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1-1-2017

Reliability And Validity Of Michigan School Libraries For The 21st Century Measurement Benchmarks

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Recommended Citation

**RELIABILITY AND VALIDITY OF
MICHIGAN SCHOOL LIBRARIES FOR THE 21ST CENTURY
MEASUREMENT BENCHMARKS**

by

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DISSERTATION

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

DOCTOR OF EDUCATION

2016

MAJOR: EDUCATIONAL
EVALUATION AND
RESEARCH

Approved By:

Advisor	Date

DEDICATION

This dissertation is dedicated to
my father the late General Sr., my mother Denise,
my siblings General Jr., Jessica and Antione,
my niece Carrington,
and the Village.

ACKNOWLEDGMENTS

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CHAPTER 1 INTRODUCTION

School Libraries for the 21st Century Measurement Benchmarks

The Library of Michigan, an office of the Michigan Department of Education, is the official library agency for the state of Michigan. *Measurement Benchmarks for Michigan School Libraries for 21st Century Schools* (SL21) is an initiative established in 2009 by the Library of Michigan. A working group consisting of Library of Michigan employees, Michigan Association for Media in Education (MAME) members, and certified school library media professionals created the initial instrument. The SL21 initiative was developed to measure the quality of Michigan's school library programs within individual buildings. During the 2015-2016 school year, there were 4,832 public school buildings in Michigan, and 644 of these buildings reported having Librarians/Media Specialists (CEPI, 2016). "Library of Michigan hopes that the SL21 measures will be an effective educational, professional development and advocacy tool that assists school library programs to provide the highest quality services to students and the overall school community" (SL21 Background, 2013, p. 2).

Declines in school funding have caused many library programs to be unable to provide adequate resources and programming to students. Furthermore, to the detriment of student learning, certified school librarian positions have been eliminated or reduced due to these decreases in funding. According to Michigan's State Board of Education, (Statement on School Libraries, 2014)

> Certified library media specialists serve a critical role in increasing student achievement by supporting, collaborating, and co-teaching with classroom teachers in reading development, in integrating information and technology literacy skills into the content curriculum, and in meeting the expectations for student research set forth in the Common Core State Standards. (p. 1)

The Library of Michigan requires that school libraries be staffed with certified school librarians and qualified support staff. Programs not meeting the staffing measure are classified as at risk.

According to Johnson (2001), "The assessment of a building's school library program is a vital task that can lead to improvements in the delivery of library and technology services, and improve the effectiveness of the total school" (p. 14). The SL21 program brings attention to the importance of K-12 students having accessible on-site school library facilities and the profound effect this has on student achievement. According to Achterman (2008), "At a time when achievement on standardized tests is so strongly weighted in assessing the overall success of schools, investment in a robust school library program should be a primary goal" (p. 194).

Purpose of the Study

According to Matthews (2007), nearly half of public and academic libraries use informal customer feedback to measure their success instead of using a quantifiable measure of success. There is not a systematic body of literature on the reliability and validity of the *School Libraries for the 21st Century Measurement Benchmarks.* Thus, the purpose of this study is to analyze the instrument for the psychometric properties of internal consistency reliability and construct validity using classical measurement methodology. The research questions that are guiding this study are:

1. Is SL21 a reliable instrument, as measured by Cronbach alpha's internal consistency and split half reliability?
2. Does evidence of construct validity based on internal factor structure via exploratory factor analysis exist for the SL21 evaluation tool?

The SL21 school library instrument was administered to school employees throughout the state of Michigan. Secondary data analysis of the SL21 evaluation tool

will be utilized to answer the research questions. Swisher and McClure (1984) discussed the importance of library performance measures,

> Carefully selected and intelligently used, performance measures are perhaps the most important tool the library has to ensure that goals and objectives are being accomplished, to set priorities for resource allocation, to justify services and demonstrate accountability to outside funding agencies, and to identify and set priorities for areas of library activities that require attention. (p. 37)

Snowball acknowledged, "Children and teenagers are the future adult users of libraries, and how they are treated in our libraries, particularly school and public libraries, can cement lifelong memories and habits in these young people" (2008, p. 25). This research is significant because libraries are vying to remain a relevant source for information needs. Frequently, school libraries are used to store antiquated resources, instead of being a robust media program that encourages learning (Rosales, 2014).

The results from the evaluation could be used by make funding decisions and improve existing programs and services offered by the library media center. Johnson (2001) recommended that state evaluation standards serve as growth plan for all media centers. Everhart (1998) noted "Collecting hard data on various aspects of your library media program lends credence when you communicate program needs to administrators" (p. 1).

Assumptions and Limitations

The SL21 evaluation is based on a voluntary convenience sample of respondents. The sample was not selected randomly, therefore no generalizations may be made about the non-representative sample.

Definition of Terms

At Risk Status. School Library Program does not meet minimal benchmarks for providing services and resources (SL21 Measurement Benchmarks, 2013, p. 28)

Construct validity. The extent to which a set of measured variables actually represents the theoretical latent construct they are designed to measure (Hair et al., 2005, p. 707).

Exemplary Status. School Library Program provides highest quality services and resources. (SL21 Measurement Benchmarks, 2013, p. 28)

Exploratory Factor Analysis. A statistical technique used to define underlying structures among variables (Hair et al., 2005, p. 773).

Program evaluation. Evaluations that assess ongoing activities that provide services (JCSEE, 1994, p. 208).

Reliability. An assessment of the degree of consistency between multiple measurements of a variable (Hair et al., 2005, p. 137).

Qualified Status. School Library Program provides essential services and resources (SL21 Measurement Benchmarks, 2013, p. 28)

CHAPTER 2 REVIEW OF THE LITERATURE

According to Cook, Parker and Pettijohn, libraries are "presently seen as being a place that offers books for lending but lacking in terms of higher-level technology needs" (2005, p. 157). Johnson (2003) noted that libraries should capitalize on the qualities that the Internet is incapable of providing to remain a viable resource. Some of the physical attributes that libraries can offer over the virtual attributes of the Internet are: the complimentary use of resources, the expertise of library staff, the social experiences, and an environment that is comforting and welcoming.

According to Kaplan (2007), library media specialists are responsible for providing "an instructional program that helps students and faculty become efficient and effective users of information" (p. 301). Church (2003) noted, "All the data shows that strong media library programs led by strong library media specialists positively impact the academic achievement of students" (p. 2). In addition to having a certified school library media specialist, Kaplan (2007) described the characteristics of a strong library media program as one in which students and faculty have unrestricted access to resources, administrators are supportive and encourage collaboration, and the library program is incorporated into the curriculum of the school.

The role of library media centers has evolved from being just a quiet place to study for students. In addition to teaching, school librarians are also responsible for supervising staff, integrating new technologies, managing budgets, preparing students for standardized test and much more. Unfortunately, Johnson (2001) indicated that often media specialists are assessed using the same evaluation methods as teachers. Everhart (1998) noted that often there is only one media specialist employed at a

school. Consequently, media specialists are unable to interact with colleagues on a regular basis, making it difficult to understand how your library programs compares with others.

School Library Studies

To ensuring the quality of school library media programs, an evaluation of the program is imperative. Often library programs are evaluated using standards that were developed by professional library associations. Both state and national level studies about school libraries have been commissioned using various evaluation techniques. Several states library studies examined the relationship between school library media programs and the academic performance of students on standardized test. Additionally, student perceptions, staffing levels, hours of operation, technology, collections, and budgets were found to have an impact on the quality of a library program.

Johnson described the process in which standards for school libraries were developed in Minnesota (2000). The creation of state standards was an initiative of Minnesota Educational Media Organization (MEMO), a professional organization for library media specialists. Similar to the creation of the SL21 instrument in Michigan, a taskforce was used to create state standards for Minnesota's school libraries. The standards committee members were comprised of MEMO members, various school employees, library personnel and state department representatives. The rubric uses three levels (i.e. minimal, standard, and exemplary) to evaluate the performance of school library programs. Johnson (2000) noted the importance of the State Standards "as a potential assessment tool for the status of school library media programs across the state by providing a single scale" (p. 19).

Lance, Welborn and Hamilton-Pennell (1993) examined the relationship between school library media programs and academic achievement in 221 Colorado public schools. Data collected for this study were obtained from previously administered reading tests, school library media center surveys, Colorado department of education files and Colorado census data. Student achievement was measured using reading scores from the following grades: first, second, fourth, fifth, seventh, and tenth. Correlation analysis, factor analysis, and path analysis were the statistical methods used to evaluate the data. The study found that the best predictor of academic achievement is the size of the collection and the total number of employees on staff at the media center. Student achievement was greater in schools with better-funded library programs, regardless of the education levels of the adults in the community and socioeconomic status of the schools and communities. Students that attend schools staffed with library media specialists were shown to have higher academic achievement. According to Lance et al., "A library media center should be staffed by an endorsed library media specialist who is involved not only in identifying materials suitable for school curricula, but also in collaborating with teachers and others in developing curricula" (1993, p. 92). The media specialists are responsible for making library acquisition decisions for the collection, which has an overall effect on academic achievement.

