MEDIATION EFFECT OF SUPERVISORY ALLIANCE ON THE SUPERVISOR-SUPERVISEE RELATIONSHIP FOR EFFECTIVE SUPERVISION

AFFERO BIN ISMAIL

A thesis submitted in fulfillment of the requirement for the award of the Doctor of Philosophy.

Faculty of Technical and Vocational Education
Universiti Tun Hussein Onn Malaysia

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DEDICATION

Dedicated to my beloved family, my wife and my mother for their support and patience during my study
ACKNOWLEDGEMENT

In The Name of Allah, The Most Merciful and the Most Benevolence.
All praise to Allah (s.w.t) for His Kind Guidance and Mercy, we are made to be part of His vast creation. Peace and Blessings be upon His prophet Muhammad and the believers who followed His path to the Day of Judgment. Praise to Allah, for the completion of this thesis. I would like to acknowledge my appreciation to my sincere supervisor, Associate Professor Dr. Razali Hassan for his advice and support that motivated me to complete the thesis. I am also grateful for the advice and guidance from my co-supervisor, Dr. Alias Masek. Without their help and bless, I would not have completed the research. I also thank to all lecturers and peers for their help and support during my study in Universiti Tun Hussein Onn Malaysia (UTHM) and also special thanks to Associate Professor Dr. Norhasni Zainal Abiddin (UPM), Associate Professor Dr. Ahmad Fauzi Mohd Ayob (UPM) and Associate Professor Dr. Kamarolzaman (UTHM) for their kind help as juries in the content validity process. My thanks to all the kind-hearted lecturers for guiding me throughout the Doctoral Degree Program, all the FPTV (Faculty of Technical and Vocational Education) staffs for always being there to assist me during my studies and to all my course mates, thanks for your help and support. I would like to thank my employer, Ministry of Human Resources (MOHR) and Malaysia’s Public Service Department for their generosity to sponsor my study. I also wish to extend my deepest appreciation to Manpower Department, MOHR for helping me tracing and looking for the respondents. To all respondents, thank you so much for being able to spend some times completing the questionnaires. Lastly, I would like to express my deepest gratitude to my beloved wife for supporting me throughout this period. To my mother that always prays for my success. And my late father whom his spirit is alive in me, giving me strength for this long journey. And last but not least, to all people that I haven't mentioned here, thank you so much.
ABSTRACT

This research is deployed to discover a resolution for an efficient supervision. Many problems can be derived from attrition and completion issue of Technical and Vocational Education and Training (TVET) students in Malaysian Advanced Technology Training Center (ADTEC). One of the main factors is the failure and incomplete of the industrial-based project. This issue is an evident that there is a need for effective supervision. The purpose of this research is to examine the mediation effect of the Supervisory Working Alliance (SWA) on the relationship between Overall Supervision Effectiveness (OSE) and independent variables, including Supervisory Input Support (SIS) and Supervise Individual Characteristic (SIC) among respondents. The overall research framework is adapted from different Bordin’s Model of Working Alliance (1983) and Kirkpatrick’s Evaluation Model (1996). This is a fully quantitative research using survey method. Three hundred and sixty (360) respondents were selected as research samples by proportionate stratified random sampling method from four (4) main ADTEC in Malaysia. The data were analyzed quantitatively using descriptive analysis, Exploratory Factor Analysis (EFA) to validate the factors and Structural Equation Modeling (SEM) to conduct correlation, regression and mediation test to achieve the research objectives. Exploratory Data Analysis (EDA) was conducted to ensure that the data used in this research did not violate the assumption of multivariate analysis. All hypotheses in this research are fully supported in which there is a positive significant relationship between variables (SIS, SIC, SWA and OSE); There is a substantial effect of SIS on SWA, SIC on SWA and SWA on OSE; and SWA mediates the relationship between SIS and OSE as Full Mediation and between SIC and OSE as Partial Mediation. In conclusion, the present of SWA mediates the relationship between SIS, SIC and OSE. This research contributes in new findings to the body of knowledge in the evaluation of effective supervision. The major contribution of this research is to introduce the student-supervisor framework for industrial-based project in Malaysian TVET.
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<tr>
<td>ADTEC</td>
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CHAPTER 1

INTRODUCTION

Investment in human capital through effective education is very crucial towards knowledge-worker (K-worker). The emergence of a knowledge-based economy requires a vast involvement from institution of higher education, especially in the technical and engineering discipline to produce competent worker. As the training cost is high, the stakeholders invest in the skills of their students to improve productivity and the profitability of the country (Mustapha and Abdullah, 2004). Currently, Malaysia is developing rapidly and in a dire demand for technical and engineering manpower at the various levels, especially in the technology and engineering discipline. The demand for engineers and engineering assistants keeps increasing from 153,000 in the year 1994 to 500,000 in the year 2008 (Nordin, 2008). In the year 2010, the country needed more than 500,000 engineering technicians and engineers (EDMAT, 2002). This figure keeps increasing by years. Currently, Malaysia has a workforce about 12 million, of which only about 28 percent are highly-skilled, whilst 60 percent are employed in small and medium-sized enterprises (Tenth Malaysia Plan, 2012). In 2013, registered engineers in Malaysia have reached to 80,107 engineers, including 10,901 professional engineers (Board of Engineers, 2013). NKEAs are expected to create up to an additional 3.3 million jobs will accommodate of approximately 1.3 million (40%) of Technical and Vocational Education and Training (TVET)-related jobs by 2020 (Department of Prime Minister, 2012). There is a demand to increase enrollment in TVET with quality graduates. To satisfy the demands
of this manpower, the administration has set in place a great deal of emphasis on TVET to produce more Knowledge Workers (K-workers).

