Factors Related to Management Skills of High School Library Directors in the Republic of China

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[Abstract]

This study attempted to determine the factors related to the management skills of high school library directors in Taiwan, R. O. C. There were five dimensions of the Level of Management Skills (LMS), namely, professionalism, communication, library knowledge and skills, administration, and instructional leadership. The sample size was 201 randomly selected high school library directors in Taiwan. Data were collected by mail questionnaire from July to September 1996. Correlation analyses were conducted to examine the relationships between the factors of the library directors' sum of the LMS scores and independent variables. The regression equation was drawn. In the full model of the regression analysis, derived independent variables, "Support, circulation volumes, and the type of school," "Education and effort," and "Continuing professional education activities in library science" explained the greatest amount of unique variance in the dependent variable, the sum of the LMS scores. This study suggested establishing the standards of basic abilities for school library directors, arranging local unions of high school library directors in the country, re-arranging the core courses of the library majors, and emphasizing the role of "instructional consultant" of school library directors.

Keywords: School library director, Level of Management Skills, Instructional Consultant, Continuing Professional Education

1 INTRODUCTION

(1) Background of the Problem

Educators view the school library as "the central element of the intellectual life in a school" (American Library Association & American Association of School Librarians, 1993, p. 56). School libraries, being fully integrated into the school's curriculum, become central to the learning process. The school library director is the person responsible for the planning, implementing, developing, and overall evaluating of the school library media
program. He (or She) is an information specialist, a
teacher, and an instructional consultant, who also
serves as “the link between students, teachers,
administrators, and parents and the available infor-
mation resources” (American Library Association and
Association for Educational Communications and

In Taiwan, librarians are not evaluated as an oc-
cupation with a high status, and librarians were rated
57th within 94 occupations in 1979 (Wen & Chang,
1979). Many high school library directors in Taiwan
do not have a professional library background (Yung,
1981) and they may not know how to manage school
libraries. From an adult educator and human resource
development researcher’s point of view, professional
continuing education, including pre-training and in-
service training, are important components for high
school library directors.

Most of Taiwan school libraries have one or more
full-time or part-time staff or teacher-librarians, but
school libraries may or may not have a library
director. In 1987, the educational authorities estab-
lished the position of library director in all of the
traditional and vocational high schools. Many fac-
tors enhance or retard the progress of a school library;
one important variable is the competence of the li-
brary director. The competence level of the library
director is related to efficient and effective library
services.

(2) Purposes of the study

The main purpose of this study was to identify
factors related to the management skills of high
school library directors in Taiwan. The results will
help principals to select the right person as the li-
brary director; and these results will be helpful for
establishing the minimum requirements for the high
school library director. This study provided specific
information on high school library directors, such as
personal information, professional development
skills, continuing education, and the library
characteristics.

This study attempted to determine the factors
related to the management skills of high school li-
brary directors in Taiwan, R.O.C. There were five di-
ensions of the Level of Management Skills (LMS),
namely, professionalism, communication, library
knowledge and skills, administration, and instruc-
tional leadership.

(3) Objectives of the study

The objectives of this study were to:

Personal Characteristics:

1. Describe high school library directors’ personal
characteristics. Gender, age, highest level of
education, graduate major, undergraduate major,
number of years since completion of highest
education, number of years in current position, ca-
reer goal, any awards received, commendation
received, merit received, other awards, number of
commendations, number of merits, importance of
the library, and amount of effort contributed to the library are these personal characteristics.

**Level of Professional Knowledge:**

2. Determine the level of professional knowledge of library directors regarding library science and administrative functions.

**Level of Participation in CPE Activities:**

3. Describe the level of participation in CPE activities of library directors in terms of membership of professional organizations, CPE activities in library science, CPE activities in other fields, types of CPE activities.

**Library Characteristics:**

4. Describe the library setting on the following characteristics: type of high school, number of students, number of full-time teachers, number of employees in the library, number of permanent employees in the library, number of temporary employees in the library, number of employees with a library major, number of employees without a library major, but had library training, number of employees with neither a library major nor library training, number of volumes of books, number of titles of periodicals, number of volumes circulated yearly, library building situations, number of floors in the library, number of rooms in the library, any support received from the school, sufficient finances, adequate staff, other support, library financial situation, budget of 1996 fiscal year.

**Level of Management Skills:**

5. Determine the self-perceived level of management skills of library directors.

**Independent Variables and Self-related Level of Management Skill Scores:**

6. Determine the relationships between personal characteristics of library directors and self-reported LMS scores.

7. Determine the relationships between level of professional knowledge and self-reported LMS scores.

8. Determine the relationships between level of participation in continuing education activities and self-reported LMS scores.

9. Determine the relationships between the library characteristics and self-reported LMS scores.

**Related Factors to High School Library Director's LMS:**

10. Determine which independent variables explained the greatest amount of unique variance in self-reported LMS scores of high school library directors.

