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Data-driven Decision-Making in Schools Scale: A Study of Validity and Reliability

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Abstract

In this study, it was aimed to develop a Likert-type scale that will allow to measure the effectiveness of data-driven decision-making in schools in a valid and reliable way. The study group of the research consists of 179 school administrators working in public primary, secondary and high schools in Kahramanmaraş province in the 2019-2020 academic year. Expert opinion was consulted for the scope and face validity of the scale and Exploratory Factor Analysis (EFA) was applied for the construct validity of the interpretations made from the measurements. As a result of the EFA related to DDDMS, a structure consisting of 23 items and four factors explaining 53.435% of the total variance was obtained. Extracted factors; named as technological infrastructure and hardware, data usage culture, data usage purpose and data literacy. Reliability of measurements obtained DDDMS and its subscales; calculated by using Cronbach's Alpha internal consistency coefficient and it was determined that the calculated reliability coefficients were within the acceptable limits. Based on these findings, it can be said that DDDMS is the measurement tools producing valid and reliable measurements and can be used to measure data-driven decision-making process in schools.

Keywords: Data, data usage, data-driven decision-making, school administrator

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1. Introduction

1.1. Introduce the problem

It is very important for educators to be able to make the right decisions about school practices in their decision-making processes. Schools' responsibility to society, especially social pressure to improve student success, is increasing day by day, and accountability in education is becoming more important for school organizations (Anderson, Leithwood & Strauss, 2010). Criticizing the decisions made by the public in a narrow and broad context and questioning their scientific basis are much more common processes.

The effective functioning of the accountability process requires evidence-based decisions to be made. Evidence-based decision-making requires the use of data related to the nature of the decision. Data for school organizations can be defined as all information collected to show some characteristics of schools (Schildkamp, Ehren & Lai, 2013). Analysis of school data, use of analysis results for school improvement, and then evaluation of these applications are defined as data-driven decision-making in education (Schildkamp & Kuiper, 2010).

Although investment in education in Turkey increases every year, indicators show that adequate development cannot be recorded, or even an inefficient cycle in which from time to time there are deviation from its aim, stagnation and collapses in some areas. Low academic performance indicators of international exam reports (PISA, TIMSS, PIRLS etc.) for Turkey, the achievement difference between the schools and the regions, the failure to meet the needs of the gifted students and students in need of special education indicates that the data cannot be read correctly or are misjudged, so the implementation of the wrong policies presents a vicious circle. In addition, ideological and arbitrary practices and lack of interagency cooperation have led to the failure of efforts to improve education (Mazlum, 2019). This vicious cycle requires that decisions in the educational levels of the Turkish national education system, ranging from preschool to higher education, are made with a rational and realistic approach based on scientific foundations with a holistic perspective and are based on data rather than on approaches that develop instantaneous and temporary solutions (Sezgin, 2018).

Some previously published reports focused on the need to make decisions based on data in Turkey. In 2014, the report of the Turkish Industrialists' and Businessmen's Association entitled “PISA 2012 assessment: data-driven education reform recommendations for Turkey” emphasized that data-driven reform of the education system is the top priority (Turkish Industrialists and Businessmen's Association [TUSIAD], 2014). Another report prepared by The Independent Think Tank of the Turkish Education Association stated that Turkey should first have robust and qualified databases, and in the process that follows, policy documents should be constructed with

evidence obtained by analyzing the data (The Independent Think Tank of the Turkish Education Association [TEDMEM], 2015). "The Eleventh Development Plan" report also addressed similar issues and stated that data-driven policies should be established in education. The report also addressed another important issue related to data-driven decision-making and stated that obtaining opinions from experienced academics in the field of educational economics and Educational Sciences and strengthening the capacity of personnel associated with the Ministry should be among the priorities (Ministry of Development, 2018).

Karip (2019) emphasizes that in exploiting the data potential pointed out by many reports, correct reading of international examples in their context can provide clues for data-driven education reforms in Turkey. Karip stated that even international comparisons in Turkey are not based on data but on stereotypes and misconceptions that have strengthened over time, and that Turkey should re-evaluate its findings on its own scale and work to provide data to policies. In this context, it can be said that it is necessary to develop measurement tools in accordance with the reality of Turkey for data-driven decision-making.