Synchronizing with the development of K-workers, TVET institutions are providing effective training to develop people in the professions. There are many elements in effective training that ranging from methodology, supervision, teaching and learning, on job training, modules, equipment and trainer’s competency. In this setting, supervision can be classified as one of the important elements in effective training. Project supervision or advising is the consideration of three interrelated areas which are: i) the learning and teaching process; ii) developing the student; and iii) producing the research project/outcome as a social practice (Maxwell and Smyth, 2010). They made clear that supervision is centrally a teaching/learning process, but never-the-less a practice that has parallel processes, namely, student development and the project itself. Students’ supervision is not just teaching and learning practice, but it is more than this. Alongside learning, supervision needs to be treated as student development together with project knowledge production.

This research seeks to investigate the supervisory inputs that are needed by the students, the characteristic of students for optimum supervision outcome, the working alliance between student and supervisor and to measure the supervision effectiveness in order to develop the student-supervisor framework for effective supervision in TVET. The supervisory relationship between the students and their supervisors in Malaysian Advanced Technology Training Centers (ADTEC) during their industrial-based project were assessed. The function of mediator was found very useful in triggering the relationship between student and supervisor. After thorough analysis, Supervisory Working Alliance was found a suitable variable as a mediator to be examined. The mediating effect of the Supervisory Working Alliance was expected to secure the supervision process and successfully executed. However, developing effective supervision need to be evaluated from both students’ and supervisors’ perspectives. Thus, the support from the supervisors and the characteristic of a supervisee has been identified in this research as the main contribution to the overall supervision effectiveness.
1.1 Background of the Study

The concept of effective supervision that was used in this study contributes to the development of human capital, especially in the aspects of skilled workers. Issue of skilled workers has become critical and widely debated across the countries. The future of Malaysia's sustainable economy depends on the skills of its workforce. Besides, effective supervision will ensure the students graduate on time and to produce more graduates at times. Research has shown that technical education has assumed a significant role in the industrial development of Malaysia in terms of supplying necessary skilled workers and professionals (Abdullah and Mustapha, 2001).

Changes in the global technology and particularly in the Malaysian industries have created a major need for a skilled workforce and comprehensive training. A holistic skills training and technical training program to train K-worker should encompass not only the technical competency but also learning and methodology competencies. Effective workforce can be achieved through the supervision process during their training and practice in the Public Skills Training Institute or Institut Latihan Kemahiran Awam (ILKA) and industries as well. The effective supervision has been portrayed as an invaluable learning activity for beginners as well as experienced practitioners such as teachers, administrators, trainers and other professionals.

Many students have noted the importance of the relationship between a scholar and a supervisor in this context (Graves and Varma, 1999; Cryer, 2000; Phillips and Pugh, 2000), particularly where the two work closely over a number of years. The relationship between the supervisor and student plays an important role in advancing the student’s goal towards project completion. Still, sometimes a problem of compatibility occurs between them and therefore, Hockey (1997) and Wilkin (1992) indicated that they both asked to recognize their roles in order to guarantee a good relationship. Learning involves two parties, the teacher (also known as supervisor, mentor, coach) and the student (known as the trainee, mentee, mentoree, coachee, protégée).

There are number of research and studies highlighted the importance of supervision for student professional growth. Nevertheless, most of previous researches focused on graduate students either at the master or doctorate level. Todd et al. (2006) found that most
literatures relating to thesis supervision is aimed at masters and doctoral level students. There are slight number of them discussed undergraduate student. In summation, the previous studies, mostly for academic stream rather than Technical and Vocational Education and Training (TVET). It is supported by Sulaiman (2011) where he observed that there is a lack of research being done on TVET issue. As we know, TVET differs from academic. Therefore, an initiative should be taken to bring about more researches on TVET. This research puts on the TVET as the main reference in developing effective supervisory practice. Also, it concentrates on undergraduate students for industrial-based project supervision.

This research primarily focuses on students’ needs and perceptions in terms of supervision for industrial-based project. Later on, the focus turned into how the mediator which is the Supervisory Working Alliance react in the framework. Students own different needs at different stages of the project process. The needs also varied from one student to another. Nevertheless, their needs through the process should be supported by supervisors’ contributions. The discussion from the result gathers the best practices of effective supervision. Before the details about supervision needs were discussed, it’s better to understand the situation or dilemma that is masked under the issues of TVET students’ especially in their industrial-based project process.

This research caters the TVET students in Malaysia which come from a higher level cohort of skills and vocational education. To be exact, the Advanced Technology Training Centers (ADTEC) in Malaysia which is under the Ministry of Human Resources. ADTEC was chosen as the sampling target because it is one of the important higher institution that drives the K-Workers. Besides, most of the previous studies in TVET were concentrated to Malaysian Polytechnic and Community College (Keong, 2014; Efendi and Khairani, 2014; Haziratul, 2012; Mariappen et al., 2012). TVET seems new to certain people in Malaysia since the exposure related to this system is yet under proper explained. The effort to promote TVET has highly increased for the past years after our Prime Minister has put the skills training as one of the main agendas in Malaysian Budget 2011 and 2012 (Tenth Malaysia Plan, 2012). In practice, many of the early initiatives to promote TVET catered mainly for traditional arts and crafts as seen in 1900 when the government of Selangor engaged several local craftsmen comprising of a wood-carver, a silversmith, a
blacksmith and a tailor, to teach their crafts to Malay students residing in the Malay Settlement on the outskirts of Kuala Lumpur (Loh, 1975).

