

# The Factors of School Effectiveness: An Empirical Investigation of Internal and External Factors of Junior High Schools in Taiwan

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**Abstract**—The purpose of this study was first, to explore the factors of school effectiveness; second, to examine the most important characteristics and indicators of school effectiveness; and third, to investigate the relationship between internal and external factors of school effectiveness and the perceived effectiveness of schools. There were eight factors affecting the school effectiveness by this research and review of literature: leadership, expectations, mission, time on task, monitoring, basic skills, climate, and parent/community participation. The population consisted of teachers of all 709 public junior high schools in Taiwan and a total of 575 teachers within 139 schools completely participated in this study. For all eight hypotheses, there is a significant and positive relationship between each internal and external factor of school effectiveness and the perceived school effectiveness in Taiwan. The findings of this study can help both government sectors and school leaders plan appropriate strategies in improving school effectiveness.

**Keywords**—Characteristics of Effectiveness, Effective Schools, Leadership, School Effectiveness

## I. INTRODUCTION

IN the 21<sup>st</sup> century, the rapid change of pace and globalization of information bring tremendous challenges and impact the development of information technologies. Revolutionary education movements represent key global forces and strive to promote the quality of education and the effectiveness of schools [1]. For recent years, the public was not satisfied with the processes and the effects of Taiwan's new junior high school educational reforms. Each stage and level of education has different needs and wants. If the basic and the middle school education are effective and successful, then the adult and higher education will succeed, and therefore, national education will be successful and the competitive power of Taiwan can be promoted. The promotion of school

effectiveness and success in junior high schools can only be realized if we can and are willing to explore, research, and improve all relative variables of the educational systems [2]. If the Ministry of Education, the Bureaus of Education, the principal of the school, and the teachers can really understand the internal and external factors of school effectiveness, then the policy makers can carefully consider relevant goals, make the right decisions, and formulate good plans. Therefore, all schools would like to develop into really effective schools [3]. Finally, the right and effective education reform will speed up the diversification, liberalization, and internationalization of the R.O.C. educational system.

In Taiwan, the school system and program of junior high school highly emphasizes academic achievement. The reputation of a junior high school mostly will be evaluated on the proportion of students entering higher school. This is not a good judgment. Schools, educators, parents, and community members try to do their best to correct this inappropriate phenomenon [4]. This study will attempt to explore the relationship among internal and external school environment, strategy, and resources (both physical and human capital), school characteristics, management and leadership of the school engaged in the school and its school effectiveness. Internal forces are related to organizational characteristics such as school, faculty and student, and management, and external forces include environmental characteristics

## II. PURPOSE OF THE STUDY

The purpose of this study is threefold: first, to explore the factors of school effectiveness; second, to examine the different ranks given to the indicators for the characteristics of school effectiveness; and third, to investigate the relationship between internal and external factors of school effectiveness and the perceived effectiveness of schools. The relationship studied focuses on the how much of a variable is associated with another. School effectiveness can be conceptualized as a strategic response by involvement, management, and leadership to the interplay of internal and external forces.

This study was to determine teachers' perceptions of the factors of school effectiveness in junior high schools in Taiwan. In addition, at the level of indicators, what are the top

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factors of school effectiveness? And, the other is to explore the relationship between the school effectiveness and each identified factors of school effectiveness from the perspective of teachers.

The following are the research questions of this study:

- (1) What are the internal and external factors of effective schools as defined by the literature?
- (2) What are the top 10 indicators for school effectiveness characteristics in junior high schools in Taiwan, when their importance to schooling is concerned?
- (3) What is the relationship between each of the following categories of eight identified factors of school effectiveness characteristics and the perceived school effectiveness of junior high schools in Taiwan?
  - a. Leadership
  - b. Expectations
  - c. Mission
  - d. Time on Task
  - e. Monitoring
  - f. Basic Skills
  - g. Climate
  - h. Parents/Community Participation

There are some basic assumptions that must be made in this study. First, we can assume that teachers are able to identify and report factors, and responded to the interview questions or questionnaires truthfully. The second assumption is related to language translation. We need a safeguard system to ensure correct translation. Some limitations are also inherent. The first limitation is related to language translation. It revolves around the disagreement as to whether a message delivered in one language maintains its intended meaning when conveyed to a person when the first language is a foreign. Secondly, it must be acknowledged that the focus on junior high schools in Taiwan raises questions about the generalization of the results. Thirdly, the significant limitation of the study is Taiwanese society itself which still keeps to the conservative characteristic of China to lessen the survey's reliability and validity.