Lance, Rodney, and Hamilton-Pennell (2000) reexamined the influence of school library media programs on student achievement in the follow-up to the original Colorado study. Replicating the methodology of the initial study, the second Colorado study was expanded to examine the impact of the following predictors on student reading

achievement: school leadership activities of the media specialists, research technology access, and principal and teacher involvement with the media program. Student achievement was measured using fourth and seventh grade reading scores on the Colorado Student Assessment Program (CSAP), a different assessment from the previous study. The study identified several indicators of increased student performance at all grade levels on the CSAP assessment: library program development, library staff to student ratios, total library expenditures to students, ratio of collection materials per students, availability of information technology, and the amount of time a media specialists spends collaborating with teachers. Seventh grade students had higher reading test scores in schools with media centers that offered flexible scheduling, where students could the visit the center as a class or individually as needed. The findings of the study showed that when all library media predictors were maximized, student achievement was greater in fourth grade achievement (18 percent) and seventh grade achievement (10 to 15 percent). The predictors of academic achievement were found to be significant regardless of school or community differences.

Francis, Lance and Lietzau (2010) conducted a third Colorado study to examine the impact of school library programs with librarians on student achievement. Similar to the second Colorado study, student performance was evaluated with the CSAP reading test scores from the elementary level: third, fourth, and fifth grades. Student performance data were retrieved from archival sources. In addition, the study examined the percentage of students with proficient or advanced and unsatisfactory performing on the CSAP. The study evaluated how the following factors influence student performance: staffing levels, expenditure, student visitation, collection, and achievement

gap. The third Colorado study found that student performance on the Colorado Student Assessment Program (CSAP) was greater with the presence of a strong library program, echoing the findings of the first two studies. Elementary students demonstrated higher CSAP performance levels when at least one full-time qualified librarian was on staff, in comparison to schools that employed librarians with fewer work hours. This study reiterates the findings of the previous two Colorado studies that staffing levels play a key role in student achievement.

The New York State School Library Impact Study examined the relationship between school media centers and media specialists on student achievement (Small, Snyder & Parker, 2009). Phase 1 of the study also evaluated the influence the school libraries had on: student motivation for learning, technology use, the relationship between school administrators and librarians, and the services and resources offered to students with disabilities. The Institute of Museum and Library Services, a federal agency, funded the study. The sample consisted of 562 principals and 1,612 school librarians from public schools in New York. Private and charter schools were not included in the study, as well as schools without a library or a librarian. The pilot study established that the survey instrument provided valid and reliable measurements. Fourth grade English Language Arts standardized test scores were used to evaluate student achievement. An analysis of covariance (ANCOVA) was used to compare student achievement in schools with and without certified media specialist. It was statistically significant ($F=15.854$, $p < 0.05$, partial eta-squared = 0.020). In comparison to schools without certified media specialist, the study found that student achievement was generally greater in schools with certified librarians. The mean standardized test

score for library programs with certified librarians was 663.5 (SD= 0.6). Schools with uncertified media specialist had an average test score of 661.6 (SD= 2.2). Thus, it was suggested that school libraries have a positive influence on student learning.

Rodney, Lance and Hamilton-Pennell (2003) discussed the impact of school librarians on student achievement in Michigan. The Reading portions of the Michigan Educational Assessment Program (MEAP) served as an indicator of academic achievement for all grade levels. The study examined the relationship between having qualified school librarians and student achievement by comparing the MEAP performance of schools with librarians and those without. The MEAP sample included 278 fourth graders, 201 seventh graders, and 250 eleventh graders. Rodney et al. (2003) noted a positive and statistically significant relationship between student achievement on the MEAP reading test and library programs with qualified school librarians. School library programs with librarians were shown to have increased reading performance, at all grade levels, when compared to schools without librarians. The percent differences between the groups were: 8% for high schools, 23% for middle schools, and 35% for elementary schools. In addition to library staffing, the study examined the impact of the following library variables on student reading achievement: library hours of operation, staff activities, technology, library usage, library collections, and finances. Although the impact varied by the school level, each variable was found to have a positive impact on student achievement.

In 2003, the Illinois School Library Media Association and Illinois State Library funded an evaluation of schools libraries across Illinois (Lance, Rodney, & Hamilton-Pennell, 2005). Survey data were collected from 657 primary and secondary schools

throughout Illinois. Some of the survey variables were: hours of operation, school library staff and their activities, school library collections and educational technology, library expenditures and types of library usage. Student achievement was measured using the reading and writing assessment scores from the following grade levels: fifth, eighth, and eleventh. Lance et al. (2005) used statistical analyses to evaluate the relationship between school library survey variables and student achievement, and found positive, statistically significant relationships. Student achievement was shown to be greater, across all grade levels, when school libraries offered: flexible scheduling to students and staff, higher levels of library staffing, collaboration between teachers and librarians, larger collections, higher operational budgets, educational technology (used as a supplement to the collection and often available in the classroom), and information literacy instruction. The Illinois study suggested that high-quality school library programs have a significant positive influence on the academic performance of students.

The Missouri Department of Elementary and Secondary Education and the Missouri State Library commissioned a study about the influence library media center and services had on student achievement on the Missouri Assessment Program (MAP) test (Quantitative Resources, 2004). The data sample was comprised of 241 schools, where both school level data and survey data were available. The data from the two sources were aggregated into the following components: librarian qualifications, library staff activities, library staffing, library access, library usage, summer reading program, library budget, library management, technology, library space, and library media center holdings. To evaluate the relationships between library media center programs and student performance, the following statistical analyses were performed: bivariate

correlation, multiple regressions and partial correlation. The weighted average was implemented for MAP test results. The study determined that Missouri schools with library media programs have a positive impact (10.6%) on MAP performance. "No longer is the connection between school library media centers and student achievement an opinion or belief. The connection has been confirmed as a statistically significant, true relationship based on hard data (Quantitative Resources, 2004, p. 6)." Furthermore, this relationship cannot be explained away by school and community demographic characteristics. Library access, library usage and summer reading programs were shown to have a statistically significant impact on student achievement.

Todd and Kuhilhau (2005) examined how effective school libraries helped students to learn in Ohio. Thirty-nine schools with effective school libraries were selected to participate in the study. After conducting a pilot study of the survey instrument, it was determined that students in kindergarten through second grade were not eligible to participate in the study because of limited experience with libraries and language skills. The study was comprised of 879 faculty members and 13,123 students which ages ranged between 7 and 20 years old and represented grades third through twelve. The student population that participated in the study were White (78.5%), African-Americans (5.5%) and multiracial (4.1%). A majority of the students are located in urban or suburban districts (80.9%), the others live in rural areas (9.8%), small cities (7%) and large cities (2.3%).

The Impacts on Learning Survey, a web-based instrument, were used to collect both quantitative and qualitative data that included both open-ended and likert scale

responses for students. The questionnaire included 48 statements about help at the school library, and covered the following topics:

1. How helpful the school library is with getting information you need.
2. How helpful the school library is with using the information to complete your school work.
3. How helpful the school library is with your school work in general.
4. How helpful the school library is with using computers in the library, at school, and at home.
5. How helpful the school library is to you with your general reading interests.
6. How helpful the school library is to you when you are not at school.
7. General school aspects (Todd & Kuhilhau, 2005, p. 67).

The data showed that majority of the students (99.44%) perceived effective school libraries as being helpful in their education in various ways. According to Todd and Kuhilhau (2005), "Students valued instruction that enabled them to become good researchers and to explore the world of ideas in depth, and many acknowledged that this instruction had a positive effect on their grades" (p. 86). Effective school library programs that helped with student achievement were identified as having all of the following elements: informational, transformational, and formational.

The Schools and Staffing Survey (SASS) is a national survey of public and private schools and their employees throughout the United States. Both traditional and charter public schools participated in the 2011–2012 SASS library media centers survey. According to Bitterman, Gray and Goldring (2013), 90 percent of all public schools in the United States have a library media center. One-third of public schools reported that they did not employ a full-time, salaried, state certified media specialist. Over half of all salaried school library media specialists reported earning a master's degree in relevant library program of study. In the United States, public schools with library media centers generally have 17 computer workstations with Internet access.

Eighty-six percent of all school libraries reported offering students access to online, licensed databases (Bitterman et al., 2013). Respondents were asked about the hours of operation for independent student use. The majority of the public school libraries offered both flexible and regular hours (61 percent), while other libraries exclusively offered either flexible hours (19 percent) or regular hours (19 percent). Library patronage by independent students was offered during the following times: regular school hours (89 percent), before school (57 percent), and after school (54 percent). Public school libraries reported permitting laptop usage outside of the media centers for school employees (54 percent) and students (40 percent).