(4) **Definition of terms**

**Level of professional knowledge:**

It was operationally defined as the score on a 10-item, true-and-false instrument. Each of the 10 items contained a statement that addressed both library science and administration related to the concept of how to manage a school library.

**Level of participation in professional organizations:**

It was operationally defined as what area(s) of professional organizations a school library director took part in. The library director checked all possi-
bilities among five items that included none, library and information science, education, administration, and others.

**Types of CPE activities:**

It was defined as what type(s) of CPE activities that a library director participated. The library director checked all possibilities from the following 21 items that (s)he was involved. Items included none, Master and/or doctoral degree, college/university credit courses, college/university non-credit courses, professional organization courses, seminars lasting four or more weeks, seminars lasting less than four weeks, speeches, symposiums, visiting libraries, professional books, professional journal articles, TV courses of the University On The Air, professional audio cassettes, professional radio programs, in-service training, self-learning according to the job manual, mentoring by prior director, consultation with related personnel, discussion with friends, and others.

**Level of Management Skills (LMS):**

It was defined as the mean score on a 47-item, 5-point Likert-type measurement instrument. The 47 statements related to the ability of managing a school library. Five dimensions were covered: professionalism, communication, library knowledge and skills, administration, and instructional leadership.

**Related factors to high school library director’s LMS:**

Relationships between selected factors and management skills level were described. This study determined which independent variables explained the greatest amount of unique variance in the self-reported Level of Management Skill of high school library directors.

**Types of CPE activities:**

The type(s) of CPE activities mean(s) the activities that a library director participated. The following 21 items were included: none, Master and/or doctoral degree, college/university credit courses, college/university non-credit courses, professional organization courses, seminars lasting four or more weeks, seminars lasting less than four weeks, speeches, symposiums, visiting libraries, professional books, professional journal articles, TV courses of the University On The Air, professional audio cassettes, professional radio programs, in-service training, self-learning according to the job manual, mentoring by prior director, consultation with related personnel, discussion with friends, and others.

## 2 REVIEW OF LITERATURE

The author reviewed literature about continuing professional education (CPE), library professional knowledge and skills, management skills of school library directors, and school library directors’ CPE.

### (1) Continuing Professional Education

**Goals of CPE:**

Scanlan(1985) identified two different orienta-
tions in regard to the purpose of continuing education approaches: the intrinsic and the instrumental. Continuing education is varied as the ends or the means. The intrinsic approach considers continuing education as an end. Therefore, professionals engage in continuing education for enhancing knowledge; knowledge for the sake of knowledge rather than any other goals. An instrumental approach, on the other hand, views continuing education as a means. Professionals take part in continuing programs to gain knowledge for other goals. As mentioned before, Scanlan pointed out three goals of CPE: remediating deficiencies, fostering growth, and facilitating change.

Apps' (1973) Typology of Continuing Education Learning Models posited three models: essentialist-perennialist, progressivist-reconstructionist and existentialist. The essentialist-perennialist aims at acquiring content, and knowledge is viewed as an end to remediating deficiencies in Scanlan's instrumental approach, the progressivist-reconstructionist regards content as a means for problem solving. The existentialist, comparable to Scanlan's fostering growth in instrumental approach, perceives content is a means for self-actualization. **Content of CPE:**

Cervero's (1988) Model of the Learner described the two forms of knowing which should be fostered through CPE, namely, practical knowledge and problem finding. Baskett & Marsick's (1992) study of the content of engineers' professional education found that more than half of the learning projects for professional men were work-directed and almost half of the engineers' learning projects were vocational in nature. Scanlan (1985) identified remediating deficiencies, fostering growth, and facilitating change as three goals of CPE. But this author would also include expanding new knowledge, skills and attitude as one of the goals of CPE. Both of these are about job improvement as well. Though different professions have varied contents to learn in the CPE, there is no doubt that the content of professional CPE is all job related.

**Library Professional Knowledge and Skills**

Information Power: Guidelines for School Library Media Programs (1988) identified three roles of the library media specialist—information specialist, teacher, and instructional consultant. To achieve a successful role of instructional consultant, the following knowledge base is required.

- Expertise on the conceptual implications of information
- Expertise in cognitive theories
- Expertise in instructional design
- Expertise in literature, reading, and human development

Polk and Kahler (1990) analyzed 32 appraisal in-
strumets used to evaluate library media specialists and organize these performance indicators into four domains: library management and organization, curriculum responsibilities, library media center environment, professional growth and responsibilities.

Young (1989) found Taiwanese academic librarians felt needs in the following areas for continuing learning. They were marketing, promoting, public relations; administrative management and leadership; development and issues of library and information science; theory and main development in different subjects; research interests and ability of problem solving; and communication theory and media application.

Based on the literature reviewed, the researcher concluded that the following six aspects should be included in the library professional knowledge and skills: library science, information science, administration, instructional skills, communication skills, and subject matter (general understanding in special subjects that are of interest to patrons).

