Tool F: Worksheet: Planning the Questions You Want to Ask of Your State's Data System

Most state education data systems contain data on at least three arts education metrics:

ACCESS

- What percentage of schools offer arts courses?
- What percentage of students have access to arts courses?

PARTICIPATION

- What percentage of students participate in arts courses?

TEACHERS

- How many teachers teach arts courses?
- What is their background?
- What students have access to those teachers?

USE THIS TOOL TO PLAN YOUR APPROACH TO THESE QUESTIONS:

- Which of these broad questions would you like to explore?
- What kinds of answers would state data systems make possible?
- What data do you need to answer these questions?

Before you begin, please note that you will probably not be able to tackle all, or even half, of the questions below in any single data request. It pays to start with a few of the most important questions and see what results are available. You can explore deeper questions in successive phases of your arts education data initiative.

ACCESS: What percentage of schools offer arts courses?

WHAT SPECIFIC QUESTION DO YOU WANT TO ASK?	WHAT'S AN EXAMPLE OF AN ANSWER TO THAT QUESTION?	WHAT TYPES OF DATA ARE REQUIRED?	TIPS
What percentage of schools offered arts courses in *any* arts discipline?	"In 2017/2018, 93% of State X's schools offered at least one course in the arts."	Teacher assignment data by school and/or course data by school. Where possible, data linking student IDs to course IDs.	"Teacher assignment data" describe what disciplines teachers teach. "Course data" can describe what courses are offered. Note that in many states, course data by school describe courses schools are authorized to teach rather than courses they actually teach. In those cases, better (though imperfect) measures of whether a school offers arts courses may be: • The school employs teachers assigned to teach arts courses. • The school has at least some students enrolled in arts courses.
What percentage of schools offered courses in *specific* arts disciplines?	"In 2017/2018, 25% of State X's schools offered at least one course in dance."	Teacher assignment data by school and/or course data by school. Where possible, data linking student IDs to course IDs.	See the tip above.
What percentage of schools offered arts courses in *multiple* arts disciplines?	"In 2017/2018, 14% of schools in state X offered courses in four arts disciplines; 72% offered courses in visual arts and music alone; 43% offered courses in only one arts discipline."	Teacher assignment data by school and/or course data by school. Where possible, data linking student IDs to course IDs.	See the tip above.

ANALYZING YOUR RESULTS BY KEY SUBGROUPS

You can conduct a more detailed analysis of your data to determine where there are differences in access among different types of school.

WHAT KINDS OF SCHOOLS DO YOU WANT TO ANALYZE OR COMPARE?	WHAT'S AN EXAMPLE OF HOW THE OUTCOME OF THAT ANALYSIS WOULD LOOK?	WHAT ADDITIONAL DATA ARE REQUIRED?	TIPS
By *demographic makeup* of school – e.g., racial/ethnic composition	"In 2017/2018, 92% of high-income schools and 86% of low-income schools offered at least one course in the arts."	Demographic data describing student enrollments in every school.	Be clear and consistent in how you define your terms. For example, "low-income schools" could mean schools where more than 75% of students are eligible for free or reduced-price lunch. Your state might use standard definitions of schools' demographics characteristics.
By *location* of school – e.g., urban, suburban or rural	"In 2017/2018, 57% of urban schools, 59% of suburban schools and 38% of rural schools offered at least one course in theatre."	Information about every school's "urbanicity" – for example, urban, suburban, town or rural.	This analysis is most appropriate at the state level. Also, some states lack reliable definitions of urban, suburban and rural schools. You may have to create your own or just forgo the analysis.
By type of school – e.g., charter, traditional public, alternative school, etc.	"In 2017/2018, 77% of traditional public schools and 76% of charter schools offered at least one course in music."	Clear designations of school type.	This analysis is most appropriate at the state level or in large districts.
By school level – e.g., elementary, middle, high	"In 2017/2018, 89% of middle schools offered at least one visual arts course."	Clear designations of school level.	Designations like "elementary school," "middle school" or "high school" can present challenges when some schools break the typical mold (e.g., K–7 schools or 7–12 schools). The people overseeing your state's data systems may have strategies for addressing this challenge.