### III. REVIEW OF LITERATURE

A variety of studies and articles that have come to be known as the School Effectiveness Research are the most important concepts to influence the educational process in the past thirty years. The following review of related literature is divided into the following sections: (1) Public and Professional Support for Reform in Education, (2) Effective School Research, (3) School Effectiveness Research, and (4) School Effectiveness in Taiwan.

In America, the majority of Americans expressed increasing levels of dissatisfaction with public education. A source of feedback about people's perception toward public schools is provided by the Gallop Poll of Education [5]. The Gallop Poll results over the past years substantiate statistically significant changes in the ratings people give the local public schools. Schools continue to encompass complex environments comprised of interacting factors that combine to create an effective or ineffective climate for learning. Researchers found that when schools were similar in student background and socioeconomic characteristics, differences in student

achievement levels of schools corresponded with differences in school management, instructional processes, and learning climate. The effective school research movement has broadened to study characteristics of effectiveness in an effort to improve schools [6].

Improving and revitalizing schools has become a national priority in the world. This last decade has seen an increase in studies focusing on the elements of student achievement, teacher effectiveness, and the role of principal, administrators, and parents in striving for excellence. Research that supports the belief that good schools can and do make a difference is known as the effective schools research.

Research indicated no single factor accounts for school success in generating higher levels of student achievement. The report concluded that exemplary pupil performance resulted from policies, behaviors, and attitudes that together shaped the learning environment. Educators have expressed serious concern about the notion of exactly what makes a school effective. Recently, in the past 30 years Taiwan has developed tremendously economically very much and industry and commerce has prospered. Pursuing excellence is the major feature of the survival of business. Although the task of education cannot be compared to industry and business, but, education is influenced by the knowledge economy. It is urged that education has to pay attention to effectiveness [7].

In order to promote the quality of teaching and to achieve the goals of teaching, schools need to adopt the most effective methods of instruction and the most economic instructional facilities. First of all, the principal must utilize excellent leadership to improve the effective operation of administration. Secondly, teachers have to pursue effective teaching and prepare a suitable teaching environment. The task of education requires an understanding of effective methods and relationships between input and outcome.

In summary, Table 1 shows the synthesis of the entire theory of development of school effectiveness research by the summary from the author of this study.

TABLE I

SUMMARY OF PERIODS OF THE EVOLUTION AND DEVELOPMENT OF SER				
	1	2	3	
Year	1965-1979	1980-1990	1990-present	
Periods	Factor	Concept	Model	
By	Specification	Framework	Building/	
Strategy		Development	Development	
Analysis				
	1	2	3	4
Year	1965-1975	1976-1979	1980-1989	1990-present
Stages	The Original	The	The Equity	The
By	Input-Output	Introduction	Emphasis	Introduction of
Research	Paradigm	of Process	and the	Context
Frame-		Variables	Emergence	Factors and
work		and	of School	Other
		Additional	Improvement	Methodological
		Outcomes	Studies	Advance s
		Variables		

Taiwanese Education research has grown with eagerness in the past forty years. Researchers were concerned with a wide range of topics categorized as 1) educational thoughts and history, 2) educational psychology and counseling, 3) educational system and administration, 4) curriculum and instruction, and 5) special education. Qualitative studies have begun to expand in recent years. Most research focused on teachers. In addition, more policy studies have appeared. Some were used to help the Ministry of Education and others assist the Council on Education Reform.

Taiwan has created a famous economic miracle during the past decades. Since then, the entire Taiwanese society has been going through a swift transformation. Traditional culture was challenged with the tremendous impact from the West. Now people attempted to conserve Chinese culture critically and develop it creatively [8]. Through reflection, policymakers and educators can change the right anchors and reconstruct a new vision and conduct relevant studies. At the same time, while Taiwanese education stressed the heritage of nationalism and collectivism, Western individualism impacted the Chinese traditional culture. The Taiwanese needed to integrate Western thoughts into Chinese philosophy and education [9]. Lately, the executing of education reform has been continuing. However, people are still not satisfied with the performance and quality of education reform although the Ministry of Education and the Council on Education Reform have been dedicated to improvement for years. Taking the multiplicity of school effectiveness into consideration, the future direction for policy and management should aim to maximize school effectiveness in multi-types at multi-levels [10].