In the United States (USA), the No Child Left Behind (NCLB) Act, enacted in 2001, increased schools' accountability and data usage. The concept of data-driven decision-making, which began to be studied with NCLB, went beyond accountability in the following years and began to develop as a process (Schildkamp & Kuiper, 2010). In Turkey, although data have been collected for years to plan and evaluate school practices, it can be said that the issue of data-driven decision-making is new to the agenda. The 2023 Vision Document, introduced on October 23, 2018, states that in order to make education services more effective, all components of the system will be phased in and all changes will take place in the "Data-Driven Management" center.

The Ministry of Education (MEB) stated that school capacities will be monitored by "Geographic Information System (CBS)" and "school profile evaluation system" within the scope of data-driven management and that resources will be planned according to these monitoring results.

In addition, with these practices, the Ministry of National Education aims to ensure interaction between teacher-parent-school, to monitor and evaluate the learning and development processes of students, to discover and develop students' interests, abilities and temperaments besides their academic achievements, to direct students according to their interests, to reduce the achievement gap between schools and regions, to identify students who are gifted and need special education, to provide support services, to provide solutions to problems such as absenteeism, grade repetition, school dropouts (Ministry of National Education [MEB], 2018).

In future studies, it is necessary to foresee problems related to demographic transitions and produce policies and solutions accordingly. Therefore, it is clear that decision-making

is not only a choice, but a process that needs to be considered before and after. The use of data-driven decision-making processes in solving these problems, which are considered at the macro and micro level, requires a transformation of the Turkish education system. It can be said that it is even late for this transformation, since the failure of the decisions made so far in the education system in Turkey is clearly visible from the past to the present (Şirin, 2017). It is expected that the decisions made according to the data based on scientific basis will positively affect the educational processes.

1.2. Components of Data-Driven Decision-Making

The literature on data-based decision-making has identified five common theme components: theoretical capacity, organizational capacity, process capacity, technological capacity and professional capacity for an effective data-driven decision-making process within the framework of systems theory (Breiter & Light; 2006; Datnow, Park & Wohlstetter, 2007; Mandinach, Honey & Light, 2006; Supovitz & Klein, 2003; Togneri & Anderson, 2003; Wayman & Stringfield, 2006).

The theoretical component emphasizes the dynamics, the interconnectedness, and commitment of complex school systems. *The organizational capacity component* focuses on data usage culture and describes the structures that block and support data usage culture. Leadership, quality professional development, time recognition for data research and use, and collaboration among educators are essential for a culture of data usage. These behaviors and attitudes aimed at developing a culture of data usage in schools are shown as organizational factors affecting data usage in the literature (Lachat & Smith 2005). There are studies in the literature where data usage culture is associated with "shared vision", a component of organizational learning theory. Shared vision cannot be culture by itself, but it is necessary as an observable trait for strong culture. Noyce, Perda, and Traver (2000, p. 54) point to a strong leader for creating a data-driven school culture, with the phrase "Data-driven school cultures don't arise spontaneously". Building a culture of data-driven decision-making, from individual accountability to external accountability, is challenging for an administrator given that a school takes responsibility for accountability and student achievement (Halverson, Grigg, Prichett & Thomas, 2007). Grigsby and Vesey (2011) argue that principals should be role models for data usage and create a supportive learning environment for their teachers. Administrators need to ensure that they make informed decisions by bringing stakeholders together to investigate, interpret, mobilize data and improve student learning (Knapp, Copland & Swinnerton, 2006). Principals, due to the nature of their position, can establish the culture in their own schools.

The process capacity component includes the use of data that turns into information and activates it in accordance with its purpose in the decision-making process. Data can be used as a tool to explore a school's strengths and weaknesses in education and make

the right decisions by focusing on change and problem solving. Studies have found that data are used to manage school resources (Thornton & Perreault, 2002), to improve teaching practices and accountability (Schildkamp & Kuiper, 2010), to make professional development planning (Brunner et al., 2006), to help individual decisions (Kerr, Marsh, Ikemoto, Darilek & Barney, 2006) as well as to help make informed decisions.

The technological capacity component defines the various characteristics of technological tools such as data warehouses, student information systems, evaluation systems and instructional management systems and their impact on the data process. This component includes accessibility, feedback, intelligibility, flexibility, and compliance characteristics of data collected from systems. The creation and development of Data Systems is crucial to an organization's ability to collect, transfer and manage information effectively. The quality of created technological systems can also affect educators ' ability to transform data into valid and actionable information (Marsh, Pane, & Hamilton, 2006). The use of data requires data literacy skills, not just the use of technological tools, but also how to organize and translate ideas about the use of data into meaningful action.