ADDITIONAL NOTES

Trend data can be more useful than data for a single year. Consider analyzing multiple years of data, if possible. Trend data can help stakeholders judge the impact of policies over time. It can also help stakeholders track the trajectory to goals such as 100% access.

Consider presenting data for individual schools. If you plan to produce an interactive school-by-school report, each school's results could indicate which arts disciplines they include in their course offerings. (See Part 4 for more information about interactive arts education data reports.)

ACCESS: What percentage of students have access to arts courses? (For state- and district-level analyses only.)

These questions differ from the questions above in that they take students rather than schools as their unit of analysis. This student-level analysis can present a clearer picture of students' access to arts courses. For example, it may be less helpful to know that 50% of schools offer theatre than that 75% of students attend those schools.

WHAT SPECIFIC QUESTION DO YOU WANT TO ASK?	WHAT'S AN EXAMPLE OF AN ANSWER TO THAT QUESTION?	WHAT DATA ARE REQUIRED?	TIPS
What percentage of students have access to arts courses in any arts discipline?	"In 2017/2018, 96% of students in XYZ School District attended schools that offered at least one course in the arts."	Teacher assignment data by school and/or course data by school. Where possible, data linking student IDs to course IDs. Total enrollment data, by school.	To perform this analysis, you need to divide the total number of students attending schools that offered at least one arts course by the total number of students attending all schools.
What percentage of students have access to arts courses in specific arts disciplines?	"In 2017/2018, 20% of State X's students attended schools that offered at least one course in dance."	Teacher assignment data by school and/or course data by school. Where possible, data linking student IDs to course IDs. Total enrollment data, by school.	See the tip above.

What percentage of students have access to arts courses in multiple arts disciplines?	"In 2017/2018, 19% of students in Acme District Schools attended schools that offered courses in four arts disciplines; 72% attended schools that offered courses in visual arts and music alone; 32% attended schools that offered courses in only one arts discipline."	Teacher assignment data by school and/or course data by school. Where possible, data linking student IDs to course IDs. Total enrollment data, by school.	See the tip above.

ANALYZING YOUR RESULTS BY KEY SUBGROUPS

WHAT KINDS OF SCHOOLS DO YOU WANT TO ANALYZE OR COMPARE?	WHAT'S AN EXAMPLE OF HOW THE OUTCOME OF THAT ANALYSIS WOULD LOOK?	WHAT ADDITIONAL DATA ARE REQUIRED?	TIPS
By *demographic makeup* of school – e.g., racial/ethnic composition	"In 2017/2018, 97% of students in high-income schools and 82% of students in low-income schools had access to at least one course in the arts."	Data on every school's demographic composition, keyed to unique school IDs.	Be clear and consistent in how you define your terms. For example, "low-income" could mean schools where more than 75% of students are eligible for free or reduced-price lunch. Your state might use standard definitions of schools' demographics characteristics.
By *location* of school – e.g., urban, suburban or rural	"In 2017/2018, 62% of students in urban schools, 64% in suburban schools, and 44% in rural schools had access to at least one course in theatre."	Information about the "urbanicity" of every school.	This analysis is most appropriate at the state level. Also, some states do not have reliable definitions of urban, suburban and rural schools. You may have to create your own definitions or forgo the analysis.

By type of school – e.g., charter school, traditional public school, alternative school, etc.	"In 2017/2018, 82% of students in traditional public schools and 84% of students in charter schools had access to at least one course in music."	Clear designations of school type.	This analysis is most appropriate at the state level or in large districts.
By school level – e.g., elementary, middle, high	"In 2017/2018, 93% of middle school students had access to at least one visual arts course."	Clear designations of school level.	Designations like "elementary school," "middle school," or "high school" can present challenges when some schools break the typical mold (e.g., K–7 schools or 7–12 schools). The people overseeing your state's data systems may have strategies for addressing this challenge.