Currently, the TVET in Malaysia is based on National Occupational Skill Standard (NOSS). To be certified for Malaysian Skill Certification, they should embrace the minimum requirement in National Occupational Skill Standard (NOSS). NOSS can be defined as a specification of the competencies expected of a skill worker who is gainfully employed in Malaysia in an occupational area, level and the pathway to achieve the competencies. The concept and structure of the Malaysian Skill Certification System can be clearly explained from Appendix B.

Other institutions either public or private refer to this guideline and proposed a similar training program. Some institutions introduce different certification such as Diploma of Technology, Diploma of Vocational or Diploma of Industry that represent the TVET education, but according to NOSS, these are equivalent to Level 4 and Level 5 for an Advanced Diploma. However, the participation at this level is still small since the operation is still largely concentrated at lower levels.

In general, TVET provision in Malaysia is still largely concentrated on lower-level skills qualification whereby more than 70 percent of graduates are at Malaysian Skills Certificates, Levels 1 and 2 (Pang, 2011). Although TVET Institutions are running at high operating levels, many are not yet operating at full capacity. The overall funding structure also does not fully support quality and performance of TVET providers. There are many TVET providers in Malaysia either from public or private institutions. Most of the higher level of skills qualification (Level 4 and 5) is being conducted by Public Institutions that are being supported by the Government.

The institutions under the Ministry of Human Resource and Development for instance, are providing five (5) active institutions currently for conducting these higher levels, namely the Advanced Technology Training Center (ADTEC) and Japanese Malaysia Technical Institutes (JMTI) across the country. The number of students who choose TVET in Malaysia keeps increasing by years. Based on the data from (Jabatan Tenaga Manusia, 2013), the total of intake in Malaysian Public Skills Training Institutes has been increasing since 2001 although there are a slight drop in a few years.
Malaysian Advanced Technology Training Center (ADTEC) offers Diploma and Advanced Diploma. Entrance into Malaysian Advanced Technology Training Center requires a minimum of a pass in Sijil Pelajaran Malaysia (SPM) with three (3) credits. It is equivalent to Malaysian Skills Certification at Level 4 and 5. At the end of their studies, they are required to complete an industrial-project based which determine their qualifications for Diploma or Advanced Diploma Degree. It is coherent with Level 4 and level 5 for Malaysian Skills Certification (MSC) that merely require a trainer to complete an industrial-based project as one of the competency assessment.

Now, the focus is diverted to the supervision activity that take place in TVET institutions. During the project development process, the students find difficulties in many aspects for every project stage. They need support and guidance especially from their supervisor, their closest reference. Conversely, from the supervisors’ view, they feel like they have given the best to help the students’ progress, but the dissatisfaction is still reported in students’ perception. In Russell (1996) study, he found that nearly half of the students felt that the constraints they encountered related to lack of support from the supervisor and school. These included a lack of encouragement, pastoral care and reassurance from the supervisor, as well as a lack of formal and informal arrangements for students to support each other. Depth analysis should be carried out to come up with the solution for the student-supervisor framework. There are many opinions regarding the responsibilities of supervisors. Most of all, the supervisor should give constant support and reassurance to the student (Haksever and Manisali, 2000; Phillips and Pugh, 2000) and keep the students’ morale high (Phillips and Pugh, 2000).

The flow of the research problem will be discussed below. The problem that becomes the ground of this research is identified as the attrition and completion issue. In higher education, attrition rates and completion rates of students are becoming statistically of a vital concern. This scenario arises in Malaysian Advanced Technology Training Center as well. There are students that fail to graduate on time as they could finish it exactly within the time frame. According to data by Jabatan Tenaga Manusia (2013), the percentage of graduation is still not impressive, some of them failed and need to extend their industrial-based project. This indicates the need to improve completion rates. Within
this context, concern for quality in higher education is perhaps at an all-time high (Eaton, 1999).

The major cause for attrition and completion issue in ADTEC was investigated and it was found that the failure or need to extend the industrial-based project as one of the major concerns (Jabatan Tenaga Manusia, 2013). The percentage of graduation in 2012 is still not up to 90%. According to data from Unit Kawalan Teknikal (2013), the statistic of student who could not complete their industrial-based project is worrisome since they could finish it in the given time. The number of student who failed or extend the Industrial-Based Project or Projek Tahun Akhir (PTA) were reported. Need analysis was conducted and it was reported that the issue in this incomplete industrial-based project comes from the supervision activity (Ismail et al., 2015). This brings forward the demands for effective supervision. The analysis explained in deeper oversight where the roles of supervisor and supervisee are highly important for project completion. The consequences of this problem will affect the institution’s image, student’s career and industry. Further elaboration will start from this point.