IV. METHODOLOGY

The purpose of this section is to illustrate research design and procedures used. It contains: description of the study, conceptual framework of this research, research questions, participants (population and sample), instrumentation, translation and content validity test, pilot test for the instruments, data collection procedures, and data analysis. The instrument used for obtaining the data includes three sets of questionnaires: Teacher Demographic Background Questionnaire, School Effectiveness Characteristics Questionnaire, and School Effectiveness Scales Questionnaire. The teachers were selected randomly in public junior high schools in Taiwan and were asked to complete this three-part questionnaire.

Those above research questions led to the following null hypotheses:

H3a: There is no relationship between leadership and school effectiveness of junior high schools in Taiwan.

H3b: There is no relationship between expectations and school effectiveness of junior high schools in Taiwan.

H3c: There is no relationship between mission and school effectiveness of junior high schools in Taiwan.

H3d: There is no relationship between time on task and school effectiveness of junior high schools in Taiwan.

H3e: There is no relationship between monitoring and school

effectiveness of junior high schools in Taiwan.

H3f: There is no relationship between basic skills and school effectiveness of junior high schools in Taiwan.

H3g: There is no relationship between climate and school effectiveness of junior high schools in Taiwan.

H3h: There is no relationship between parents/community participation and school effectiveness of junior high schools in Taiwan.

The empirical investigation seeks to provide insights into the internal and external factors and examines all factors affecting the school effectiveness by analysis of descriptive statistics, simple regression, and stepwise multiple regression using statistical software package STATISTICA. Perceptions of school effectiveness were measured by a reliable and valid instrument based upon effective school literature and the results of a content validity test and a pilot test. Empirical tests of the research questions and hypotheses were conducted using mail three-part questionnaires including Teacher Demographic Background Questionnaire, School Effectiveness Characteristics Questionnaire, and School Effectiveness Scale Questionnaire.

The structure of proposed integrated conceptual model for this study is shown in Fig. 1.

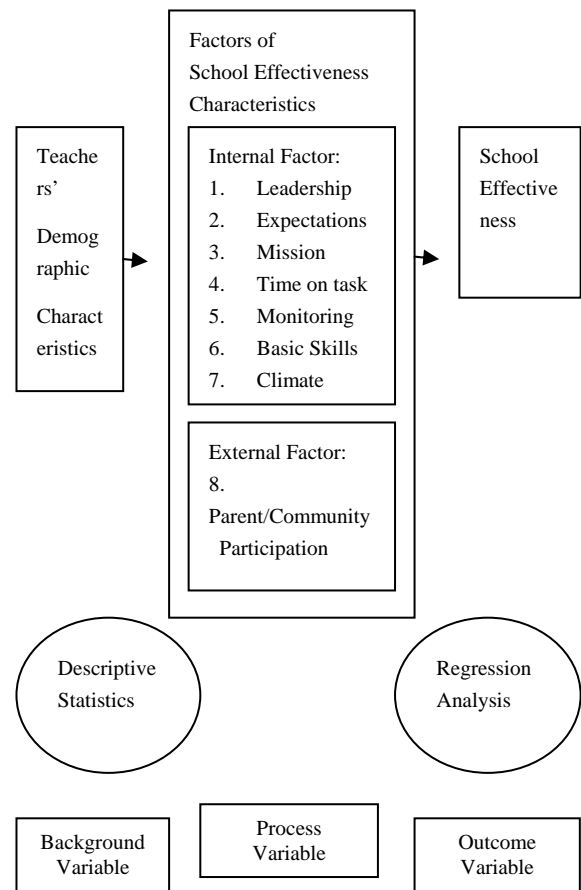


Fig. 1 Research Framework

This framework includes: 1) Background Variable: teacher demographic characteristics; 2) Process Variable: factors of

school effectiveness characteristics; 3) Outcome Variable: school effectiveness. In the statistics analysis, the process variable was treated as the independent variable and the outcome variable as dependent variable. The relationship studied in this research focuses on how much of one independent variable is associated with the dependent variable. Association is not the same as causation. The target research population in this study consisted of teachers in junior high schools in Taiwan. There were 48,306 teachers in 709 public junior high schools. Because the distribution area of 709 schools was scattered in 25 counties and cities all over Taiwan, thus, the researcher divided the distribution area into three parts: Northern Taiwan (274 schools), Central Taiwan (189 schools), and Southern Taiwan (246 schools). The 180 schools (about 25%) will be selected from 709 schools by using a table of random numbers. Therefore, the sample size of 900 teachers was chosen by using a random sampling method.

