed in this chapter.