(3) Management Skills of School Library Directors

The effective management at all levels and in all kinds of enterprises is very important to allow it to fail through lack of available and understandable knowledge (Koontz, 1985). Four models were selected for the school library management or to explain the operation in school libraries.

The integrated program model

The integrated model consisted of three components—instruction, development and management. The component of instruction included appreciation of knowledge and culture, information retrieval, information processing, and information sharing. The component of management covered personnel, technical services, facilities, networking, and finances. The components of development consisted of needs assessment, consultation and program planning, resource evaluation and selection, and in-service. Cooperation between administrators, faculty, and the teacher-librarian was the nucleus of commitment and created energy that bound the three components. (Henri, 1990).

The three-skill approach

A successful administration displayed three basic skills—technical skill, human skill, and conceptual skill. Technical skill implied an understanding and proficiency in a specific kind of activity, especially one including methods, processes, procedures, or techniques. Human skill mean the ability of executive to work effectively as a group member and to cooperate within the team he lead (Katz, 1985). Conceptual skill involved the ability to see the enterprise as a whole. At the top level of the administration, this conceptual skill became the most important ability.

Turner’s three activity domains

Three different activity domains were included in Philip Turner’s domain. In the first domain, the
library media specialist promoted students' reading and viewing; in the second domain, he or she provided library instruction and reference services to patrons; in the third domain, the library director was involved in activities of design, implementation, and evaluation to help teachers to teach (Cleaver & Taylor, 1989). Turner gave a clear review of the role change of a library media specialist. There is a great jump from "reading promotion" to "library instruction;" and there is another improvement from "library instruction" to "instructional consultant."

TIE model

Cleaver & Taylor (1983) explained their TIE, a Model for Cooperation, "TIE is an acronym for Talking, Involving, Evaluating—the three stages of cooperation which teachers and media specialists go through as they plan curriculum together" (p. 2). In the first stage, Talking, the library media specialist met with the teacher in the classroom to discuss their next meeting, to determine teacher's resources and strategies, to identify cooperation areas. In the second stage, Involving, the library media specialist worked with the teacher in the library media center to identify, locate, review, analyze, discuss, and examine information resources for the unit, and developed an instruction plan. In the third stage, Evaluating, the library media specialist provided opportunities for feedback about evaluating the effectiveness and the cooperative efforts. The TIE model ascribed importance to the cooperative planning and active involvement of the school library media specialist in instructional planning.

Required Management Skills of School Library Directors:

Chisholm and Ely (1976) developed a competency approach that covered ten functions performed by school library media personnel in relation to the user needs. They were: organization management, personnel management, design, information retrieval, logistics, production, instruction, evaluation, research, and utilization. Among the ten functions, the organization management and personnel management focused on the function of management was a duty primarily operated by the school library director. There were seven competencies required in order for the library director to function well in the organization management (Chisholm & Ely, 1976, p. 97):

- Establishes goals of the media program.
- Develops and maintains a long-range plan.
- Prepares and administers a fiscal plan based on operational needs.
- Seeks information regarding supplemental funding from governmental agencies and other sources.
- Organizes services to achieve goals.
- Plans media facilities; allocates and monitors space according to program needs.
- Assesses the degree to which the operations meet the program goals.

There were seven competencies are required for
the library director to function well in personnel management (Chisholm & Ely, 1976, p. 130).
- Writes job descriptions for recruiting and hiring personnel.
- Recruits, hires, and terminates personnel.
- Conducts training for staff.
- Assigns job responsibilities to specific personnel.
- Supervises personnel.
- Maintains job satisfaction of personnel.
- Evaluates employee performance.

- Communication: ability to get along with people, good attitude, and to communicate well in and out of the school.
- Library knowledge and skills: knowledge and skills of library and information science.
- Administration: organization management, personnel management, leadership, control, evaluation, dependability and responsibility.
- Instructional leadership: education theories, educational practice and instructional skills.
- Personality: loyalty, desire and initiative.

3 METHODOLOGY

1) Research Design

As illustrated in Figure 1, the conceptual model for this study includes four independent variables—personal characteristics, level of professional

![Conceptual Model](image)

Figure 1: The conceptual model for this study.
knowledge, level of participation in CPE activities, and library characteristics; and one dependent variable—the self-perceived level of management skills of school library directors. Five dimensions were used to determine the level of management skills: professionalism, communication, library knowledge and skills, administration, and instructional leadership.

(2) Population and Subject Selection

The target population for this study included library directors of public and private high schools (traditional high schools and vocational high schools) in Taiwan. Each high school library has a library director. A total of 407 library directors was serving in these high schools. A listing of Taiwan high schools was obtained from the Manual of Student Teachers (1995) published by the National Taiwan Normal University of the Republic of China.