The problem in project process comes from project design and the writing of the report. The problems could also be due to inexperience of the student, to poor supervision or an inefficient system (Katz, 1997; Sayed et al., 1998; Mouton, 2001). Spear (2000) concluded that one of the most common complaints from students are concerning infrequent or erratic contact with supervisors, who may be too busy with administrative or teaching responsibilities, have too many students or be away from the university too often. Seagram, Gould and Pyke (1998) indicated that the supervisor-student good relationship is the key factor in the success or failure of students’ studies or work. There are so many authors have claimed that the responsibility of a research falls to the supervisors and some of them falls to the students. Nevertheless, the amounts of responsibilities actually differ from each of the research stages (Ismail et al., 2011). Lee (2008) suggested that supervisors need to be aware of both the positive and negative aspects of each of these conceptual approaches which include a desire to enthuse, encourage, recognize achievement and offer pastoral support.

A study took place involving 15 supervisors and 15 supervisees from Electronic and Electrical department in a Malaysian TVET institution by Ismail et al. (2015). They
were asked with a range of questions about their experience in supervision process. These included the activity in their meetings and what they expected from each other. The questionnaire was adapted from Supervisory Working Alliance Inventory (SWAI) from Efstation et al. (1990). The factors in project completion were identified and all of them were related to supervision issue. Student and supervisor have different views regarding the important factor in the project’s completion. It is clear that the roles of supervisor and student are utmost important as compared to other factors. Interestingly, the supervisor’s put the most responsibility to the students with a mean of 4.9 while the student puts the responsibility to the supervisor with a mean of 4.5. According to Ismail and Abiddin (2009), students need support from the institution in terms of support and services that culminates the graduate offices, library, online services, laboratories and thesis writing guidance.

Furthermore, based on the study by Ismail et al. (2015), most of the supervisors feel that it is important to interact with students before the process of more technical in supervision being done. Ensuring work quality and standard falls at second important with a mean of 3.9. It is followed by work monitoring with a mean of 3.8. Supervisor’s role such as problem anticipating, acquiring thesis writing skills and concern about research progress perceived as Moderate-Highly important with a mean of 3.5.

Supervisors were also asked to rate their experience during their supervision. Therefore, it seems that the students need more specific guidance from the supervisors. The problem also comes from the supervision goals where they did not work on specific goals with a mean of 3.7. In their supervision, the trainee is more anxious and talks less than the supervisors with a mean of 3.3 and 3.1. From supervisor perspective, they feel that they always help their supervisee to stay on track with a mean of 4.1 and try to understand their supervisee with a mean of 4.00. They also think that their supervisee is comfortable working with them and encourage them to formulate their own idea in their project with a mean of 4.00, respectively. The supervisees have reported that there are infrequent meeting with their supervisor with 30% of them practice regular meeting while 70% of them did not follow. This statement was supported by Spear (2000) that the students always complain regarding unavailability of the supervisors in the campus or too busy with administrative/teaching responsibilities.
The findings presented by Ismail et al. (2015) showed the intricacies of the student-supervisor relationship in a research work. It was established that the supervisory relationship was developed based on both parties. It was also recognized that supervision is a very complex process which requires complete commitment and respect by and for the student and the supervisor in order for the relationship is to be fruitful. In as much as the supervisor is an important gatekeeper involved in evaluating the ethical, professional and intellectual competence of the student (Campbell, 2000), it was shown that the student must be viewed as capable, knowledgeable and competent enough to know what he or she wants to do and how to do it.

When supervision is conceived as a simple learning/teaching dichotomy, this is insufficient to express the complex nature of supervision. Similarly, discussions are solely focusing upon the project as the product of the research endeavour miss opportunities to highlight learning and teaching (Maxwell and Smyth, 2010). There are so many things that can be learned during the process. Another major element of the supervisor’s role is to help students with work planning and meeting set targets. Supervisors need to read through and provide critical feedback on drafts of the students’ work (Todd et al., 2006).

As an effective supervisor, there are certain important practices that he/she should be trained in order to complement the project and supervision needs. Moreover, the current situation indicates that there is lack of specific guideline as a basis for student-supervisor responsibilities. The role of supervisor and the motive for supervision also seems to be unclear. The student also does not distinctly see what their roles are. In the meantime, they deliver to meet the standard set by the industry. The burden becomes greater when they have to manage the project that is not under their knowledge with limited resource and support by the institution.

From supervisors’ perspective, they sometimes expect more from what their students are capable of. They think that they have contributed the best to assist the student. Yet, their efforts still does not meet the students need. Again, lack of information and guideline of supervisory practice brought this issue out. Effective supervision requires supervisors to be knowledgeable and skilled in the research field (McQueeney, 1996; Ismail and Abiddin, 2012). Problems arise when a supervisor is new and not competent enough to supervise a project (Todd et al., 2006). McMichael (1993) found that new
supervisors experienced a number of concerns about their ability to supervise, including academic expertise, appropriate standards and institutional climates. One way of overcoming these uncertainties is to produce clear guidelines for both staff and students. Both of them should play their role effectively and maintain a good relationship during the period of the program (Cullen et al., 1994; Moses, 1994; Kam, 1997, Phillips and Pugh, 2000).

On the other hand, employers and industry associations state that lack of soft skills, such as positive work ethics, communications, teamwork, decision making and leadership skills, is the primary factor hampering employability of many Malaysian graduates (Tenth Malaysia Plan, 2012). This includes the graduates from skills certification. These skills can be gained effectively through their industrial-based project (during the final year) where this process can test their ability in many aspects including teamwork, decision making and independency. Lack of emphasize of these skills during the supervisory environment will affect in lack of students’ skills. There is a need for an effective supervision. Therefore, the supervisor should give appropriate support, make equal information, time and energy available to all students and should also meet the students regularly (Hockey, 1996; Russell, 1996; Ismail et al., 2011).