The research instrument was designed to obtain information specially needed to conduct this study and to measure the variables listed in the research questions and hypotheses. Permission was independently obtained to use these instruments. The perceptions of teachers were measured according to their responses to fifty-four items in the Questionnaires. Each conceptual variable is measured by multiple indicator items. The purpose of such a procedure is for the development of measures to improve the validity and reliability of the study. The researcher collected and recorded the responses of School Effectiveness surveys and the data was entered on a STATISTICA spreadsheet using the coding sheet and was analyzed later. Descriptive statistics, item-total analysis, factor analysis, reliability analysis, correlation analysis, and regression analysis were used.

## V. RESULTS OF DATA ANALYSIS

Following the complete procedures of data collection, the number of returned questionnaires was 612 in 139 schools, a return rate of 68.00%. The response rate of schools was 77.22%. The valid questionnaires were 575 with an effective response rate of 63.88% because of 37 questionnaires uncompleted. Only 575 teachers completed questionnaires in details worth analyzing.

Both means and standard deviations of responses were determined. Respondents in these categories rated the outcomes for school effectiveness on the following: student performance, teacher instruction, school administration, and community relationship. In summary, the mean of the total SESQ scale was 59.6800 and the standard deviation was 9.1777; the mean score of subscales for four levels of school effectiveness were 14.2869 (student performance), 14.8487 (teacher instruction), 15.1843 (school administration), and 15.3600 (community relationship) respectively. Respondents in these categories rate the importance for school effectiveness characteristics on the following: Leadership, Expectations, Mission, Time on Task, Monitoring, Basic Skills, Climate, and Parent/Community Participation.

The study addressed three research questions. The first question involved the review of literature on the topic of school

effectiveness and effective schools; and was concerned with findings in the literature on school effectiveness. Question two and three involved the analysis of teachers' responses to the survey instrument in public junior high schools in Taiwan. Based on the literature on effective schools and school effectiveness research, the major and common characteristics of effectiveness as described in the literature are illustrated simply below.

(1) Internal factors:

- 1) Leadership: strongly professional and instructional leadership
- 2) Expectations: high expectations for success for all students
- 3) Mission: clear and focused mission and visions
- 4) Time on Task: opportunity to learn and adequate time spent on academic tasks
- 5) Monitoring: frequent monitoring of student progress
- 6) Basic Skills: an emphasis on teaching basic skills
- 7) Climate: a enjoyable learning climate

(2) External factor:

Parent/Community Participation: positive home/ community – school relations

Of the top ten indicators, eight were student-oriented items for importance to quality schooling; one was program-oriented; and one item was parent-oriented. Of these eight student-oriented indicators relating to importance to quality schooling, the seven indicators focused on attitude and relationships while the one related to school environment or climate for students. It is noted that four of the eight categories for school effectiveness characteristics were represented within the top ten indicators in Taiwan. Four of eight categories for school effectiveness factors were represented regarding importance. They were leadership, expectations, climate, and parent/community participation factors in top ten indicators. The other four categories not represented in ten indicators were mission, time on task, monitoring, and basic skills. Climate and leadership characteristics were the two most important areas considered by teachers in Taiwan. The findings appeared that the orders of importance for the eight school effectiveness characteristics were Climate, Leadership, Expectation, Basic Skills, Mission, Time on Task, Monitoring, and Parent/Community Participation.

In order to meet the objectives outlined in the purpose of the study and to analyze this question, there were eight null hypotheses led and tested in this study. The researcher used Regression analysis to analyze the data and got the results of the data analysis associated with each hypothesis. In statistic analysis, the dependent variable was the total scores of the SESQ (Part III) instrument and the independent variables were those eight factors – Leadership, Expectations, Mission, Time on Task, Monitoring, Basic Skills, Climate, and Parent/Community Participation subscales respectively in SECQ (Part II) instrument. Eight null hypotheses were tested by linear regression.