According to the table provided by Krejcie and Morgan (1970), the target population size of this research was 407 library directors, the sample size was 201 randomly selected high school library directors. Frame error was controlled by randomly telephoning high schools and receiving verbal confirmation of names, work titles, and addresses of library directors. Checking Library Statistics of Taiwan Fukien Area, Manual of Student Teachers, and High School Directory of Bureau of Education to ensure that no duplicate names appeared to control the selection error for this study.

A proportional stratified random sampling procedure was chosen for the study. This procedure involved taking a separate simple random sample from each strata, or each administrative unit. Sampling error in library directors was controlled by ensuring an adequate sample size and by using proper techniques of random sampling.

(3) Instrumentation

An instrument was developed to collect data for the research study. The researcher developed an instrument included the following parts:

Part I: Level of Management Skill
Part II: Level of Professional Knowledge
Part III: Level of Participation in CPE Activities
Part IV: Library Characteristics
Part V: Personal Characteristics

Part I was a revision of Curriculum Guidelines for the School Library Media Specialist Basic Preparation of American Library Association. The 5-point Likert-type questionnaire used in this study measured the self-perceived management skills level of library directors. Five dimensions were included in this questionnaire—professionalism, communication, library knowledge and skills, administration, and instructional leadership.

Part II was designed specifically for assessing the professional knowledge of library and information science and the administrative functions that a Chinese school library director was supposed to be
equipped with. This part consisted of 10 true-and-false questions.

The third part of the instrument was designed to understand the library directors’ experiences in professional organizations and CPE activities. The final part inquired about personal characteristics of the high school library directors.

A panel of experts established the content validity of the researcher-developed instrument. Face and content validity of the researcher-developed instrument were established by a field test of the instrument with three purposely-selected Taiwan high school library directors.

Accurate translation of these instruments from English into Chinese was critical. Hence, three bilingual persons were invited to advise and improve the accuracy of translation.

A pilot test was conducted in Taiwan in June 1996 with 15 purposely-selected Taiwanese high school library directors. Statistical reliability of the researcher-developed instrument was established through the pilot test.

An internal consistency procedure was employed for the level of management skills of the instrument with the pilot test group. The reliability coefficients of the five dimensions were Professionalism, 6 items, the Pearson’s $r = .81$; Communication, 6 items, $r = .81$; Library Knowledge & Skills, 16 items. $R = .86$; Administration, 11 items, $r = .83$; and Instructional Leadership, 8 items, $r = .76$. The Pearson’s $r$ of the overall 47 items was .94. A Guttman Split-half procedure was employed for the 10 true-and-false professional knowledge items. The correlation coefficient between the two sets of scores was .81.

(4) Data Collection

Data for the study were collected by mail questionnaire. The design and mailing procedures for all the instrument were based on the recommendations of Dillman’s Total Design Method (Dillman, 1978). All questionnaires were guaranteed anonymity to respondents and were coded only to allow for necessary follow-up contact. A cover letter, the research questionnaire, and a self-addressed, stamped return envelope were mailed to each library director during the second week of July 1996. A pack of U. S. chewing gum was included in the packet to encourage response. Two weeks after the initial mailing, a postcard reminder was sent to all sampled directors. A follow-up mailing of a second copy of the questionnaire was sent one week later to all non-respondents in an effort to obtain more responses. The deadline for data collection was September 18, 1996, and 180 returned useable questionnaires were received. The response rate for this study was 90%.

To control for non-response error, a random sample of 20% of the non-respondent library directors was contacted by telephone to find out their reasons for not responding. The reasons given by the four randomly selected non-response
directors were: they were too busy to answer the questionnaire; they lost the questionnaire; and they missed the dead line. After being contacted by phone, the four directors completed and faxed the questionnaires to the researcher. Non-respondent data were compared to corresponding data from the respondents to determine any differences. Except for gender, there was no statistical difference were found. The 180 directors represent the accessible and target populations.

(5) Data Analysis

Descriptive, correlation and regression statistics were used to analyze the data collected by using SPSS/PC+ microcomputer statistical software. The first stage of data analysis involved computing means, frequencies, standard deviations, ranges, and percentages as descriptive statistics. The second stage of data analysis computed correlation statistics to find out relationships between independent variables and the dependent variable. The third stage reduced variables to a reasonable level by using the principal component analysis. The fourth stage computed regression statistics to decide which independent variable(s) explained the greatest variance in the dependent variable.

General measures of association were described according to Davis’ (1971) conventions (see Table 1). Statistical significance was set a priori at .05.

4 FINDINGS

(1) Sample Response

Of the 201 high school library directors selected for the study, 182 (91%) questionnaires were returned. There were 180 (90%) useable questionnaires. For this library director survey, following the main steps of Total Design Method, the response rate (91%) was considered to be very good.