ADDITIONAL NOTES

Trend data can be more useful than data for a single year. Consider analyzing multiple years of data, if possible. Trend data can help stakeholders judge the impact of policies over time. It can also help stakeholders track the trajectory to goals such as 100% access.

Don't expect to calculate percentages for individual schools. According to this analysis, students at any given school either have access to arts classes or they don't. It is much more complex to analyze other factors that determine students' access to courses – such as prerequisite courses or challenges with schools' course schedules.

PARTICIPATION: What percentage of students participate in arts courses?

Information on enrollment in arts courses can be harder to come by than information on access to arts courses. Not every state collects data on which arts courses students have taken, especially if arts courses are not required for graduation. Your state's data manager can offer insight on what is possible.

WHAT SPECIFIC QUESTION DO YOU WANT TO ASK?	WHAT'S AN EXAMPLE OF AN ANSWER TO THAT QUESTION?	WHAT DATA ARE REQUIRED?	TIPS
What percentage of students take arts courses in *any* arts discipline?	"In 2017/2018, 46% of Acme High School students took at least one course in the arts."	Data linking student IDs to course IDs.	Double check that you asked for "unduplicated" data in your data request. You don't want to double or triple count students who took two or three arts courses in one year.
What percentage of students take arts courses in *specific* arts disciplines?	"In 2017/2018, 7% of State X's students took at least one course in dance."	Data linking student IDs to course IDs.	See note above.
What percentage of students take arts courses in *multiple* arts disciplines?	"In 2017/2018, 1% of XYZ School District students took courses in four arts disciplines; 25% took courses in visual arts and music."	Data linking student IDs to course IDs.	This analysis is more complex than the analyses above.

ANALYZING YOUR RESULTS BY KEY SUBGROUPS

WHAT KINDS OF STUDENTS DO YOU WANT TO ANALYZE OR COMPARE?	WHAT'S AN EXAMPLE OF HOW THE OUTCOME OF THAT ANALYSIS WOULD LOOK?	WHAT ADDITIONAL DATA ARE REQUIRED?	TIPS
By student *demographic group* – e.g., gender, race/ethnicity, eligibility for free/reduced lunch, disability status, English language learner status.	"In 2017/2018, 44% of XYZ School District's female students and 37% of their male peers took at least one course in the arts."	Demographic breakdowns of student enrollment data in arts courses. Demographic breakdowns of overall enrollment in the school, district or state.	Do not forget to request overall student enrollments. You will need those data to calculate the percentage of students who participate in arts classes.

By student *location* – e.g., urban, suburban rural.	"Statewide, 57% of students in urban schools and 46% of students in rural schools took at least one course in music."	Information about the "urbanicity" of every school.	This analysis is most appropriate at the state level. Also, some states do not have reliable definitions of urban, suburban and rural schools. You may have to create your own definitions or forgo the analysis.
By type of school students attend – e.g., charter school, traditional public school, alternative school, etc.	"Statewide, 55% of students in charter schools and 57% of students in traditional public schools took at least one course in music."	Clear designations of each school's type.	This analysis is most appropriate at the state level or in large districts.
By *school level* (e.g., high, middle, elementary), or by student *grade band* (e.g., grades 6–8), or *individual grade level* (e.g., 10th grade).	"17% of XYZ Middle School's students took at least one course in theatre."	Enrollment data broken out by grade level.	You can add enrollment numbers at consecutive grade levels together without duplicating students. Also, designations like "elementary school," "middle school," or "high school" can present challenges when some schools break the typical mold (e.g., K–7 schools or 7–12 schools)

ADDITIONAL NOTES

Trend data can be more useful than data for a single year. Consider analyzing multiple years of data, if possible. Trend data can help stakeholders judge the impact of policies over time. It can also help stakeholders track the trajectory to goals such as 100% access.