The professional capacity component includes the ability of educators to have the attitude, knowledge and professional capacity to extract meaning from data. The knowledge and skills needed to read and understand data are defined in the literature as data literacy (Gummer and Mandinach, 2015). A data literate educator knows how to collect, access, connect, process, report, analyze, and criticize data (Earl & Katz, 2006).

This scale is created within the framework of these four components: technological infrastructure and hardware, data usage culture, data usage purpose and data literacy in connection with the relevant field. The titles contained in the components mentioned in item writing process were also considered.

Education system in Turkey has a decentralized structure. With the principle of “breadth of authority”, some duties and powers were transferred to provincial organizations, trying to break the centralist attitude, but this authority was very limited. Provincial/district institutions can make “programmed decisions” based on reporting decisions from schools, and schools can make "programmed decisions" based on carrying out orders and instructions from senior management. Since the powers of school administrators are also limited by legislation, the decisions they make are also within this framework. The school administrator is the most important factor in creating, developing, and modeling data usage capacity in the school. But research has found that many managers rely on their instincts or intuition to make decisions (Rogers, 2011). In his dissertation on ethical leadership, Toytok (2014) emphasized the importance of data use in ensuring justice for an ethical leader. However, the American Association of School Administrators (AASA) (2002) stated that administrators can provide measurable evidence to the decision-making process with data and make effective decisions without involving emotions in the decision-making process. For this reason, it is believed that

taking the views of this important stakeholder on the use of data will significantly contribute to the creation of policies and implementation structures related to data-based management that have recently been raised.

Quantitative studies conducted on the decision-making styles of school administrators in Turkey have shown that rational and logical decision-making, and then intuitive decision-making styles are used most often (Alver, Ada & Çakıcı, 2006; Dinçer, 2014; Kurban, 2015; Titrek, Konak & Titrek, 2013). The frequent use of rational decision-making by school administrators is due to the binding force of laws and regulations and the fact that there is almost no opportunity to use initiative. Empirically in the context of Turkey, Demir (2009) has a qualitative case study in which he examines the types of data that school administrators use in data-driven decision-making and how they collect and analyze data. In this regard, there is a greater need for studies to support educators' skills and awareness of using data and managing the data-driven decision-making process in school.

This study is important in that it is the first quantitative measurement tool in Turkey aimed at describing the current situation related to data usage in decision-making process. It is expected that the study will contribute to the development of other measurement tools related to the data-driven decision-making process in a theoretical context and to the skill development of school administrators regarding the importance and effective use of data-driven decision-making in practice.

2. Method

2.1. Participants

The study group consists of 180 school administrators working in public primary, secondary and high schools in the Central Districts of Kahramanmaraş province, Onikişubat and Dulkadiroğlu. Bryman and Cramer (2001) advocate that sample size is acceptable between fivefold and tenfold of the number of items for EFA analysis. Accordingly, the sample size for the scale consisting of 36 items is quite good (36x5=180). For this research, the sample was not taken because the population is small. As a result of examining the data set in terms of the outlier, 1 person was extracted from the analysis, and thus the analysis was conducted out of 179 people. The participants of the study are presented in table 1.

Table 1. *Demographics of School Administrators*

Demographic Variables	*n*	%
Gender		
Female	25	14
Male	154	86
Seniority		

6-10 years	26	14.5
11-15 years	34	19.0
16-20 years	31	17.3
20 years and older	88	49.2
Education Status		
Postgraduate	52	29.1
Bachelor	127	70.9
School Type		
Elementary school	62	34.6
Secondary school	66	36.9
High school	50	27.9
Total	179	100

In terms of demographic characteristics, 14% (N=25) of the participants were female and 86% (n=154) were male. In the distribution of professional seniority, the ratio of administrators for 6-10 years was 14.5% (n=26), for 11-15 years was 19% (n=34), for 16-20 years was 17.3% (n=31) and for 20 years and above was 49.2%. It was found that 29.1% (n=52) of the participants were graduate students and 70.9% (n=127) were bachelor students. 34.6% (n=62) of the sample consists of administrators working in primary schools, 36.9% (n=66) of those working in secondary schools, and 27.9% (n=50) of those working in high schools.