<table>
<thead>
<tr>
<th>r</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>1.0</td>
<td>Perfect relationship</td>
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<tr>
<td>0.70-0.99</td>
<td>Very high relationship</td>
</tr>
<tr>
<td>0.50-0.69</td>
<td>Substantial relationship</td>
</tr>
<tr>
<td>0.30-0.49</td>
<td>Moderate relationship</td>
</tr>
<tr>
<td>0.10-0.29</td>
<td>Low relationship</td>
</tr>
<tr>
<td>0.01-0.09</td>
<td>Negligible relationship</td>
</tr>
</tbody>
</table>

Source: J. A. Davis (1971)

Table 1: Davis’ conventions of number magnitude
(2) Library Directors Personal Information

Gender, Age, and Education:

Females comprised 70 directors (39%) of the high school library while 109 directors (61%) were male. The mean age of the 172 library directors was 44 years (standard deviation = 9.52). The oldest director was 64 years; the youngest director was 23 years. A majority of the directors (69%) hold a bachelor’s degree while 22% hold a Master’s degree. Of the 148 library directors, the mean year since completion of highest degree was 17.9 years (standard deviation = 9.8). The maximum was 41 years while the minimum was one year.

Major Specialty Areas:

Among the 37 directors holding a Master's degree, 31 directors answered the question of the graduate majors. More than half of the directors (55%) had social science majors, 23% had pure/applied science majors, and 16% of the directors had humanities majors. The percentages of undergraduate majors were spread evenly in three areas: social sciences (28%), pure/applied science (27%), and humanities (29%).

Number of Years in Current Position:

Of the 151 school library directors, the mean years in current position of the directors was 4.7 years (standard deviation = 4.1). The highest number of years in current position of the library directors was 20 years, while 9 directors had been in their current positions less than one year.

Career Goals:

The most common career goal of the directors was to continue being a high school library director (45%). Eighteen and thirteen percent of the directors selected high school teacher as their career goal, and 13% of the directors selected other directors in the high school.

Awards Received in the Last Five Years:

Two categories of awards were used in this study: commendations and merits. Of the 173 directors, the mean number of times of commendations that the library directors had received in the last five years was 2.3 (standard deviation = 4.25). Of the 177 directors, the mean number of times of merits that the library directors had received was .45 times (standard deviation = 1.35).

Importance of the School Library:

Of the 174 directors, 138 directors (79%) thought the school library was as important as other departments in the school. Twenty-one directors thought the library was more important than other departments, while 15 directors thought the library was less important than other departments.

Amount of Effort toward the School Library:

Of the 178 directors, 91 directors (51%) believed that they gave more than 100% effort to their work in the school library and 84 directors (47%) believed they gave at least 100% effort to the library. Very few (only three) directors believed they gave less than 100% of their effort to the library.
(3) Level of Professional Knowledge

The directors' scores on a 10-item, true-and-false instrument determined the level of professional knowledge. The professional library knowledge assessment aimed to test the professional knowledge of Chinese school library directors. The professional knowledge scores ranged from 0 to 100. The mean library knowledge score was 56.

(4) Participation in CPE Activities

Professional Organizations:

A majority of school library directors (59%) reported no involvement in professional organizations. Of the 73 directors who were involved in professional organization(s), 47 reported involved in educational organizations, and 11 were involved in administrative organizations. Seven directors took part in other organizations, such as science and management organizations.

Areas in Library Science:

There were 50 directors (28%) never take part in any CPE activities in library science while 130 directors (73%) participated in some areas. For these 130 directors, more than half of the directors participated in CPE activities in the area of library automation. Fifty percent of the directors participated in library management and 28% of the directors took part either in technical services (except library automation) or reader services. A few directors participated in CPE activities in other areas.

Subjects of CPE Activities in Other Fields:

The subjects of CPE activities in other fields that library directors participated were education (31%), communication (13%), management (22%), and other subjects (6%). Nineteen types of CPE activities were investigated in this study. The majority (94%) directors (169) reported involvement in some type of CPE activities while 6% of the directors had never been involved in any type of activities. The four most common types were symposiums (60%), consultation with related personnel (57%), speeches (56%), and visiting libraries (54%).

(5) Library Characteristics

School Size:

The range of the number of students in the 174 high schools was from 90 to 8,200 students with a mean of 2,033 students (standard deviation = 1,323) and a median of 1,695. The mean number of full-time teachers in the 158 schools was 112 (standard deviation = 67); the range was from 10 to 360 teachers with a median of 100.

Library Employees:

Including the library director, 44 (25%) libraries had one employee, 73 (41%) libraries had two employees, 45 (25%) libraries had three employees, and 17 (12%) libraries had more than three employees. The mean number of library employees (including the library director) in the 179 high schools was 2, the range was from 1 to 14. But 21 libraries (13%) did not have any permanent employees, 50 libraries (30%) had one permanent employee, and 66 libraries had
two permanent employees. About the temporary employees, 100 libraries (60%) did not have any temporary employees, and 47 libraries had one temporary employee.