This research considered a valuable contribution to the society and practitioners as it is capable of filling the gap, especially in supervision area. There are a few gaps highlighted in this research. First is to fill the lack of research on TVET students (Sulaiman, 2011). Since TVET mostly focuses on hands-on and practical jobs, this research is looking for the solutions in terms of developing soft skill among students academically. Secondly, most of the research of supervision were conducted on postgraduate students (Phillips and Pugh, 2000; Pierce, 2004; Tancig, 2007; Wisker and Claesson, 2013). Therefore, this research adds more information and knowledge regarding undergraduate supervision. SWA was presented as an important component in this research that plays its role as a mediator. There is small number of research that make use SWA as mediator compared to as a dependent or independent variable. By manipulating the role of SWA as mediator, we could see the effect towards the supervision practice. In addition, this research is enhanced with the combination of supervisor and supervisee elements in a single research towards effective supervision as compared to previous
researches that investigate this elements separately (Ismail and Abiddin, 2012). Lastly, most of the research about supervision were conducted by foreign scholars such as Hockey (1996), Inman (2006) and Horrocks and Smaby (2013). Thus, this is a great effort to deploy this research in Malaysia landscape.

1.2 Problem Statement

Attrition and completion issue reported by the Ministry of Human Resources becomes a major concern in their institutions that reflect the quality of the education offered by them (Jabatan Tenaga Manusia, 2013). There are a few factors that contribute to attrition and completion issue and one of them is regarding their incomplete industrial-based project. One institution found that they would save one million dollars a year if attrition went down by 10%, since they would no longer over-enroll students to compensate for expected attrition (Smallwood, 2004). This scenario brings forward a concern regarding supervision issue and its effectiveness. It is supported in one of the needs analysis study in 2013 where the most influential part in maintaining the supervision effectiveness comes from the role and participation of students (88%) and the supervisors (92%) (Ismail et al., 2015). The role of a supervisor seems unclear and they seldom give appropriate support to the students. In terms of students’ factor, Ismail et al. (2015) found that they seem to have a lack of confidence and felt isolated towards their supervisors, lacking of curiosity in their field and less meeting with their supervisor (70%). In this context, the students themselves need to be motivated and the supervisors should create a culture that can develop the students. Effective supervision is needed in promoting the institution and to educate the students (Abdullah et al., 2012). Furthermore, literature on evaluation of research/project supervision is, perhaps not surprisingly, sparse (Leea and McKenzieb, 2011). The process of supervision should be enriched with the clear goal, specific task and supervision bond that can be injected into the process (Bordin, 1983). The consequence of poor support from their supervisor, and student’s characteristic is not in the form of instructive, the development of overall supervision effectiveness will be failed, subsequently results in the
slow progress, project failure and the worst part is the failure in human development (Ismail and Abiddin, 2012). The obligation for completing a project within a reasonable length of time clearly lies with both the student and the supervisor (Haksever and Manisali, 2000). Thus, supervisors’ support with good characteristics of a supervisee should be studied with the intervention of supervisory working alliance to ensure the development of overall supervision effectiveness is successfully achieved in terms of their satisfaction, cognitive outcomes, affective outcomes and skill-based outcomes.

1.3 Purpose of the Study

The main objective of this research is to determine the mediation effects of Supervisory Working Alliance (SWA) on the relationship between Supervisory Input Support (SIS), Supervisee Individual Characteristic (SIC) and Overall Supervision Effectiveness (OSE) among respondents in Technical and Vocational Education and Training framework.

1.3.1 Specific Objectives of the Study

i) To determine the level of Supervisory Input Support (SIS), Supervisee Individual Characteristic (SIC), Supervisory Working Alliance (SWA) and Overall Supervision Effectiveness (OSE) among respondents.

ii) To determine the relationship between Overall Supervision Effectiveness and independent variables, including Supervisory Input Support, Supervisee Individual Characteristic and Supervisory Working Alliance among respondents.

iii) To determine the prediction effect of Supervisory Input Support and Supervisee Individual Characteristic on Supervisory Working Alliance.

iv) To determine the prediction effect of Supervisory Working Alliance and Overall Supervision Effectiveness among respondents.

v) To determine the mediation effect of Supervisory Working Alliance on the
relationship between Overall Supervision Effectiveness and independent variables, including Supervisory Input Support and Supervisee Individual Characteristic among respondents.

vi) To introduce the student-supervisor framework for effective supervision in TVET.

1.4 Research Questions

The main research questions that are addressed in this study are as follows:

i) What is the level of the variables (namely; Supervisory Input Support (SIS), Supervisee Individual Characteristic (SIC), Supervisory Working Alliance (SWA) and Overall Supervision Effectiveness (OSE) among respondents?

ii) Are the variables (namely; Supervisory Input Support, Supervisee Individual Characteristic, Supervisory Working Alliance and Overall Supervision Effectiveness) correlated with each other?

iii) What is the prediction effect of Supervisory Input Support on Supervisory Working Alliance?

iv) What is the prediction effect of Supervisee Individual Characteristic on Supervisory Working Alliance?

v) What is the prediction effect of Supervisory Working Alliance on Overall Supervision Effectiveness?

vi) Can the Supervisory Working Alliance contribute to the Overall Supervision Effectiveness as mediator?

vii) Does the Technical and Innovation Input contribute to the Supervisory Input Support as a dimension?

viii) What is the student-supervisor framework for effective supervision in TVET?