2.2. Scale Development Process

In order to develop a scale to determine the perceptions of school administrators about the effectiveness of data-driven decision-making in schools, first of all, researchers have prepared trial forms of this scale. In the preparation of trial forms, the systematic process was followed by taking into account the necessary steps and processes such as laying out the theoretical structure to develop the scale, creating a pool of items, deciding on the format of the measurement tool, reviewing the items by experts (three academics from the field of Education Management, a specialist in the field of measurement and evaluation in education and a Turkish teacher), ensuring the validity of the items, applying the scale, evaluating the items and giving the final state of the scale. As applied in Toytok and Dogan's research, cognitive interviews to 10 people were applied in this study. Cognitive interview is a method used for participants to respond to substances, allowing a clear focus on cognitive processes (Willis, 1999). The scale items were designed in accordance with the 5-point Likert type to be answered (5) Always, (4) Often, (3) Sometimes, (2) Rarely, (1) Never.

At the stage of item writing process, first, the relevant literature was examined and then a conceptual framework was created for the use of data in schools in Turkey and data-driven decision-making and it was tried to have an idea about the concepts, events and facts that would define data-driven decision-making in education. In the process of writing items, the themes of *organizational capacity, process capacity, technological capacity and professional capacity* building determined within the framework of system theory mentioned above were referenced. In accordance with this conceptual framework, an item pool has been created to measure all dimensions of data-driven decision-making that are included in the scale. In the next stage, this item pool created to determine the content validity of the scales was presented to three academicians who were experts on the field, evaluated by the Turkish teacher in terms of spelling, expression, clarity and intelligibility of expressions. In order to evaluate the scale items in terms of their suitability for logic of scale development and the behaviors they are intended to measure,

the items were examined individually with an expert in the field of measurement and evaluation in education and 10 school administrators, it was determined whether they were understandable, their opinions and recommendations were taken. Deficiencies have been detected in preliminary application of the scale applied to 10 school administrators. The necessary changes were made by the researchers, and with these changes, the scale was put into final form. The number of items was clarified as 36. Four questions determining the personal characteristics (demographic variables) of the participants and instructions containing information about the research were added to the first page of the measuring tool created by the researchers. In February-March 2020, the scales were applied by researchers to a group of 180 participants using a legal permit obtained from the Kahramanmaraş Provincial Directorate of National Education.

2.3. Data Analysis

The SPSS 21.0 package program was used in the analysis of the data. Before starting the data analysis, the data set was examined for incorrect data entry, missing values, normality, and outliers. The skewness of data set ranges from -1 to +1 and this skewness values are low. As a result of the analysis, the skewness and kurtosis were fixed. It was found that the mean (x = 91,26), mode (99,00) and median (92,00) values of the data set obtained for the explanatory factor analysis were close to each other and the data showed normal distribution. Then, z scores were calculated to detect multivariate outliers on the scale. In the extraction of outliers according to Z score, one scale was discarded which disrupts the normality by considering the range -4 to +4 due to the small number of scales collected.

For exploratory factor analysis, the Kaiser-Meyer-Olkin (KMO) coefficient was examined, the Bartlett Sphericity test was calculated, and its suitability was determined. After content validity studies, EFA was calculated to test the scale's structural validity and Cronbach's Alpha internal consistency coefficient was calculated to test its reliability, correlation matrix between items, anti-image correlation matrix and determinant values were studied. In the process of exploratory factor analysis, attention was paid to indicators such as eliminating items that do not measure the same structure and determining the factor structure, factor eigen values greater than 1, scree plot, total variance ratio described, and the representation of the theoretical structure to be measured (Büyüköztürk, 2011). In factor analysis, the sample size should be 5 or 10 times the number of items (Byrman & Cramer, 2001). Accordingly, the sample size of 179 people for the 36-item scale is quite good. During the exploratory factor analysis, the connectedness of items and factor loading were evaluated in terms of whether they meet the acceptance level (>.30). The number of items for each factor, the range of changes in the total correlation values of items, and the total correlation ranges of all items on the scales are given in the tables.

3. Results

3.1. Construct Validity and Reliability of Data-Driven Decision-Making in Schools Scale (DDDMS)

In the study, expert opinion was taken for content validity of "Data-Driven Decision-Making in Schools Scale" and exploratory factor analysis (EFA) was applied for structure validity. In the process of developing this scale, a pool of 36 items was created based on literature. 13 items in the pool were removed because they were highly correlated with each other, and 23 items were included in the scale. There is no reverse scored item in the scale. The fact that the KMO coefficient is greater than .60 in the exploratory factor analysis conducted to determine the construct validity of the scale and the Bartlett Sphericity test is significant indicates that the data are suitable for factor analysis (Büyüköztürk, 2011). KMO and Bartlett Sphericity test results are shown in Table 2.