In order to answer question 3, a multiple regression analysis was conducted to examine the relationships between the all eight variables of school effectiveness factors and school

effectiveness, as well as how these variables predict the school effectiveness. The five variables, including mission, time on task, monitoring, climate, and parent/community participation, are all significant. The results indicate that these five variables have predictive value to school effectiveness with a positive relationship.

## VI. CONCLUSION

School effectiveness is the result of the complex interaction of many factors of the internal and external environment. Improving the comprehensive understanding of the factors impacting school effectiveness is an important strategic concern in view of the rapidly changing global scope of schooling and education. According to the results of the descriptive statistics and the regression analysis, the findings shows that combinations of environment, managerial characteristics, instructional and learning characteristics, and communication and evaluation strategies associated with the effectiveness of school both statistically and with respect to their essential characters.

The study included 139 public junior high schools in Taiwan and involved 575 teachers to establish the top indicators and characteristics for effectiveness; and to build the relationship between these internal and external factors of school effectiveness characteristics and teachers' perceptions of school effectiveness. As a result, reasonable generalization is possible to Taiwanese junior high schools. These findings suggest that a statistically significant degree of relationship exists between each of all eight school effectiveness factors and school effectiveness in Taiwan.

Leadership, Expectations, Mission, Time on Task, Monitoring, Basic Skills, Climate, and Parents/Community Participation characteristics have emerged as key determinants of school effectiveness. In addition, it is noted there is no any one characteristic of school effectiveness defined and studied in Taiwan that is not significantly related to school effectiveness. There is no lack of a relationship between any one factor and school effectiveness. That is, the Taiwan's junior high school teachers did consider these eight factors as key determinants for school effectiveness. Furthermore, statistically using stepwise multiple regression procedures in depth, the data find mission, monitoring, parent/community participation, climate, and time on task to be most highly related to school effectiveness when all eight factors are considered together. In summary, the importance of climate, leadership, expectations, basic skills, mission, time on task, monitoring, parent/community participation to quality schooling cannot be ignored. The significant relationship of mission, monitoring, parent/community participation, climate, time on task, leadership, expectations, and basic skills associated with school effectiveness can also not be disregarded. Moreover, the predictive values of mission, monitoring, parent/community participation, climate, and time on task should be treasured. Researchers and practitioners should pay much attention on these findings when improving educational reform and evaluating school programs.

## REFERENCES

- [1] M. D. Lin, and C.C. Lian, "A study of school leadership dynamics and school effectiveness in elementary schools," *Symposium Educational Administration and Evaluation, Celebrating R.O.C.'s Centennial*, Taipei, June 2011, pp. 15–21.
- [2] W. C. Lin, "The study of the relationship between the elementary school teachers' moral and the school effectiveness," unpublished.
- [3] J. Scheerens, "Monitoring school effectiveness in developing countries," *School Effectiveness and School Improvement*, vol. 12. no. 4, pp.359-384. Dec. 2001.
- [4] C. S. Wu, *Current Issues in Educational Administration*. Taipei: HEDU, Aug. 2007, pp.87-108.
- [5] S. M. Elam, "The 22<sup>nd</sup> annual Gallup Poll of the public's attitudes towards the public schools," *Phi Delta Kappa*, vol.72, no. 1, pp. 41-44. Feb.1990.
- [6] C. S. Wu, and G. B. Kou, "Analysis of school effectiveness research dissertation," *Journal of Education Research*, Chiayi, Taipei, vol. 188, pp. 4-16, Dec. 2009.
- [7] J. Z. Lian, "A verification of structural equation model on community of school leadership, principal's transformation leadership, teacher's self-management, and school effectiveness," *Chung Cheng Educational Studies*, Chiayi, Taiwan, vol.10, no. 1, pp. 61-82, June 2011.
- [8] W. S. Fu, *Critical heritage and creative development*. Taipei, Taiwan: Dongda, 1991, ch. 1.
- [9] H. Pan and C. Yu, "Educational reforms with their impacts on school effectiveness and school improvement in Taiwan, R.O.C.," *School Effectiveness and School Improvement*, vol. 10, no. 1, pp. 72-85, Feb. 1999.
- [10] C. C. Cheng, *School Administrative Ideas and Practice*. Taipei: Psychoco, 2011, ch. 7.