In order to get clear picture regarding how the research objectives, research questions and the corresponding research methods are inter-related, Table 1.1 provides the details for each question and objective with appropriate data analysis.
Table 1.1: Summary of the Relation between Research Questions, Objectives and Data Analysis

<table>
<thead>
<tr>
<th>No.</th>
<th>Objectives</th>
<th>Research Questions</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.</td>
<td>To determine the level of SIS, SIC, SWA and OSE among respondents.</td>
<td>What is the level of the variables (namely; SIS, SIC, SWA and OSE) among respondents?</td>
<td>Descriptive Statistics (Frequency, Percentage, Mean, Std. Deviation)</td>
</tr>
<tr>
<td>ii.</td>
<td>To determine the relationship between OSE and independent variables, including SIS, SIC and SWA among respondents.</td>
<td>Are the variables (namely; SIS, SIC, SWA and OSE) correlated with each other?</td>
<td>Correlation Coefficient Analysis</td>
</tr>
<tr>
<td>iii.</td>
<td>To determine the prediction effect of SIS and SIC on SWA.</td>
<td>What is the prediction effect of SIS on SWA?</td>
<td>Regression Coefficient Analysis</td>
</tr>
<tr>
<td>iv.</td>
<td>To determine the prediction effect of SWA on OSE among respondents.</td>
<td>What is the prediction effect of SIC on SWA?</td>
<td>Regression Coefficient Analysis</td>
</tr>
<tr>
<td>v.</td>
<td>To determine the mediation effect of SWA on the relationship between OSE and independent variables, including SIS and SIC among respondents.</td>
<td>What is the prediction effect of SWA on OSE? Can the SWA contributes to the OSE as mediator?</td>
<td>Mediation Test</td>
</tr>
<tr>
<td>vi.</td>
<td>To introduce the student-supervisor framework for effective supervision in TVET.</td>
<td>Does the Technical and Innovation Input (TII) contributes to the SIS as a dimension?</td>
<td>Exploratory Factor Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What is the student-supervisor framework for effective supervision in TVET?</td>
<td>All above</td>
</tr>
</tbody>
</table>
1.5 Hypotheses

On the basis of the research framework, the following null statistical hypotheses were set:

*Hypothesis 1*: There is no positive relationship between Overall Supervision Effectiveness and independent variables (namely; Supervisory Input Support, Supervisee Individual Characteristic and Supervisory Working Alliance).

*Hypothesis 2*: There is no significant effect of independent variables (namely; Supervisory Input Support and Supervisee Individual Characteristic) on Supervisory Working Alliance.

*Hypothesis 3*: There is no significant effect of Supervisory Working Alliance on Overall Supervision Effectiveness.

*Hypothesis 4*: There is no mediation of Supervisory Working Alliance on the relationship between Overall Supervision Effectiveness and independent variables (namely; Supervisory Input Support and Supervisee Individual Characteristic).

1.6 Theoretical Framework

Generally, the theoretical framework from the collection of literatures forms the research framework in this research. Upon reviewed the literature, this research hypothesized that an effective students and supervisor framework for TVET should be developed based on the needs from both parties. The theoretical framework of this research is based on a few models by experienced and expert scholars. For supervisory contribution, Holloway’s Supervision Model was chosen to be part of this research because it emphasis on its training aspects. The primary goal of supervision according to Holloway (1995) is the establishment of an ongoing relationship in which the supervisor designs specific learning tasks and teaching strategies related to the supervisee’s development as a professional. In addition, the supervisor empowers the supervisee to enter the profession by understanding
skills, attitudes and knowledge demanded by the professional and guiding the relationship strategically to facilitate the trainee’s achievement of a professional standard. Supervisor’s functions referred to the mode of interaction a supervisor used to impact knowledge to their supervisees based on the following modes: monitoring/evaluating, advising/instructing, modelling professional behaviour, consulting and supporting/sharing.

Kraiger et al.’s (1993) Model of Training Effectiveness becomes the basis for Trainee Characteristic as it focuses on the criteria for trainee’s characteristic such as motivation, personality, self-efficacy and intrinsic orientation. Kraiger et al.’s (1993) Model demonstrated that supervision effectiveness can be stimulated by selecting a motivated trainee on the basis of his/her characteristics. The difference between this research and previous research is that this research categorized SIC into four main characteristics that were extracted from various terms, different forms of training motivation and based on an integrative literature review.

The Supervisory Working Alliance Model as proposed by Bordin (1983) consists of three major components: i) mutual agreement on supervision goals; ii) specific tasks related to supervision goals; and iii) the development of bonds between supervisor and supervisee. It was the relational bond that develops between supervisor and supervisee when they work together to achieve mutual goals through clearly identified tasks. SWA Model was selected as the mediator as it has strength to intervene the supervision relationship.