Table 2. KMO and Bartlett Sphericity Test Results of Data-Driven Decision-Making in Schools Scale

Kaiser Meyer Olkin Sampling Adequacy		.843
Bartlett Sphericity Test	Approximate chi-square value	1582.630
	Degree of freedom (df)	253
	Significance level (sig.)	.000

As a result of the analysis, the KMO coefficient was calculated as .843 (good) and the Bartlett Sphericity test ($p < .001$) was found to be significant. When the correlation matrix between items was examined, it was found that the relations varied between 0.1 and 0.7, and the diagonal values in the anti-image correlation matrix were in the range of .918 and .789. The Determinant coefficient (8.81> 0.0001) also showed that there was no multiple correlation problem (Field, 2005). After determining that the data were suitable for factor analysis, EFA was performed according to the rotated basic components analysis method. The AFA results and Cronbach's Alpha results for all dimensions of the scale are given in Table 2.

According to EFA using Varimax rotation technique, 5 factors with eigenvalues greater than 1 were revealed. Since the framework on which the scale was based had four titles (purpose, culture, technological characteristics, literacy), the analysis was carried out in a four-factor structure. When the factor load values of the scale developed as 23 items were examined, it was seen that the scale consisted of 4 factors. In addition, the total correlations of items were also above .30. According to Field (2005), if an item does not correlate with the total score, in other words, if the value is below .30, it means that the item is incompatible with the overall measurement tool and should be discarded. It was concluded that the four factors in the DDDMS explained 53,435% of the total variance. It

is accepted that the variance described in social sciences is between 40% and 60% (Tavşancıl, 2010).

In addition, it was determined that the internal consistency coefficients obtained within the scope of reliability of the scale were greater than .60. The fact that these reliability values are greater than .60 indicates the reliability of the measurements obtained from the scale (Büyüköztürk, 2011). Field (2005) noted that as the number of items on the scale increases, the reliability coefficient tends to rise, and as it decreases, it tends to fall. This can be cited as the reason why the fourth factor has a low coefficient compared to other factors. In the reliability analysis conducted in this factor, items were examined, and it was observed that there is no item that significantly reduces reliability.

Table 3. Exploratory Factor Analysis and Cronbach's Alpha Results

Item No	Factor load values				Item total correlation	Eigenvalue	Explained variance	Cronbach's Alpha
	Technological infrastructure and hardware	Data usage culture	Data usage purpose	Data literacy				
M7	.766				.630	3.729	16.211	.850
M8	.789				.719			
M9	.696				.638			
M10	.696				.636			
M11	.665				.668			
M12	.571				.541			
M17		.624			.477	3.544	15.407	.814
M18		.491			.498			
M19		.582			.531			
M20		.653			.637			
M21		.760			.666			
M22		.695			.574			
M23		.555			.520			
M1			.572		.507	3.058	13.294	.789
M2			.662		.537			
M3			.728		.610			
M4			.719		.520			
M5			.751		.621			
M6			.567		.457			
M13				.503	.359	1.960	8.522	.602
M14				.519	.409			
M15				.647	.480			
M16				.618	.313			
Total							53.435	

The first factor consists of 6 items numbered 7,8,9,10,11,12. The factor load values of these items in the first factor range from .789 to .571; and the total correlations of the items range from .719 to .541. Cronbach's Alpha (internal consistency) reliability coefficient for the factor is .850. This factor explains 16,211% of the total variance and consists of items related to the characteristics of data found in current systems in schools. According to the content of the items in the factor, the factor is named as ”technological infrastructure and hardware”.

The second factor consists of 7 items numbered 17, 18, 19, 20, 21, 22, 23. The factor load values of these items in the first factor range from .760 to .491; and the total correlations of the items range from .666 to .498. Cronbach's Alpha (internal consistency) reliability coefficient for the factor is .814. This factor explains 15,407% of the total variance and consists of items related to the data usage culture in schools. According to the content of the items in the factor, the factor is named as ”data usage culture”.

The third factor consists of 6 items numbered 1, 2, 3, 4, 5, 6. The factor load values of these items in the first factor range from .751 to .567; and the total correlations of the items range from .621 to .457. Cronbach's Alpha (internal consistency) reliability coefficient for the factor is .789. This factor explains 13,294% of the total variance and consists of items related to the purposes of using data in schools. According to the content of the items in the factor, the factor is named as ”data usage purpose”.