Program Evaluation

The Joint Committee on Standards for Educational Evaluation defined program evaluations as "evaluations that assess ongoing activities that provide services" (JCSEE, 1994, p. 208). According to Patton (2008),

> Program evaluation as a distinct field of professional practice was born of two lessons […]: first, the realization that there is not enough money to do all the things that need doing; and second, even if there were enough money, it takes more than money to solve complex human and social problems. As not everything can be done, there must be a basis for deciding which things are worth doing. Enter evaluation (Patton, 2008, p. 16).

Program evaluations can be summative and formative. Formative evaluations are "designed and used to improve an object, especially when it is still being developed" (JCSEE, 1994, p. 206). Summative evaluations are "designed to present conclusions about merit and worth of an object and recommendations about whether it should be retained altered or eliminated" (JCSEE, 1994, p. 209). The formative SL21 evaluation

tool can be used as a "as conversation starters with principals and school administrators" (SL21 Background, 2013, p. 1).

SL21 Instrument

The *Measurement Benchmarks for Michigan School Libraries for 21st Century Schools* (SL21) instrument was developed in 2009 to measure the quality of Michigan's school library programs within individual buildings. In 2013, the SL21 instrument was revised by a workgroup, which included librarians, MAME members, and a school administrator. The Library of Michigan Board of Trustees endorsed the revised SL21 measures. The SL21 instrument is available in a printed format. Respondents are sent the instrument to complete and return via mail. The 19 items program evaluation examines the following categories: Building the 21st Century Learning Environment, Teaching for 21st Century Learning, and Leading the Way to 21st Century Learning. The instrument uses a 3-point response scale of exemplary, qualified and at risk to evaluate the status of an individual library program. The Evidence of Practice sections offer respondents the opportunity to expound upon why their programs are proficient or deficient in every measurement benchmark.

Knowing the important role of the teacher-librarian in the overall success of the school library program, the SL21 program evaluation incorporates several measures in regards to this position, but the developers of the SL21 instrument caution that it is not an employee evaluation. Haycock (1999) notes that often the evaluation of the media specialist is "confused with evaluation of the "library program" itself, which is a much larger and more complex area" (p. 14). Furthermore, it is unfair to hold the teacher-librarian accountable for an entire library program when there are many factors (e.g.

budgets, staffing, and acquisitions) that are not under the direct control of the teacher-librarian.

Psychometrics

Warwick and Lininger (1975) described a survey as a "method of collecting information about a human population in which direct contact is made with the units of the study (individuals, organizations, communities, etc.) through such systematic means as questionnaires and interview schedules" (pp. 1-2). Measurement consistency and accuracy is a very important aspect of survey research. According to Warwick and Lininger, "There are two basic goals in questionnaire design: (1) to obtain information relevant to the purposes of the survey, and (2) to collect this information with maximal reliability and validity" (1975, p. 127).

The degree of consistency between multiple measures of a variable is reliability (Hair et al., 2005). "The degree to which responses are consistent across the item within a measure" is internal consistency reliability (Kline, 2011, p. 69).

Cronbach's alpha, which is also called alpha coefficient, is a measure of internal consistency reliability. Cronbach's alpha is defined as

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}} \tag{1}$$

where N is equal to the number of items, $\bar{c}$ is the average inter-item covariance among the items, and $\bar{v}$ equals the average variance. Split-half reliability coefficient is another measure of internal consistency where the assessment is divided into two parts, and a correlation coefficient is produced between the halves.

The degree to which an instrument measures what it is supposed to measure is validity. Construct validity is "the extent to which a set of measured variables actually represents the theoretical latent construct they are designed to measure" (Hair et al., 2005 p. 707). According to Cronbach and Meehl, "Construct validation takes place when an investigator believes his instrument reflects a particular construct, to which are attached certain meanings. The proposed interpretation generates specific testable hypotheses, which are a means of confirming or disconfirming the claim" (1955, p. 290). Thus, the accuracy of a measurement is examined by construct validity.

Exploratory factor analysis (EFA) is a statistical technique used to assess construct validity. Ferguson and Cox (1993) described the EFA process in three phases: pre-analysis checks, extraction and rotation. Principal component analysis is an extraction technique to reduce the dimensionality of a data set consisting of a large number of interrelated variables, while retaining as much as possible of the variation present in the data set. This is achieved by transforming to a new set of variables, the principal components, which are uncorrelated, and which are ordered so that the first few retain most of the variation present in all of the original variables (Jolliffe, 2002). Varimax is an orthogonal rotation technique that attempts to find a simple structure in factor analysis (Everitt & Skrondal, 2010).

CHAPTER 3 METHODOLOGY

Design

The current study will employ an ex post facto research design using secondary data from the *Measurement Benchmarks for Michigan School Libraries for 21st Century Schools (SL21)* survey instrument. The data were collected from evaluations administered from 2014-2015. The SL21 data were obtained after submitting a request to the Library of Michigan.

Study Population

During the 2015-2016 school year, there were 4,832 public school buildings in Michigan, and 644 of these buildings reported having Librarians/Media Specialists (CEPI, 2016). Participation in the SL21 program is voluntary, and all school types (i.e. charter, private, and public) are encouraged to participate. Research participants are recruited by the Library of Michigan through professional organizations, conferences, and presentations. The Michigan Association for Media in Education (MAME) is one of the professional organizations that partners with the Library of Michigan in recruiting potential study participants. The school library program evaluation must be jointly completed by both the school administrator and school librarian, and requires the final review of District Superintendent before submittal.

Procedures

The survey data from the printed SL21 instrument will be manually entered into a database for analysis. The names of school library programs will be omitted. The data will not identify the names of individual school administrators or librarians. The SL21 data obtained will be analyzed using IBM SPSS Statistics version 22.

Instrument Reliability

Cronbach's alpha and split-half will be computed using SPSS to assess the internal consistency reliability of the SL21 instrument. According to Nunnally and Bernstein (1994), an adequate reliable scale has a minimum reliability coefficient of 0.80.

Data Analysis

After the SL21 data are obtained, the data will be cleaned to ensure quality. The scores obtained from administering the school library program evaluation are dependent variables. Listwise deletion will be implemented to exclude cases with missing data from the analysis. Descriptive statistics (i.e. mean, standard deviation, and variance) on the scores will be computed for the data set.

An exploratory factor analysis will be used in an attempt to discover factors. The next step will be to run a factor analysis and factor rotation. Varimax, an orthogonal rotation technique, is the factor rotation method that will be used. After the rotation is completed, factor loadings will be examined. Small coefficients with an absolute value below 0.4 will be suppressed.

CHAPTER 4 RESULTS

In this chapter, the psychometric properties of the SL21 instrument are reported. The sample consisted of 54 respondents who were administered the instrument in 2014 and 2015. All of the surveys were returned and valid for the analysis. Results of the reliability measures and factor analysis are presented. Multiple measures of internal consistency reliability were examined for comparison purposes: Cronbach's alpha, Subscale Spearman-Brown, and Split-half reliability. Exploratory factor analysis (EFA) was used to measure construct validity. Three techniques were used in an attempt to confirm factors: 1) estimate the number of factors to retain with statistical software (SPSS), 2) visual inspection of a Scree plot to determine the number of factors to retain and 3) force in to three factors because the instrument has three subscales. The findings of the data analyses are displayed using the Tables below.

Reliability

The internal consistency reliability was measured by Cronbach's alpha for the SL21 instrument. For the overall instrument, Cronbach's alpha, as well as Cronbach's alpha based on standardized items, for the $n = 19$ items was .807. The item statistics for each of the SL21 Benchmarks are displayed in Table 1. Curriculum Development was shown to have the lowest mean and the greatest standard deviation. Climate Conducive to Learning had a zero variance.

Table 1

Item Statistics for SL21 Benchmarks

Item	Mean	Std. Deviation
Staffing	1.72	.492
Climate Conducive to Learning	2.00	.000
Accessibility	1.96	.272
Facility	1.87	.339
Citizenship & Social Responsibility	1.93	.264
Instructional Materials	1.91	.293
Budget	1.72	.452
Instruction	1.83	.376
Student Achievement	1.70	.537
Collaboration	1.72	.452
Inquiry-Based Research	1.83	.376
Reading	1.85	.359
Technology	1.91	.293
Curriculum Development	1.61	.656
Program Effectiveness	1.76	.473
Professional Learning Communities	1.87	.391
Local & Global Community Engagement	1.78	.462
Advocacy	1.76	.432
Policies and Procedure	1.74	.442

The item total statistics for *SL21* Benchmarks, where n=18, is shown in Table 2.