The Four Levels of Evaluation, also referred to as the Kirkpatrick Evaluation Model, was created by Donald Kirkpatrick, Ph.D. in 1950 to define the four levels of training evaluation. The four levels of evaluation are: i) the reaction of the student and their thoughts about the training experience; ii) the student's resulting learning and increase in knowledge from the training experience; iii) the student's behavioral change and improvement after applying the skills on the job; and iv) the results or effects that the student's performance has on the business (Kirkpatrick, 1996). Kirkpatrick Evaluation Model plays an important role in designing the Overall Supervision Effectiveness.

Most of the previous studies discussed that students place high demands on the academic environment for information and support to students. Therefore, students’ needs have to be addressed at institutional, departmental and individual levels. In this research,
the overall supervisory effectiveness has been assessed to identify what kind of needs that should be provided or improved. The theoretical framework explains the input, process and output of the supervisory stages towards effective supervision that comes from varies of demographic background. The Supervisory Contribution and Trainee Characteristic in input section were identified as an important factor to develop Effective Supervision. The present of Supervisory Relationship will either strengthen or weaken the relationship. The theoretical framework is shown in Figure 1.1.

Figure 1.1: Theoretical Framework for Effective Supervision
1.7 Research Framework

This research majorly focuses on students’ and supervisors’ elements with reference to TVET environment, especially for industrial-based project supervision. The independent variables defined in this study are Supervisory Input Support (SIS) and Supervisee Individual Characteristic (SIC). All variables were examined from students’ perspectives. Supervisory Working Alliance (SWA) acts as the variable that mediates the Overall Supervision Effectiveness (OSE). The relationship between respondents’ data of Supervisory Input Support (SIS) and Supervisee Individual Characteristic (SIC) with the Overall Supervision Effectiveness (OSE) was assessed. The Overall Supervision Effectiveness (OSE) is the dependent variable. SIS and SIC is the input and SWA is the process while the output is OSE as in Figure 1.2.

![Figure 1.2: Conceptualized Relationships among Variables (Ismail et al., 2013)]
Nonetheless, the research framework is refined to make sure that the instrument/questionnaire for this research will not be too long to ensure the respondents complete the questionnaire honestly. Therefore, at least four important dimensions within each independent variable are included. Dimensions within SIS included are Managerial Input, Project Input, Academic Input, Interpersonal Input, Technical Input and Innovation Input. Further, SIC included are Intrinsic Orientation, Self-Efficacy, Self-Motivation and Personality. Meanwhile, dimensions of SWA included are Supervision Goal, Project Task and Bond Development; and dimensions of OSE included are Satisfaction, Cognitive Outcomes, Skill-based Outcomes and Affective Outcomes.

Technical and Innovation Input (TII) represent as the new introduced dimension for SIS while the SWA represents the contribution of this element as the mediator since lack of research being done by using this construct as mediator and in a single research together with SIS and SIC. The overall research framework is adapted from Lessing and Schulze (2002), Terry and Frank (2002), McAlpine and Norton (2002), Frick (2007), Kirkpatrick (1996), Colquitt et al. (2000), Sterner (2009), Bordin (1983), Bahrick (1990), Lewin (1938), Judd (1994), Kam (1997), Holton (2005) and Kraiger et al. (1993).

This framework had been successfully presented during 6th International Seminar on Regional Education on 22nd and 23rd May 2013 in Selangor, Malaysia. The research in question was eventually took the institutional perspective and the perspective of the students. The outcome of the framework is a contribution to the enhancement of an effective supervision.

1.8 Significance of Study

Theoretically, the present research contributes to the body knowledge by identifying whether the Supervisory Working Alliance can mediate the relationship between independent variables and the Overall Supervision Effectiveness. Practically, this research is useful to inspire the organization and future researcher to enhance the supervisory practice and offers a new perspective of effective supervision. Effective supervision is very
important to students, especially when doing certain project. This element plays a major factor that influences the progress of students’ studies. By improving the supervisory elements, we can improve the study process and enhance the project progress. Good supervisory practice offered by institute can attract more students. Excellent students that are born from this institute will give good impression to the others. Thus, by investigating these elements, there will be a high contribution to the institute. Besides, this research is analysed and provides the best practice of an effective supervisor. Pertinent to its aims, the findings of this study seek to:

i) Propose a new approach of supervision practice.

ii) Provide information about the students’ needs towards the supervisory system within Malaysian TVET.

iii) To determine the responsibilities and effective practices of supervision.

iv) To analyse the significance of supervisory input that should be improved.

v) Provide a good characteristic of a supervisee that can ensure the supervision effectiveness.

vi) To understand how the institute can facilitate the progress of students through the timely and appropriate provision of relevant information and input.

vii) To minimize the gap between multiple implementation of supervision practice between TVET providers.

In response to the gaps that this research is trying to fill, it is vital to ensure this research is successfully executed. The lack of research on TVET in various area could be overcome by this research where it served as an additional information regarding TVET system, especially in supervision area. The concept of effective supervision based on undergraduate students was determined since most of the previous researches concentrated on postgraduate students. By controlling the function of SWA as mediator rather than dependent or independent variable, we could see the effect that it brings towards the supervision practice. Since this research is conducted on Malaysian students, it is considered an important finding because most of the research of supervision was conducted by foreign scholars. This is significant for Malaysia to have its own approach based on its landscape. The significance of the study can be considered at two levels. First, this study provides useful information, such as students’ needs towards the effective
supervision. Secondly, this study could contribute to the improvement of the supervisory practise by the institutes. The intended results bring an effective and efficient implementation of student-supervisor framework. It is hoped to help institution and practitioner including student and supervisor in practicing effective supervision.