Talking about the number of library employees with library major, 138 libraries (78%) did not have any employees with library major while 6 (4%) libraries had two to three employees with library major. There were 35 school libraries had no employee either library major or library training. Thirty-two libraries (18%) had more than one employee with neither library major, nor library training. Sixty-nine libraries (39%) had one non-library-major employee did not receive library training.

Library Collection and Circulation:

The mean number of volume of books in the 170 libraries was 20,666 (standard deviation = 18,259) with range from 1,000 to 160,000 volumes, and a median of 18,027 volumes. The mean number of titles of periodicals was 95.7 (standard deviation = 87.2) with a median of 95. The mean number of volumes circulated yearly in the libraries was 11,117 volumes (standard deviation = 15,112) with a median of 6,648 volumes.

Library Building:

Thirty-two percent of the libraries had an independent building or a dependent building with more than one floor, and 57% of the libraries had one floor or shared one floor with other departments. The mean number of floors of the school libraries was 1.6 floor (standard deviation = 1.49), the average number of rooms was 7.67 (standard deviation = 9.96), with a median of 4 rooms.

Library Finances:

Over nine-tenths (136) of the libraries had a stable independent budget. The mean budget of 1996 fiscal year of the 141 school libraries was NT$652,904 (US$24,182) with a standard deviation of NT$1,305,499 (US$48,352) and a median of NT$300,000 (US$11,111).

Received Support from the School:

There were 82 libraries (48%) reported they had sufficient finances, and 60 libraries (35%) had adequate staff work in the library.

(6) Self-Reported LMS Scores

The Self-Reported Level of Management Skills for High School Library Directors, was a self-assessment to describe the self-perceived management skill level compared with an ideal high school library director. Five dimensions were included: Professionalism, Communication, Library Knowledge and Skills, Administration, and Instructional Leadership. A total of 47 questions was asked, and a 5-point response scale was adopted: 1 = Not ideal, 2 = Far from ideal, 3 = Adequate, 4 = More than adequate, and 5 = Ideal. For the sake of easy understanding and comparison with other scores, management skill sum scores were divided by 2.35. The possible highest total score was 100 (235/2.35 = 100), and the possible lowest total score was 20 (47/2.35 = 20).

The mean score of Sum of Level of Management
Skills (LMS) scores was 62.11 (standard deviation = 13.76, n = 180), with a range of 71.91, through 22.98 to 94.89, and a median of 62.76. Library Knowledge and Skills had the highest self-reported mean score (65.89), followed closely by Communication (64.10) and Instructional Leadership (63.90). Professionalism (57.67) and Administration (57.82) had lower mean scores than the other three dimensions (see Table 2).

<table>
<thead>
<tr>
<th>Five Dimensions of LMS</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professionalism</td>
<td>57.67</td>
<td>4.34</td>
<td>180</td>
</tr>
<tr>
<td>Communication</td>
<td>64.10</td>
<td>4.48</td>
<td>180</td>
</tr>
<tr>
<td>Library Knowledge &amp; Skills</td>
<td>65.89</td>
<td>11.07</td>
<td>180</td>
</tr>
<tr>
<td>Administration</td>
<td>57.82</td>
<td>8.60</td>
<td>178</td>
</tr>
<tr>
<td>Instructional Leadership</td>
<td>63.90</td>
<td>6.31</td>
<td>178</td>
</tr>
<tr>
<td>Sum of LMS scores</td>
<td>62.11</td>
<td>13.76</td>
<td>180</td>
</tr>
</tbody>
</table>

Table 2: Five dimensions of the self-reported LMS scores

(7) **Relationships between Demographic Variables and the LMS Scores**

Of the sixteen independent variables of personal characteristics, 12 variables had statistically significant (a = .05) relationships with the LMS scores. Three variables had moderate association with the dependent variable and nine variables had low association with the LMS scores. All of these relationships were positive. The three positive, moderate associated variables were: amount of effort contributed toward the library (r = .41), age (r = .32) and any award received (r = .30). The four variables which did not relate with the dependent variables significantly were: graduate major, other awards received in the last five years, number of times of merits, and the importance of the library.

(8) **Relationships between Professional Knowledge Score and LMS Scores**

A negligible, positive correlation (r = .04) was found between the directors’ professional knowledge score and the LMS scores. This correlation was not statistically significant. No relationship was found between the director’s level of professional knowledge and the self-reported LMS scores.

(9) **Relationships between Participation in CPE Activities and the LMS Scores**

**Professional Organizations:**

Of the 38 independent variables of the level of participation in CPE activities, 25 variables had statistically significant relationships with the dependent variable. Within the 25 statistically significant
relationships, nine of the associations were moderate relationships between the level of participation in CPE activities and the LMS scores and 16 of the associations were low.

All of the six variables of areas of CPE in library science, two variables of subjects of CPE in other fields, and one variable of type of CPE had moderate relationships with the LMS scores. Low relationships existed between the LMS scores and participation in professional organizations and types of CPE.