Climate conducive to learning was removed because it had zero variance. Cronbach's

alpha was .810 and Cronbach's alpha based on standardized items was .806, for the n

= 18. The final column of Table 2, Cronbach's Alpha if Item Deleted, provides the value

that Cronbach's alpha would be if that particular item was deleted from the analysis.

Provided in Table 3 are the scale statistics for the data set, where n=18.

Table 2
Item Total Statistics for SL21 Benchmarks

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Staffing	30.76	12.035	.369	.803
Accessibility	30.52	12.896	.290	.806
Facility	30.61	12.469	.398	.801
Citizenship & Social Responsibility	30.56	12.591	.467	.800
Instructional Materials	30.57	13.042	.194	.810
Budget	30.76	12.337	.314	.806
Instruction	30.65	12.723	.251	.808
Student Achievement	30.78	10.855	.677	.779
Collaboration	30.76	12.337	.314	.806
Reading	30.63	12.011	.562	.792
Technology	30.57	12.966	.230	.809
Curriculum Development	30.87	10.870	.517	.793
Program Effectiveness	30.72	11.638	.519	.792
ProfessionalLearning Communities	30.61	11.714	.625	.788
Local & Global Community Engagement	30.70	11.646	.531	.792
Policies and Procedures	30.74	11.705	.541	.791
Inquiry-Based Research	30.65	13.176	.081	.817
Advocacy	30.72	12.770	.188	.813

Table 3
Scale Statistics

Mean	Variance	Std. Deviation	N of Items
32.48	13.537	3.679	18

After reviewing Table 2, it does not appear that deleting any single item would substantially improve Cronbach alpha.

Cronbach's alpha, which suffers from attenuation due to the reduction in the number of items, is projected by the Spearman-Brown prediction formula. The total scale was reduced to N = 18 items, six for each subscale: building, teaching and leading. The original scale consisted of N = 19 items, but Climate conducive to learning was excluded from the subsequent analyses because it had zero variance. The

Spearman-Brown based Cronbach's alpha for the three subscales is reported in Table 4.

Table 4
Subscale Spearman-Brown (Total Scale N = 18 items) based on Cronbach Alpha (n = 6 items per subscale)

Subscale	Cronbach's Alpha	n Items	Spearman-Brown (N items = 18)
Building	0.549	6	0.785
Teaching	0.652	6	0.849
Leading	0.697	6	0.873

In addition to Cronbach's alpha, the split half coefficient expressed as a Spearman-Brown corrected correlation was computed for the *SL21 Benchmarks.* The scale was split by dividing the items on the instrument in into two halves. The first half of the analysis contained items: Staffing, Accessibility, Facility, Citizenship & Social Responsibility, Instructional Materials, Budget, Instruction, Student Achievement, and Collaboration. The second half contained: Reading, Technology, Curriculum Development, Program Effectiveness, Professional Learning Communities, Local & Global Community Engagement, Policies and Procedures, Inquiry-Based, Research, and Advocacy. Similar to the Cronbach's alpha analysis, Climate Conducive to Learning was not included in the split half analysis. The results of the analysis are shown Tables 4. The Spearman-Brown adjusted the internal consistency reliability estimate substantially adjusted the Cronbach Alpha for the two parts upward, as indicated in Table 5 below.

Table 5

Split-half Reliability for SL21 Benchmarks, n=18

Cronbach's Alpha	Part 1[a]	r =	.638
		N of Items =	9
	Part 2[b]	R =	.717
		N of Items =	9
	Total N of Items		18
Correlation Between Forms			.674
Spearman-Brown	Equal Length		.805
Coefficient	Unequal Length		.805
Guttman Split-Half Coefficient			.796

Note.
   a. The items are: Staffing, Accessibility, Facility, Citizenship & Social Responsibility, Instructional Materials, Budget, Instruction, Student Achievement, Collaboration.
   b. The items are: Reading, Technology, Curriculum Development, Program Effectiveness, Professional Learning Communities, Local & Global Community Engagement, Policies and Procedures, Inquiry-Based, Research, Advocacy.

Construct Validity

There are two approaches that can be invoked at this point. When the purpose is data reduction, the following iterative approach is useful. Suppress all factor loadings that are less than |.4| and sort the factors by magnitude of the weights. Then, eliminate all items that either fail to load, or load on more than one factor. This process is then repeated until all items meet the above conditions. This method is typically used when there are a large number of potential items in a pool (e.g., several hundred or more).

However, a second approach is more appropriate in this case because there are initially only a limited number of items in the pool. It is appropriate, therefore, to carry out the EFA once, and print all items regardless of factor weights. Then, a heuristic process is used to make sense of the EFA.

The initial factor analysis was conducted by allowing the statistical software to estimate the number of common factors to retain with eigenvalue greater than 1. Identified in Tables 6 through 8 are six common factors in the *SL21* instrument. The

factors were extracted using the principle component method and were rotated using

Varimax. It appears that all of the items in Table 6 contributed to the component matrix.

The total variance explained was 68.6%.

Table 6
Rotated Component Matrix[a] for the SL21 instrument, six factor solution

Item	Component					
	1	2	3	4	5	6
Citizenship & Social Responsibility	.802	.006	-.112	.189	-.152	.096
Professional Learning Communities	.773	.262	.020	.155	.016	.115
Local & Global Community Engagement	.736	.190	.143	-.089	.148	.058
Policies and Procedures	.619	.154	.308	-.016	.005	-.245
Reading	.587	-.012	.107	.436	.261	.192
Accessibility	-.022	.829	.040	.073	.033	-.040
Program Effectiveness	.327	.813	.015	.087	.121	.121
Facility	.362	.666	.031	-.050	-.319	-.240
Instruction	-.006	-.094	.895	-.090	.014	.007
Student Achievement	.404	.141	.623	.382	.167	-.044
Curriculum Development	.245	.062	.608	.433	.037	-.282
Collaboration	-.088	.209	.542	.373	.075	.347
Technology	.044	-.066	.011	.768	-.037	.144
Staffing	.092	.230	.226	.537	-.001	-.186
Inquiry-Based Research	-.069	.074	.214	-.124	.805	.074
Instructional Materials	.332	-.166	-.224	.301	.636	-.250
Advocacy	.455	-.022	-.034	-.001	-.096	.753
Budget	.444	.393	.023	-.109	-.259	-.467

Note.
   a. Rotation converged in 18 iterations.

Table 7
Total Variance Explained for the SL21 Benchmarks, six factor solution

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.509	19.497	19.497
2	2.241	12.450	31.946
3	2.143	11.908	43.854
4	1.751	9.730	53.584
5	1.396	7.757	61.341
6	1.306	7.256	68.597

Table 8
Component Transformation Matrix for the SL21 Benchmarks, six factor solution

Component	1	2	3	4	5	6
1	.771	.426	.332	.332	.069	-.017
2	-.250	-.431	.614	.445	.396	.140
3	-.470	.564	.502	-.112	-.195	-.398
4	.075	-.015	-.183	-.153	.718	-.650
5	-.316	.559	-.324	.272	.440	.464
6	.130	.053	.350	-.763	.303	.429