The fourth factor consists of 4 items numbered 13, 14, 15, 16. The factor load values of these items in the first factor range from .647 to .503; and the total correlations of the items range from .480 to .359. Cronbach's Alpha (internal consistency) reliability coefficient for the factor is .602. This factor explains 8,522% of the total variance and consists of items related to the support received in the use of data in schools. According to the content of the items in the factor, the factor is named as ”data literacy”.

3.2. Correlation Between Factors

Finally, the Pearson correlation was calculated between the total score averages obtained from the factors. Results are presented in Table 4.

Variables	1	2	3	4
1. Technological Infrastructure and Hardware	1	.57**	.32**	.56**
2. Data usage culture		1	.42**	.47**
3. Data usage purpose			1	.30**
4. Data literacy				1

**$p < .01$

Table 4 shows that positive correlation coefficients are statistically significant (p= ,00; p< .01). According to Pallant (2016, s.151), this significance shows that the results are reliable, rather than the strength of the relationship between variables. According to the results in the table, the relationships between all variables are significant.

4. Conclusion and Recommendations

In this study, it was aimed to develop a measurement tool to determine the effectiveness of school administrators' data-driven decision-making process. In the research, organizational capacity, process capacity, technological capacity and professional capacity building themes are referenced within the framework of system theory, data-driven decision-making scale in schools has been renamed as technological infrastructure and hardware, data usage culture, data usage purpose and data literacy. It is believed that the items in the factors represent the factor levels of the data. When examining the factorization of the scale, it is found that there is no factor formation disconnected from the theory (Allen, Shankman & Miguel, 2012). When the literature is examined, it is understood that the data-driven decision-making process is influenced by technological infrastructure and hardware, data usage culture in school, data usage purpose and the level of data literacy of educators. It can be stated that the conceptualization of the sub-dimensions of the scale in which validity and reliability studies are conducted accurately reflects the characteristics and behaviors that it aims to measure structurally.

In the final form of DDDMS, the first dimension of the scale, consisting of 6 items, which includes features such as accessibility, timeliness, software of data and storage of the systems in which the data are collected, is defined as “technological infrastructure and hardware”. The second dimension includes behavior, interaction and situations such as the ability to easily talk and discuss data with the school's stakeholders (administrator, teacher, parent, student), compatibility of data with the school's goals, administrator support, and time allocated for data usage. The second dimension, consisting of 7 items, is defined as a "culture of data usage". The third dimension, consisting of 6 items, is defined as the “data usage purpose", which includes the behavior of educators to use data for school development, education, and accountability purposes. The fourth dimension is defined as “data literacy”, as it includes the knowledge and skills of educators in analyzing, evaluating and interpretation of data that are highly necessary for data usage. Finally, the scale items were renumbered and presented in Appendix 1.

In light of the findings obtained from the study, it can be stated that the 23-point DDDM scale is a reliable and valid measurement tool and can be used to determine the

data-driven decision-making process in schools. This scale, applied to school administrators working in public primary, secondary and high schools, can also be applied to teachers, preschool education institutions and private schools. Validity studies of the scale can be improved by confirmatory factor analysis and the continuity of the scale can be tested by applying it in different samples. Both practitioners and researchers are expected to benefit from the outcomes of this study.

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Appendix A.

A.1. DDDMS Items and Related Dimensions

DATA-DRIVEN DECISION-MAKING IN SCHOOLS SCALE
Technological Infrastructure and Hardware
1. In my school, data needed are easily accessible.
2. In my school, data reach me completely and accurately.
3. In my school, data used are up to date.
4. In my school, data are clear and understandable form.
5. In my school, there is sufficient infrastructure to collect data.
6. In my school, there is a sufficient system that can store data.
Data Usage Culture
7. In my school, the data about students are shared and discussed with students.
8. In my school, data are discussed clearly and realistically with teachers and administrators.
9. In my school, teachers do not avoid sharing data properly about students with the family.
10. In my school, goals to be achieved are compatible with data.
11. In my school, administrators support for data usage.
12. In my school, practices can be modified based on data.
13. In my school, there is enough time to analyze the data.
Data Usage Purpose
14. In my school, data are used to identify students who are gifted or need support.
15. In my school, data re used to observe the impact of minority, ethnicity, disability, or gender differences in teaching achievement.
16. In my school, data are used for planning professional development programs.
17. In my school, data are used to determine the extent to which goals are achieved through development programs.
18. In my school, data are used to support suggestions for change in a topic.
19. In my school, data are used to present evidence to auditors.
Data Literacy
20. I know how to use existing data.
21. I think my professional development is sufficient to use the available data properly.
22. I have the skill to analyze data.
23. I can interpret data and reports.