Directors who were involved in professional organizations tended to have more positive perceptions on their management skills than directors who were not involved in any professional organizations.

Directors were involved in library science CPE activities tended to have more positive perceptions of their management skills in their work than directors who were not involved. There were six CPE areas in library science: introduction to library/information science, library management, technical services, library automation, readers' services, and other areas. Except “other areas”, school library directors who took part in the other five CPE areas had more positive perception of their management skills in their work than directors who were not involved.

Directors were involved in some CPE activities in subject(s) outside library science (especially in the subject of education) tended to have higher mean score in the sum of the LMS scores (Mean = 66.36, S. D. = 11.77) when compared to directors who did not participate (Mean = 57.95, S. D. = 14.35).

In the following 12 types of CPE activities directors participated, the relationship between the CPE type and directors' LMS scores had statistically significant positive relationships. These 12 types were college/university credit courses, professional organization courses, seminar lasted longer than four weeks, speeches, symposium, visiting libraries, reading professional books, reading professional journal articles, professional cassettes, in-service training, self-learning, and mentoring by the pre-director.

**Relationships between Library Characteristics and LMS scores**

Of the 21 independent variables of library characteristics, 16 variables had statistically significant relationships with the dependent variable. Within theses 21 variables that had statistically significant relationships with the LMS scores, the following six variables had moderate, positive relationships with the LMS scores; the type of high school, the number of library employees, the number of employees with a library major, the number of employees with neither library major nor library training, the number of volumes of books, and the number of rooms in the library.

**Reduction of Independent Variables**

Steven's (1992) recommended that 15 subjects per independent variable were needed for a reliable regression equation in the social sciences. For reducing the number of independent variables, princi-
pal components analysis was conducted. A total of 15 derived independent variables was created. They were: (1) Awards (AWARD); (2) Years since completion the education, years in the current job, and age (YEARS); (3) Undergraduate major, career goal, and gender (UM.CA.G); (4) Education and effort (EDUEFFOR); (5) CPE in library science (CPELIBRA); (6) CPE in non-library science (CPENLIB); (7) CPE of conference-type and visiting libraries (CONFERENCE); (8) Professional organizations (PROF.ORG); (9) Reading and cassette-listening CPE (SELFLEAR); (10) Course, long seminar, and in-service training CPE (COURSETA); (11) Self-learning and mentoring CPE (INTERPER); (12) Library size (LIB.SIZE); (13) Library employees (LIBEMPLO); (14) School size (SCH.SIZE); (15) Support, circulation volumes, and type of school (SUPCIRTY).

(12) Determination of Which Variables Account for the Greatest Proportion of the Unique Variance in the LMS Scores

The results of multiple regression analysis were reported in Table 3.

<table>
<thead>
<tr>
<th>Variables</th>
<th>R2</th>
<th>R2/change</th>
<th>b</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPCIRTY</td>
<td>.236</td>
<td>.236</td>
<td>3.724</td>
<td>3.021</td>
<td>.004</td>
</tr>
<tr>
<td>CPELIBRA</td>
<td>.308</td>
<td>.072</td>
<td>3.391</td>
<td>2.844</td>
<td>.006</td>
</tr>
<tr>
<td>EDUEFFOR</td>
<td>.376</td>
<td>.068</td>
<td>3.273</td>
<td>2.672</td>
<td>.010</td>
</tr>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td>63.532</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Standard error = 10.335

Adjusted R2 = .347

For model: F = 13.234; p<.000

Table 3: Regression of library directors’ self-reported LMS scores on Support, circulation volumes, and the type of school; Library science CPE; and Education and effort.
In the regression analysis equation, there were three variables, “Education and effort” (EDUEFFOR) was a derived personal characteristic variable, “CPE in library science” (CPELIBRA) was a derived level of participation in CPE variables, and “Support, circulation volumes, and the type of school” (SUPCIRTY) was a derived library characteristic variable.

“Education and effort” was composed of two observed personal characteristic variables: the level of highest education, and the amount of effort contributed toward the library. “CPE in library science” was composed of five observed library science area variables: introduction to library/information science; library management; library technical services; library automation; and readers’ services. “Support, volumes of circulation, and the type of school” (SUPCIRTY) was composed of three observed library characteristic variables: support received from the school, number of volumes circulated yearly, and the type of school.

In the full model, the multiple correlation coefficient (R = .613) indicated the magnitude of the relationship between the sum of the LMS scores and the linear combination of Support, circulation volumes, and the type of school (SUPCIRTY), Education and effort (EDUEFFOR), and CPE in library science (CPELIBRA).

Beta is the standardized partial regression correlation coefficient. The Beta of “Support, circulation volumes, and the type of school” was .32, the Beta of “Education and effort” was .27, and the Beta of “CPE in library science” was .29. “Support, circulation volumes, and the type of school” explained the great amount of unique variance in the self-reported LMS scores, followed by “CPE in library science” and “Education and effort.” These three derived variables fairly evenly explained the dependent variable.