In Figure 1, a scree plot was produced to determine the appropriate number of factors that should be generated by the analysis. The graph displays the factors on the x-axis and eigenvalues on the y-axis. A visual inspection of the scree plot indicates the leveling off of eigenvalues on the scree plot after about four factors.
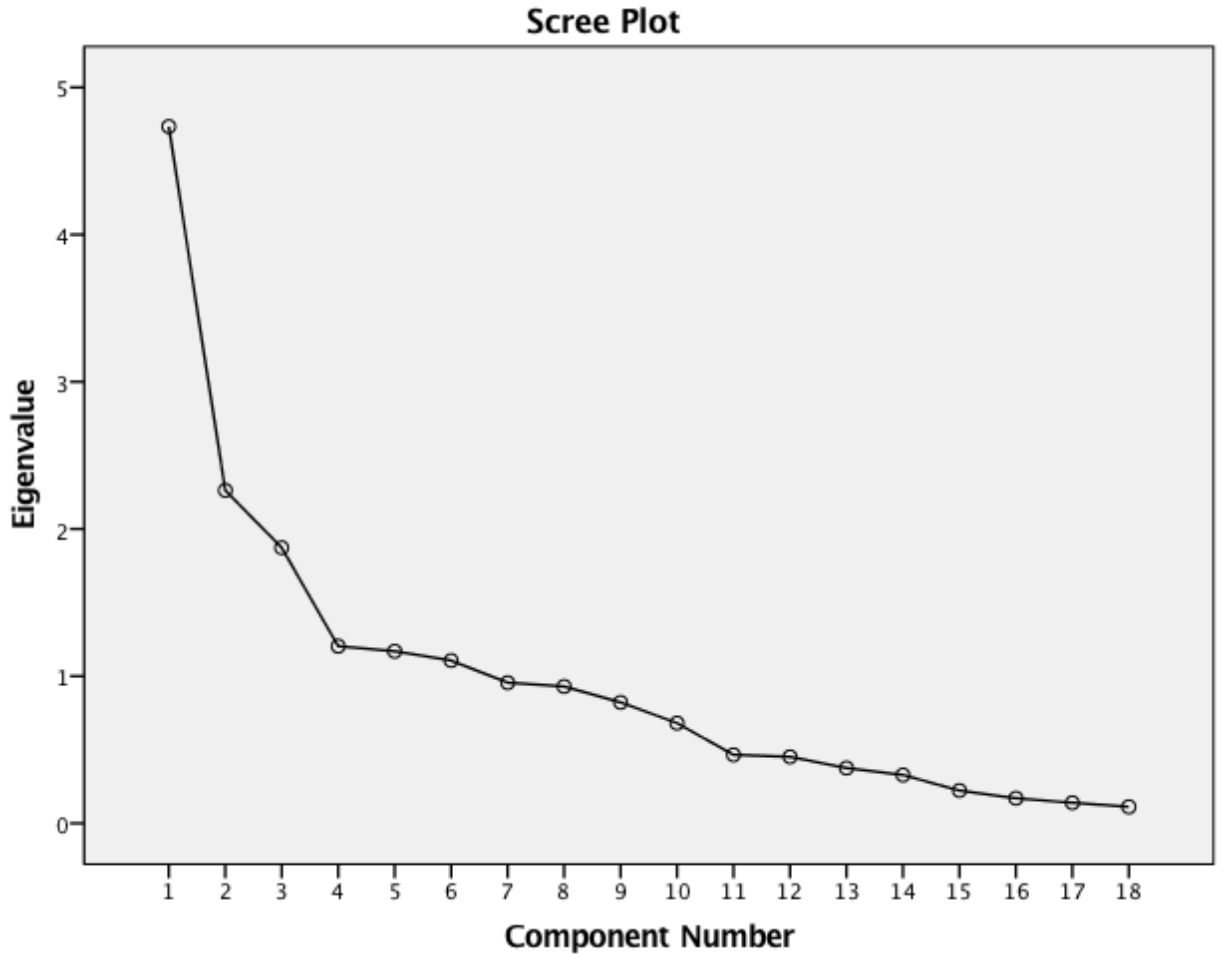
Scree Plot

Figure 1. *Measurement Benchmarks for Michigan School Libraries for 21st Century Schools* Factor Structure Based on Scree Plot

The next factor analysis was conducted using the four factors derived from the scree plot. From the analysis, Tables 9 through 11 were created. It appears that all of the items are contributing to the component in a meaningful way, as noted in Table 9. However, the explained variance was reduced in this model to 56%.

Table 9
Rotated Component Matrix[a] for the SL21 instrument, four factor solution

Item	Component			
	1	2	3	4
Facility	.827	.116	.016	-.185
Budget	.734	.095	-.071	.034
Program Effectiveness	.688	.258	.150	-.015
Accessibility	.653	-.109	.159	-.099
Policies and Procedures	.478	.334	.226	.231
Citizenship & Social Responsibility	.258	.783	-.039	.033
Advocacy	-.144	.718	.017	-.326
Professional Learning Communities	.428	.704	.101	.106
Reading	.031	.673	.312	.297
Local & Global Community Engagement	.404	.560	.087	.224
Student Achievement	.236	.307	.726	.247
Instruction	-.015	-.161	.720	-.002
Collaboration	-.047	.079	.711	-.141
Curriculum Development	.224	.102	.703	.233
Staffing	.228	.093	.455	.107
Technology	-.204	.332	.380	-.016
Instructional Materials	-.065	.283	-.063	.780
Inquiry-Based Research	-.097	-.132	.197	.587

Note.
  a. Rotation converged in 6 iterations.

Table 10
Total Variance Explained for the SL21 Benchmarks, four factor solution

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.002	16.676	16.676
2	2.956	16.424	33.100
3	2.660	14.777	47.877
4	1.454	8.080	55.957

Table 11
Component Transformation Matrix for the SL21 Benchmarks, four factor solution

Component	1	2	3	4
1	.596	.628	.463	.191
2	-.590	-.081	.745	.300
3	.514	-.728	.408	-.200
4	.181	-.264	-.252	.913

The last factor analysis was conducted by forcing three factors. The determination of the number of factors to extract was based on the *SL21* instrument having three subscales: Building the 21st Century Learning Environment Subscale, Teaching for 21st Century Learning Subscale, and Leading the Way to 21st Century Learning Subscale. Tables 12 through 14 display the principal component analysis: Rotated Component Matrix, Total Variance Explained, and Component Transformation Matrix. The explained variance was further reduced to 49.3%.

Table 12

Rotated Component Matrix^a for the SL21 instrument, three factor solution

Item	Component		
	1	2	3
Facility	.852	.040	-.036
Budget	.720	.084	-.063
Program Effectiveness	.704	.222	.130
Accessibility	.657	-.152	.135
Policies and Procedures	.467	.367	.262
Citizenship & Social Responsibility	.304	.756	-.065
Reading	.045	.719	.345
Professional Learning Communities	.460	.693	.093
Advocacy	-.035	.603	-.100
Local & Global Community Engagement	.406	.587	.116
Instructional Materials	-.172	.490	.123
Student Achievement	.247	.338	.750
Curriculum Development	.222	.138	.734
Instruction	.006	-.173	.702
Collaboration	.014	.019	.648
Staffing	.234	.101	.463
Technology	-.157	.310	.347
Inquiry-Based Research	-.191	.032	.345

Note.
a. Rotation converged in 5 iterations.

Table 13

Total Variance Explained for the SL21 Benchmarks, three factor solution

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.118	17.323	17.323
2	3.004	16.688	34.011
3	2.747	15.259	49.270

Table 14

Component Transformation Matrix for the SL21 Benchmarks, three factor solution

Component	1	2	3
1	.621	.629	.467
2	-.601	.000	.799
3	.502	-.778	.378

After forcing the exploratory factor solution into three factors, the explained variance was reduced further. The findings derived from the EFA did not tend to support the original three-factor structure of the SL21 instrument, as is evidenced by Table 15 below. It is essentially the information contained in Table 12 above, with the small factor loadings suppressed less than |.4|. An inspection of the factor loadings revealed that 5 of the 18 items loaded on the appropriate factors. Two items from the Learning component, Professional Learning Communities and Local & Global Community Engagement, cross-loaded on both the Building and Teaching components. Technology failed to load on any of the three factors.

Table 15
Rotated Component Matrix^a for the SL21 instrument, three factor solution

Items	Component		
	1	2	3
Component 1: Building			
Staffing			.463
Accessibility	.657		
Facility	.852		
Citizenship & Social Responsibility		.756	
Instructional Materials		.490	
Budget	.720		
Component 2: Teaching			
Instruction			.702
Student Achievement			.750
Collaboration			.648
Inquiry-Based Research			
Reading		.719	
Technology			
Component 3: Learning			
Curriculum Development			.734
Program Effectiveness	.704		
Professional Learning Communities	.460	.693	
Local & Global Community Engagement	.406	.587	
Advocacy		.603	
Policies and Procedures	.467		

Note.
   a. Rotation converged in 5 iterations.

CHAPTER 5 CONCLUSIONS

Reliability

Measurement Benchmarks for Michigan School Libraries for 21st Century Schools (SL21) was found to have an adequate reliability. The sample consisted of 54 respondents from school library programs in Michigan. During the 2015-2016 school year, 644 public school buildings reported having Librarians/Media Specialists (CEPI, 2016). Cronbach's alpha for the total instrument was 0.807 (n = 19 items). Initially, the item-deletion method was performed to determine if Cronbach's alpha could be improved. First, Climate Conducive to Learning was excluded from the subsequent analyses because it had zero variance. Next, Inquiry-Based Research and Advocacy were deleted because the value of "Cronbach's alpha if item deleted" was greater than the original estimate of reliability. The reduced item set produced a Cronbach alpha of 0.810 when n=18; 0.821 when n=16. There appears to be no substantive reason to delete Inquiry-Based Research and Advocacy because the incremental improvement in reliability was marginal.

In Table 1, Curriculum Development was shown to have the lowest mean (1.61) and the greatest standard deviation (.656). Although, it is evident that one of the data points has to be in the lowest or greatest positions. Perhaps, the State of Michigan should consider examining the curriculum development of school library programs further. The high variance indicates a wide spread variation in the respondents' perception of their school library curriculum.