1.9 Scope of the Study

The scope of this research encompasses the literature review of existing theory and research to develop a research framework for the mediation effect of Supervisory Working Alliance on the relationship between independent variables and Overall Supervision Effectiveness. This research mainly focuses on the students’ needs and expectation towards Supervisory Input Support and Supervisee Individual Characteristic. Their perceptions towards these needs were analyzed to find the solutions for effective supervision. Apart from this, their expectations towards these elements were assessed to establish a framework that can be applied to students’ studies. Finally, these needs serve as a guide to enhance the industrial-project based supervision. This research is focused only on students with industrial-based project. It is confined to only Diploma/Higher Diploma or Malaysian Skill Certificate Level 4 or 5 students and they should already commence their project. It is important to ensure the validity and reliability of the data is protected. This research’s findings were unique only to public institutions under the Ministry of Human Resources.

1.10 Limitation of the Study

The limitations of this research are categorized into a few aspects. In terms of time, the duration of data collection was limited to 9 months only since students’ first registration for industrial-based project programs. If the researcher is not aware of the allocated time,
he has to wait until another year for new respondents. The respondents’ information are confidential to be revealed by the institutes. Thus, the researcher went to each institute to get actual data of the respondents. This affects the effort to apply a better sampling method during the research because of this constriction. Since this research is not funded by any grant, the researcher had to be careful in budget allocation. This research covers all ADTECs in Peninsular Malaysia. ADTEC is chosen as the research population based on the factor that there is little research being conducted on this place compared to polytechnic and community college. Therefore, the limitation of the sample is taken into consideration. The literatures for this research are mostly synthesis from foreign scholars. Thus, the researcher needed to be careful in defining the operational definition and constructing the variables. The questionnaire were translated as well. Other than that, the present research is limited in a research of perceptions. In terms of generalization, other institution either public or private institutes with similar environments may make a similar generalization since this research only covers the students from ADTEC under the Ministry of Human Resources.

1.11 Operational Definition

Each of the variables in this research consists of a specific terms and criteria that was derived from the groups of existing theories and models. The terms that used have been defined based on its operation.

i) Academic Input
Supervisors believed that they were contributing by organizing help with skills, developing language, writing, by collecting relevant literature and through networking or putting students in contact with others working in the area (Brown and Atkins, 1988). During project development, a student need to have knowledge in project and to complete a final thesis. This requires organizational and project skills. In this research, academic input covers the supervisor’s expertise, evaluation and the writing skills.
ii) Affective Outcome
According to Kraiger et al. (1993), Affective Outcome covers attitudinal, motivational, motivational disposition, self-efficacy and goal setting. In this research, it covers the maturity, personality and the professionalism of the students.

iii) Bond Development
Bond Development is the development of bonds between supervisor and supervisee (Bordin, 1983). There are bonds associated with the carrying out of a common enterprise. In this research, it covers the relationship between them and entails the growth of the interaction between both parties.

iv) Cognitive Outcome
According to Kraiger et al. (1993), Cognitive Outcome covers Verbal Knowledge, Organization Knowledge and Cognitive strategies. In this research, this element is determined by the knowledge acquisition of the students from the project.

v) Industrial-Based Project
According to SFSU (2012), an industrial-based project must re-design of existing product leading to user improvements. The product innovation must be based on: i) New and immerging technologies; ii) Societal developments; iii) Environmental Concerns; iv) Design and incorporation of unique visual languages; v) Solving a problem through the innovative use of materials; and vi) Development of innovative manufacturing methods. In this research, an industrial-based project is the final year project for a Diploma and Higher Diploma program.

vi) Interpersonal Input
Interpersonal relationships between students and their supervisors are a determinant of student success (Lessing and Schulze, 2002; Ives and Rowley, 2005; Lin and Cranton, 2005). Therefore, a supervisor and student must have a very good relationship and be very close to each other. This includes the communication, motivation and counseling.
vii) **Intrinsic Orientation**
Intrinsic orientation refers to the extent to which educational training meets the internal interest of trainees, such as opportunities for personal growth and development, or skill and knowledge improvement (Facteau *et al.*, 1995). In this research, students’ Intrinsic Orientation is analyzed based on their concern for personal growth and the interest to improve their skill and knowledge.

viii) **Managerial Input**
Students need particular guidance on when to start and stop the project, data analysis, when to start drafting the thesis and how to structure it (Holdaway, 1995). In this research, this input explains how the supervisor manages the progress of his/her student’s project.

ix) **Mediating Effect**
A mediating effect is created when a third factor intervenes between the independent and outcome variable (Hair *et al.*, 2006). In this research, SWA acts as a mediator variable. A mediator variable or mediating/intervening variable in statistics is a variable that describes how, rather than when, effects will occur by accounting for the relationship between the independent and dependent variables.

x) **Overall Supervision Effectiveness**
Quality of research supervision is a subjective construct – the perceived satisfaction of the student with the supervisory process and practice (Kam, 1997). Effectiveness means the capability of producing an effect. The word effective is sometimes used in a quantitative way, being very or not much effective. However, it does not inform on the direction (positive or negative) and the comparison to a standard of the given effect. This research refers effective as appropriate and complements what students’ needs. The dimensions for this construct are Satisfaction, Cognitive Outcome, Skill-Based Outcome and Affective Outcome.
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