The proportion of variance explained by “Support, circulation volumes, and the type of school” was 23.64%. “CPE in library science” added 7.1%, and “Education and effort added another 6.76%. Total 37.56% of variance in the dependent variable explained by the linear combination of “Support, circulation volumes, and the type of school,” “CPE in library science,” and “Education and effort.”

The regression equation for the full model was:

\[ Y = 63.53 + 3.72 \text{ (SUPCIRTY)} + 3.39 \text{ (CPELIBRA)} + 3.27 \text{ (EDUEFFOR)} \]

\( Y' \) was the estimation of the sum of the LMS scores. This equation indicated the dependent variable, the sum of the LMS scores, could be estimated by using the constant, 63.53, added 3.72 units of SUPCIRTY (Support, circulation volumes, and the type of school) and 3.39 units of CPELIBRA (CPE in library science) and 3.27 units of EDUEFFOR (Education and effort).

5 RECOMMENDATIONS

Recommendations were grouped into five dimensions: high school library directors, high
school principals, education authorities, library professional organizations, and library professional training institutes.

(1) The High School Library Director:
1. Should clearly understand the roles and responsibilities of the position of the "library director" in advance of accepting this job.
2. Should be an active member of library professional organizations.
3. Should take advantage of library CPE activities.
4. Should use self-directed learning to improve library professional knowledge and skills.
5. Should improve his/her administrative ability.
6. Should select an easy and effective circulation system for the school library.

(2) The High School Principal:
1. Should clearly understand the roles and functions of the school library.
2. Should select the library director deliberately by considering his/her personality and the abilities of library professionalism, administration, communication, library knowledge and skills, and instructional leadership.
3. Should make participation in library CPE activities convenient for the library director.
4. Should encourage faculty and students to use the school library.
5. Should include involvement in library professional organizations in the yearly evaluation of the library director.

(3) Educational Authorities:
1. The Ministry of Education in the central government should establish the standards of basic abilities for the school library director.
2. The Ministry of Education in the central government should establish a guidance team for vocational high school libraries.
3. The Ministry of Education in the central government should establish a Developmental Committee of Vocational High School Libraries.
4. The improvement of the school library should become one of the elements of the evaluation for applying for government financial aid.
5. The Ministry of Education in the central government should regulate a fixed library budget in each financial year. This money should not be moved to other areas.
6. The Ministry of Education in the central government should increase the number of employees in high school libraries.
7. Educational authorities should explain the roles and functions of school libraries to principals.
8. The Ministry of Education in the central government and the Department of Education in the Taiwan Provincial Government should supply special guidance and help for private high school libraries.
9. The Department of Education in the Taiwan Provincial Government should arrange a pre-training program for the directors before they manage the school library.

4. Library Professional Organizations:
   1. Should establish the standards of basic competencies for school library directors.
   2. Should assist the traditional high school library guidance team and establish a vocational high school library guidance team.

5. Library Professional Training Institute:
   1. Should strengthen their training program.
   2. Should emphasize the role of "instructional consultant" of the school library director.
   3. Should encourage library/information-science-major students to be involved in and contribute their knowledge and efforts to professional library organizations.
   4. Should emphasize the courses of media and instructional technology.
   5. Should expand the training of student librarians.

6. Need for Further Study
   There are other areas that would be appropriate for further study in the management skills of high school libraries.
   1. Study and establish the standards of basic competencies for school library directors.
   2. Design a management skills evaluation instrument for library directors.
   3. Design an evaluation instrument for the job performance of high school library directors.
   4. Design an instrument to evaluate the professional knowledge of school library directors.
   5. Study how to increase the professional responsibility and mission of the school library director.
   6. Design a package of training management skills for school library directors.
   7. Study how to arrange CPE activities for school library directors.
   9. Arrange how to guide high school libraries during the automation transform period.
   10. Study of instructional leadership in school libraries and how many library employee are required.
   11. Study of the core courses in the library professional training institutes.
   12. Study an employee-reported LMS score of the library director in high schools.
   13. Study the relationship between the library budget and the library directors’ management skills.
   14. Study the relationship between library professional knowledge and the library directors’ management skills.
   15. Research the reasons why high school library directors accepted the position.
16. Research the reasons why high school library directors chose the career goal as they reported.
17. Research the reasons why high school library directors contributed the amount of effort toward their work in the school library as they reported.

**Notes:**
1. This paper is part of the author’s Ph. D. dissertation.
2. The instrument used in this research is not issued in this paper. If any reader wants the questionnaire, please contact with the author through the E-mail (t06008@cc.ntnu.edu.tw).

**REFERENCES**


Cervero, & C. L. Scanlan (Eds.), *Problems and prospects in continuing professional education* (pp. 5-19). San Francisco, CA: Jossey-Bass.