The Spearman-Brown prediction formula was used because of the small number of items in the three subscales. The analysis consisted of a total 18 items, where n = 6

items per subscales can be projected to a total of 12 additional items. Substantial promise of increased reliability is indicated in all the subscales in Table 4. In the first subscale, Building the 21st Century Learning Environment, Cronbach's alpha is expected to increase from .549 to .79. In other words, this means that if an additional twelve items of the same psychometric caliber as the initial six items in the subscale were added, the reliability is projected to increase to .79. Although Cronbach's alpha exceeded the recommended minimum of 0.80 by Nunnally and Bernstein (1994), the reliability could be improved by increasing the number of items, as indicated by the Spearman-Brown.

The SL21 instrument had a good split-half reliability (.805) which indicated that the correlation between forms was moderate (0.67). The instrument was split into two even parts; where, the first half was comprised of the first 9 items, and the second half contained the last 9 items. As previously stated, Climate Conducive to Learning was omitted from the analysis. It is important to know how the test was split because the values of the split-half reliability can vary depending on how the instrument was divided. Other factors that may have an influence on the analyses are the design of the instrument and respondent fatigue.

Construct Validity

Exploratory factor analysis (EFA) was used to determine if evidence of construct validity exists for the SL21 evaluation tool. The instrument was designed with three subscales, and EFA was used to determine if the same structure will be revealed in the data. The results of the initial EFA discovered that the 3-point scale created 6 factors, and this does not support the original factor structure. Four factors were revealed after a

visual inspection of a scree plot. The last factor analysis was conducted by forcing SPSS to extract three factors. The results showed that as the number of factors were reduced, the total variance explained also was reduced. Further examination of the three factor extraction revealed that 13 of the 18 items failed to load on the appropriate factors. Technology failed to load on any of the factors. This maybe an indication that the item was poorly designed or should not have been included in the measure.

The original 3-point scale identified 6 factors. Often, this scale produces data that are extremely distributed, and is difficult to distinguish the relations among the variables. This can lead to low inter-item correlations and lower internal consistency. Therefore, it is recommended that the 3-point scale be recalibrated into a 5-point Likert scale. The modified scale could possibly increase the internal consistency, display higher inter-item correlations, and identify two or three factors.

Implication for Further Studies

The *School Libraries for the 21st Century Measurement Benchmarks* evaluation was based on a voluntary sample of respondents. The sample was restricted to school library programs Michigan, and was not selected randomly. Therefore, no generalizations may be made about the psychometric results of this study.

The SL21 instrument is worthy of further study because of the dearth of literature that is focused on examining the psychometric properties of evaluation tools for school library programs. Perhaps a future study will use a revised survey instrument and a nationally representative sample.

APPENDIX A

September 21, 2015

Dear Natosha Floyd,

This letter grants permission for you to reprint the revised 2013 version of the *Measurement Benchmarks for Michigan School Libraries for 21st Century Schools* (SL 21) instrument in your dissertation. The SL 21 instrument is publically available online via the Library of Michigan's website.

Furthermore, you have permission to perform secondary analysis of SL 21 data. No identifiable information such as individual school or school personnel should be included in your analysis or dissertation.

After you have completed your research, please share your results with the Library of Michigan. If you have any questions regarding SL 21, please contact me by email at reishk@michigan.gov.

Sincerely,

Karren Reish
Library Grants Coordinator

APPENDIX B

School Library 21 (SL 21)

Measurement Benchmarks for Michigan School Libraries for 21st Century Schools

Categories for School Library Program Evaluation

Building the 21st Century Learning Environment
Teaching for 21st Century Learning
Leading the Way to 21st Century Learning

This tool is for measuring the quality of School Library programs within individual school buildings in Michigan.

Procedure: To achieve Qualified and Exemplary Status for their School Library program, schools submit completed benchmark measurement evaluations to the Library of Michigan, an Office of the Michigan Department of Education. Complete scoring and brief evidence of practice for each benchmark.

To receive status, a school building must be in compliance with state rules, including staffing. School administrators evaluate their building's School Library program in conjunction with their School Librarian. Submission requires the signature of the District Superintendent. Status earned will be valid for three years.

Further information and links to applicable state rules at **School Libraries in the 21st Century** (**www.michigan.gov/sl21**)

School Library 21 (SL 21) Introduction

The Library of Michigan promotes the role of the school library program in student achievement through a call for all elementary and secondary students to have ready access to a library in their school with appropriate resources, programming and certified staff. To ensure the quality of individual libraries, the Library of Michigan calls for school administrators and school librarians to use the SL 21 measures to assess the quality of school library programs in individual buildings.

The role of the 21st century school library in student achievement and quality education is well defined by the American Association of School Librarians (AASL) [Position Statement on the Role of the School Library Program](#).

"Learning for life, whether the focus is on readiness for the next grade or college and career readiness; the school library program plays a crucial role in preparing students for informed living in the 21st century. Today's information universe affords opportunities for around-the-clock access to information in diverse and often unjuried venues. Citizens of this information world must have the skills and dispositions to access information efficiently and to assess critically the sources they rely upon for decision-making, problem solving, and generation of new knowledge.

The school library program provides learning opportunities in multiple literacies that enable students to become efficient and effective in the pursuit of information. Further, the school library program encourages a critical stance as it encourages students to examine the authority of authors and the bias of sponsors; to assess the importance of currency of information to the topic at hand; and to determine the scope and relevance of information to meet their needs. This instruction occurs best in the context of the school curriculum where students have a need to know and are guided by a standard of excellence set by their classroom teachers in collaboration with the school librarian.

Beyond its curricular role, the school library program gives each individual member of the learning community a venue for exploring questions that arise out of individual curiosity and personal interest. As part of the school library program, the school librarian provides leadership in the use of information technologies and instruction for both students and staff in how to use them constructively, ethically, and safely. The school librarian offers expertise in accessing and evaluating information, using information technologies, and collections of quality physical and virtual resources. In addition, the school librarian possesses dispositions that encourage broad and deep exploration of ideas as well as responsible use of information technologies. These attributes add value to the school community.

The school library program is based on long-range goals developed through strategic planning and reflecting the mission of the school. The school librarian participates fully in all aspects of the school's instructional program including federally mandated programs and reform efforts. The school library program provides flexible and equitable access to all, physically as well as virtually. The collection includes materials to meet the needs of all learners, representing various points of view on current and historical issues, as well as a wide variety of interest areas. Policies, procedures and guidelines are developed to maintain the school library program. Library staffing and budget are sufficient to support the school's instructional program and meet the needs of the school library program goals.

The school library represents for students one of our most cherished freedoms--the freedom to speak our minds and hear what others have to say. Students in America have the right to choose what they will read, view, or hear and are expected to develop the ability to think clearly, critically, and creatively about their choices, rather than allowing others to do this for them." 01/21/2012. (Reproduced with the permission of AASL).

SL 21 School Library Measures revised and endorsed by the School Library Workgroup, February 2013. Revision endorsed by the Library of Michigan Board of Trustees, April 3, 2013.

3 Department of Education, Library of Michigan

Building the 21st Century Learning Environment

Benchmark	At Risk	Qualified	Exemplary	Point Total
Staffing *Improving Student Learning Through Access to Certified School Librarian and Qualified Support Staff*	School buildings must meet the Qualified or Exemplary benchmark for this measure to achieve Qualified or Exemplary SL 21 Status. The Qualified benchmark meets state rules.	If an Elementary Building: Fully certified School Librarian working at least part time at assigned buildings (all subjects endorsement) If a Middle School Building: Fully certified School Librarian working at least part time at assigned building (ND endorsement) If a High School Building: Fully certified School Librarian working at least part time at assigned building (ND endorsement) School Librarian has adequate assigned time each week for assigned building(s) (1 Point)	If an Elementary Building: Fully certified School Librarian working at least part time in assigned buildings (ND endorsement) If a Middle School Building: Fully certified School Librarian working full-time in assigned building (ND endorsement) If a High School Building: Fully certified School Librarian working full-time at assigned building (ND endorsement) School Librarian has adequate assigned time each week for assigned building(s) Staffed with adequate support staff per building *ND endorsement from an ALA accredited institution (2 Points)	
Evidence of Practice:				

Building the 21st Century Learning Environment

Benchmark	At Risk	Qualified	Exemplary	Point Total
Climate Conducive to Learning *Creating An Environment That Invites All Students and Staff to Use Resources and Participate in Programs*	Provides no evidence of cooperative learning and achievement (0 Points)	Creates a safe environment in which behavioral expectations are clearly communicated Consistently encourages a climate of respect Provides an environment for cooperative learning and achievement for students Provides age appropriate materials and programs that invite discovery (1 Point)	Creates a safe environment in which behavioral expectations are clearly communicated Consistently encourages a climate of respect Provides an environment for cooperative learning and achievement for students Provides age appropriate materials and programs that invite discovery Provides for staff a learning environment in the School Library conducive to collaborative curriculum development (2 Points)	
Evidence of Practice:				

Building the 21st Century Learning Environment

Benchmark	At Risk	Qualified	Exemplary	Point Total
Accessibility *Ensuring Flexible and Equitable Access to Resources for Academic and Personal Needs*	Provides no open seating Includes barriers and inaccessible areas **(0 Points)**	Provides open seating Makes all areas accessible Provides equitable access to services and resources Environment accommodates all learners (reference Universal Design for Learning guidelines, UDL) **(1 Point)**	Provides open seating Makes all areas accessible Provides equitable access to services and resources Environment accommodates all learners (reference Universal Design for Learning guidelines, UDL) Arranges for flexible uses and arrangements of space by students and staff **(2 Points)**	
Evidence of Practice:				

Building the 21st Century Learning Environment

Benchmark	At Risk	Qualified	Exemplary	Point Total
Facility *Developing a School Library that is Flexible and Conducive to Learning*	Does not provide a dedicated space for the School Library. Provides inadequate instructional space (0 Points)	Provides a dedicated space for the School Library Provides adequate instructional space and furnishings for ✓ Teaching space ✓ Reading space ✓ Large group space ✓ Work space ✓ Storage space (1 Point)	Provides a dedicated space for the School Library Provides adequate instructional space and furnishings for ✓ Teaching space ✓ Reading space ✓ Large group space ✓ Work space ✓ Storage space Provides open access to instructional technology resources as part of the design of the School Library space Provides infrastructure to support current technology and future upgrades (2 Points)	
Evidence of Practice:				

Building the 21st Century Learning Environment

Benchmark	At Risk	Qualified	Exemplary	Point Total
Citizenship & Social Responsibility *Teaching Students to Seek Multiple Perspectives in a Safe, Responsible and Ethical Manner*	Provides minimal instruction in School Library rules and use of School Library materials (0 Points)	Provides instruction in School Library rules and use of School Library materials Provides instruction in intellectual ownership, respecting the rights and needs of others, and cyber safety (1 Point)	Provides instruction in School Library rules and use of School Library materials Provides instruction in intellectual ownership, respecting the rights and needs of others, and cyber safety Encourages students to understand that digital citizenship transfers to other venues Leads discussions on the appropriate use of technology and the consequences of inappropriate use (2 Points)	
Evidence of Practice:				

8   Department of Education, Library of Michigan

Building the 21st Century Learning Environment

Benchmark	At Risk	Qualified	Exemplary	Point Total
Instructional Materials *Meeting Student and Staff Learning Needs Through a Variety of Collections*	Provides a traditional print-oriented collection Provides limited collection development and collection management **(0 Points)**	Plans, selects and manages a collection with a variety of materials in various formats, on multiple levels, supporting both instructional and recreational needs Aligns to curricular standards, such as CCSS, AASL, METS, ISTE (formerly NETS), and local district approved curriculum Manages collection according to format and age to be appropriate within each subject area provides resources appropriate for persons with a disability **(1 Point)**	Plans, selects and manages a collection with a variety of materials in various formats, on multiple levels, supporting both instructional and recreational needs Aligns to curricular standards, such as CCSS, AASL, METS, ISTE (formerly NETS), and local district approved curriculum Manages and develops collection according to format and age to be appropriate within each subject area Provides resources appropriate for persons with a disability. Collaborates with other libraries to provide significant access to materials outside the School Library **(2 Points)**	
Evidence of Practice:				

Building the 21st Century Learning Environment

Benchmark	At Risk	Qualified	Exemplary	Point Total
Budget *Adequate, Sustained Funding to Support Student Needs and Achieve School Goals and Objectives*	Provides no annual budget Receives occasional funds/irregular funding (0 Points)	Provides annual budget Receives adequate regular funding from school district Plans expenditures to take into account standards, curriculum needs, and diverse learning styles Purchases materials based on professional reviews (1 Point)	Provides annual budget adjusted annually to meet needs and assure progress Receives adequate regular funding from school district Plans expenditures to take into account standards, curriculum needs, and diverse learning styles. Purchases materials based on professional reviews Budgets monies to be flexible and adequate to meet multiple needs materials, equipment, maintenance, and professional development Aligns to long range strategic plan and School Improvement Plan Participates in long-range financial planning (2 Points)	
Evidence of Practice:				

Total Points for Building the 21st Century Learning Environment Category _____

Teaching for 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Instruction *Teaching for Diverse Learning Needs*	Provides minimal direct or indirect instruction **(0 Points)**	Frequently provides instruction to individuals and groups in School Library and classrooms Frequently adjusts curriculum instruction to accommodate diverse learning styles and learning needs Provides authentic and relevant instruction that allows transference of skills and knowledge **(1 Point)**	Consistently provides instruction to individuals and groups in School Library and classrooms Consistently adjusts curriculum instruction to accommodate diverse learning styles and learning needs Provides authentic and relevant instruction that allows transference of skills and knowledge Team teaching with School Librarian and Teacher **(2 Points)**	
Evidence of Practice:				

Teaching for 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Student Achievement *Meaningful Assessment of Student Learning*	Measures student achievement data solely by usage and collection statistics Conducts minimal assessment of student learning **(0 Points)**	Measures student achievement data by student performance Conducts assessment aligned with instruction Evaluates student understanding of the skills taught with formative assessment **(1 Point)**	Measures student achievement data by student performance Conducts assessment aligned with instruction Evaluates student understanding of the skills taught with formative assessment Collaborates with teachers to assess student learning **(2 Points)**	
Evidence of Practice:				

12 Department of Education, Library of Michigan

Teaching for 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Collaboration *Encouraging Students to Become Lifelong Learners Within a Community*	Provides minimal or no collaboration with Teachers Provides minimal or no student collaborative learning activities (0 Points)	Frequently collaborates with Teachers on curriculum planning Engages students, to create and share in collaborative learning activities with other students and teachers, both face to face and through technology (1 Point)	Consistently collaborates with Teachers on curriculum planning Engages students, to create and share in collaborative learning activities with other students and teachers, both face to face and through technology Collaborates with teacher to team teach (2 Points)	
Evidence of Practice:				

13 Department of Education, Library of Michigan

Teaching for 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Inquiry-Based Research *Encouraging Learners to Think Critically, Evaluate Information, Draw Conclusions and Create and Share New Knowledge*	Provides minimal or no instruction in research strategies or evaluating resources (0 Points)	Frequently provides instruction in research strategies and evaluating resources in multiple formats Frequently provides instruction in using authoritative sources and in appropriate citation of sources Frequently instructs using an inquiry based technique Frequently instructs in utilizing primary source, scholarly and/or peer reviewed sources (1 Point)	Consistently provides instruction in research strategies and evaluating resources in multiple formats Consistently provides instruction in using authoritative sources and in appropriate citation of sources Consistently instructs using an inquiry based technique Consistently instructs in utilizing primary source, scholarly and/or or peer reviewed sources (2 Points)	
Evidence of Practice:				

14 Department of Education, Library of Michigan

Teaching for 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Reading *Helping Students Become Independent Learners*	Supports teacher or program directed reading materials only (0 Points)	Fosters independent readers and researchers Supports reading for enjoyment and research, in both informational texts and literature Collaborates with teaching staff to encourage classroom reading and research Frequently promotes a reading culture that results in independent learners Frequently provides reader's advisory related to the School Library and subject content curriculum (1 Point)	Fosters independent readers and researchers Supports reading for enjoyment and research, in both informational texts and literature Collaborates with teaching staff to encourage classroom reading and research Consistently promotes a reading culture that results in independent learners Consistently provides reader's advisory related to the School Library and subject content curriculum Works with community partners and parents to encourage reading in all spheres of student life (2 Points)	
Evidence of Practice:				

15 Department of Education, Library of Michigan

Teaching for 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Technology *Integrating Technology into the Teaching and Learning Environment*	Provides minimal or no access to technology Provides minimal or no integration of technology skills **(0 Points)**	Provides access to technology Integrates technology skills into School Library and classroom content curricula Provides access to electronic and digital resources Frequently provides instruction on the ethical use of information and technology fostering digital citizenship awareness in the school and community Recommends technology tools to enhance instruction and learning **(1 Point)**	Provides access to technology Integrates technology skills into School Library and classroom content curricula Provides access to electronic and digital resources Consistently provides instruction on the ethical use of information and technology fostering digital citizenship awareness in the school and community Recommends technology tools to enhance instruction and learning Collaborates with teaching staff to support blended learning environments Consistently models technology integration tools and information literacy principles **(2 Points)**	
Evidence of Practice:				

Total Points for Teaching for 21st Century Learning Category _____

16 Department of Education, Library of Michigan

Leading the Way to 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Curriculum Development *Meeting the Curriculum Needs of Staff and Students for Student Learning*	Provides no distinct School Library curriculum (0 Points)	Provides an articulated, aligned and implemented K-12 School Library curriculum Aligns School Library curriculum with school curriculum, AASL Standards for the 21st Century Learner and ISTE (formerly NETS) standards (1 Point)	Provides an articulated, aligned and implemented K-12 School Library curriculum Aligns School Library curriculum with school curriculum, AASL Standards for the 21st Century Learner and ISTE (formerly NETS) standards Aligns the School Library curriculum to the state curriculum standards (2 Points)	
Evidence of Practice:				

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Leading the Way to 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Program Effectiveness *Evaluating School Library Program Effectiveness*	Provides minimal or no evaluation of School Library program (0 Points)	Participates in joint (School Librarian and school administrator) annual evaluation of the School Library program using multiple criteria, such as AASL Standards for the 21st Learner (1 Point)	Participates in joint (School Librarian and school administrator) annual evaluation of the School Library program using multiple criteria, such as AASL Standards for the 21st Learner Uses results of ongoing evidence-based evaluation to improve program (2 Points)	
Evidence of Practice:				

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Leading the Way to 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Professional Learning Communities *Improving Program Outcomes Through Improvements in Professional Skills and Knowledge*	Provides minimal or no participation in professional learning community activities in building and district (0 Points)	Provides opportunities for growth and leadership in a professional learning community that is consistent, relevant, and standards-based School Library program is included in School Improvement Plan goals Participates in local and state professional library and/or educational association activities (1 Point)	Provides opportunities for growth and leadership in a professional learning community that is consistent, relevant, and standards-based School Library program is integral to School Improvement Plan goals Participates in local, state and national professional library and/or educational association activities Collaborates and communicates new knowledge with school staff (2 Points)	
Evidence of Practice:				

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Leading the Way to 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Local & Global Community Engagement *Understanding and Working in Communities*	Provides minimal or no involvement in local or global community (0 Points)	Participates in local, state and/ or global communities to enhance student success Includes staff and students in local community initiatives (1 Point)	Participates in local, state and/ or global communities to enhance student success Includes staff and students in local community initiatives Consistently engages staff and students with local and global communities (2 Points)	
Evidence of Practice:				

Leading the Way to 21st Century Learning

Benchmark	At Risk	Qualified	Exemplary	Point Total
Advocacy *Building Support Among the Community and Decision Makers to Support Student Outcomes Through Quality School Libraries*	Provides minimal or no communication and promotion of School Library activities and resources (0 Points)	Provides active communication and promotion of School Library activities and resources Frequently provides regular communication and promotion beyond the building, in the school district and community Frequently participates in advocacy efforts about the School Library program in or to local and state organizations (1 Point)	Provides active communication and promotion of School Library activities and resources Consistently provides regular communication and promotion beyond the building, in the school district and community Consistently participates in advocacy efforts about the School Library program in or to local and state organizations Receives administrative support for participation in state and national organizations: at a minimum, release time and/or funding (2 Points)	
Evidence of Practice:				

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Benchmark	At Risk	Qualified	Exemplary	Point Total
Policies and Procedures *Consistent, Fair and Relevant Practices*	Provides minimal or no published policies Existing policies not updated regularly (0 Points)	Provides published policies with an implementation plan Provides policy updates on a regular schedule Materials policies and procedures are based on the American Library Association Bill of Rights and Challenges to Library Materials Frequently shares school district board approved policies with the school community Frequently participates in the creation or review of appropriate policies on selection and de-selection of materials, challenges, copyright, intellectual freedom, acceptable use policy, and confidentiality (1 Point)	Provides published policies with an implementation plan Provides policy updates on a regular schedule Materials policies and procedures are based on the American Library Association Bill of Rights and Challenges to Library Materials Consistently shares school district board approved policies with the school community Consistently participates in the creation or review of appropriate policies on selection and de-selection of materials, challenges, copyright, intellectual freedom, acceptable use policy, and confidentiality (2 Points)	
Evidence of Practice:				

Total Points for Leading the Way to 21st Century Learning Category _____

SL 21 Benchmarks Application Information

Total for Building the 21st Century Learning Environment Category (Staffing, Climate Conducive to Learning, Accessibility, Facility, Citizenship & Social Responsibility, Instructional Materials, Budget)	
Total for Teaching for 21st Century Learning Category (Instruction, Student Achievement, Collaboration, Inquiry-Based Research, Reading, Technology)	
Total for Leading the Way to 21st Century Learning Category (Curriculum Development, Program Effectiveness, Professional Learning Communities, Local & Global Community Engagement, Advocacy, Policies and Procedures)	
Total Points for all Measurements (Total of all three categories) **Qualified Status – 20 to 33 points (Only 1 At Risk benchmark allowed per category)** **Exemplary Status – 34 points or more (No At Risk benchmark allowed)**	

Building Information

School Building Name_____ Grade Levels_____

Library Name_____School District_____

Mailing Address_____City_____Zip_____

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Evaluation Completed By:

School Administrator/Principal

_____
Name

_____
Position/Title

_____
Address

_____
Email Address

_____
Phone # (Area Code-Phone-Extension)

_____
Signature of School Administrator/Principal with Date

School Librarian

_____
Name

_____
Position/Title

_____
Address

_____
Email Address

_____
Phone # (Area Code-Phone-Extension)

_____
Signature of School Librarian with Date

Please indicate both STATE of Michigan Senator & Representative names here: _____

Evaluation Reviewed _____   Date _____
(Signature of School District Superintendent)

Superintendent Name _____

Address _____City _____ State _____ Zip Code _____

Return form to:

Randy Riley, State Librarian
702 W. Kalamazoo St.
P.O. Box 30007
Lansing, MI 48909-7507
_____

Library of Michigan Use Only

Status: At Risk____   Qualified____ Exemplary____   Valid through _____

Approved Date and Initials_____Letter Sent Date and Initials_____Email Notification Date and Initials____

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SL 21 GLOSSARY

AASL – American Association of School Librarians

At Risk – School Library Program does not meet minimal benchmarks for providing services and resources

Exemplary – School Library Program provides highest quality services and resources

ISD – Intermediate School Districts in Michigan (county level)

ISTE – International Society for Technology in Education

LM – Library of Michigan

METS – Michigan Educational Technology Standards, approved by the Michigan State Board of Education, October 2009.

Michigan Merit Curriculum – Michigan high school graduation requirements

ND Endorsement – Michigan Teacher Certification endorsement for School Librarian

NETS – National Educational Technology Standards (now ISTE Standards)

Qualified – School Library Program provides essential services and resources

School Librarian – In Michigan, this position (also known as Media Specialist or Teacher-Librarian) has ND Endorsement acknowledging special training to provide school library service

Standards for 21st Century Learners – The skills, knowledge and expertise students should master to succeed in work and life in the 21st century. Developed by the American Association for School Librarians (AASL) in 2007.

Scope and Sequence – Curriculum plan, usually in chart form, in which a range of instructional objectives, skills, etc., is organized according to the successive levels at which they are taught

Universal Design for Learning (UDL) – A blueprint for creating flexible goals, methods, materials, and assessments that accommodate learner differences. For more information see, http://www.cast.org/udl/index.html.

See **School Libraries in the 21st Century** site (www.michigan.gov/sl21) for further information, including a bibliography of professional works and research on school libraries and information on using the SL 21 Measurement Benchmarks to promote and improve school libraries.

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ABSTRACT

**RELIABILITY AND VALIDITY OF
MICHIGAN SCHOOL LIBRARIES FOR THE 21ST CENTURY
MEASUREMENT BENCHMARKS**

by

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December 2016

Advisor: Dr. Shlomo S. Sawilowsky

Major: Educational Evaluation and Research

Degree: Doctor of Education

The purpose of this study was to examine the psychometric properties of the *Michigan School Libraries for the 21st Century Measurement Benchmarks (SL21)*. The instrument consists of 19 items with three subscales: Building the 21st Century Learning Environment Subscale, Teaching for 21st Century Learning Subscale, and Leading the Way to 21st Century Learning Subscale. The sample consisted of 54 respondents who were administered the instrument in 2014 and 2015. Cronbach's alpha for the total instrument was 0.807 (n = 19 items). Exploratory factor analysis (EFA) was used to measure construct validity. The findings derived from the EFA did not tend to support the original three-factor structure. The SL21 instrument is worthy of further study because of the dearth of literature that is focused on examining the psychometric properties of evaluation tools for school library programs. Perhaps a future study will use a revised survey instrument and a nationally representative sample.

AUTOBIOGRAPHICAL STATEMENT

Natosha Floyd has previously worked for the federal government, non-profit sector, and the automotive industry. She earned a Bachelor's degree in Economics, from University of Michigan-Dearborn and a Master's degree in Evaluation, Measurement, and Research Design, from Western Michigan University.