Data privacy concerns may limit your results. You will probably encounter student privacy challenges if you investigate subgroups of subgroups of students — for example, *African Americans* in *ninth grade* at *Acme High School* who took a *music class.* The numbers of students contained in such subgroups can become so small as to make those students easily identifiable. In such cases, states typically suppress those data.

TEACHERS: How many teachers teach arts courses, what is their background and what students have access to them?

WHAT SPECIFIC QUESTION DO YOU WANT TO ASK?	WHAT'S AN EXAMPLE OF AN ANSWER TO THAT QUESTION?	WHAT DATA ARE REQUIRED?	TIPS
How many arts teachers are there, overall and by specific arts discipline?	"In 2017/2018, there were four arts teachers at XYZ Middle School: two music teachers, one visual arts teacher and one theatre teacher."	Teacher assignment data by district and/or school.	Analysis of elementary schools may be uncompelling, because most or all elementary teachers may be certified to teach multiple arts disciplines, even if they have limited training in these disciplines. A more fruitful approach in elementary grades could be to examine data on teachers who fill teaching positions explicitly funded as arts teaching positions. These data may allow you to count the number of arts teachers dedicated to teaching primarily the arts. (Note that not every state collects such data.)
What is the student/teacher ratio for arts subjects, overall and by specific arts discipline?	"In the XYZ School District in the 2017/2018 school year, there were 227 students for every certified arts teacher overall, 369 students for every music teacher, 492 students for every visual arts teacher and 886 students for every theatre teacher."	Teacher assignment data by district and/or school. Total student enrollment data by district and/or school.	This ratio would not indicate class size. Rather, it would be the ratio of arts teachers in a school, district or state to total student enrollments in that school, district or state, regardless of whether they take arts courses. Calculating average class sizes in arts classes requires data on all the arts courses taught as well as student enrollment data by course.
What percentage of arts teachers is certified to teach arts, overall and by specific arts discipline?	"In 2017/2018, 96% of XYZ High School teachers assigned to music courses met state certification requirements for teaching music."	Teacher assignment data by district and/or school. Teacher certification or endorsement data.	Check your state's certification requirements so that you can clearly understand the significance of your data. If you feel the state's certification requirements are too lax, consider looking for other proxies for teacher quality in state data systems, such as teachers' college majors.

What percentage of students taking arts classes has certified arts teachers?	"In 2017/2018, 96% of XYZ middle school students in music classes had teachers certified in music."	Teacher assignment data. Teacher certification data. Data linking student IDs to course IDs and teacher IDs.	This analysis is more complex than the analyses above, because it requires analysts to link individual students to individual course sections and the individual teachers who taught those course sections.

ANALYZING YOUR RESULTS BY KEY SUBGROUPS

WHAT KINDS OF STUDENTS OR SCHOOLS DO YOU WANT TO ANALYZE OR COMPARE?	WHAT'S AN EXAMPLE OF HOW THE OUTCOME OF THAT ANALYSIS WOULD LOOK?	WHAT ADDITIONAL DATA ARE REQUIRED?	TIPS
By *demographic makeup of the school* – e.g., race/ethnicity or eligibility for free/ reduced lunch.	"In State X in the 2017/2018 school year, the ratio of students to certified arts teachers in high poverty schools was 334-to-1. In low-poverty schools, it was 312-to-1." "In State X in the 2017/2018 school year, 95% of arts teachers were certified in schools serving predominantly students of color, as compared to 98% of arts teachers in schools serving predominantly white students."	Data on every school's demographic composition.	Be clear and consistent in how you define your terms. For example, "low-income" could mean schools where more than 75% of students are eligible for free or reduced-price lunch. Your state might use standard definitions of schools' demographics characteristics.

By *student demographic group* – e.g., race/ethnicity, eligibility for free/reduced lunch, disability status, English language learner status.	"In 2017/2018, 89% of African American students and 93% of white students in the XYZ School District attended schools with certified arts instructors." "In 2017/2018, 89% of African American students and 93% of white students enrolled in arts courses in the XYZ School District were taught by certified arts instructors."	Student demographic data.	To analyze the percentage of students enrolled in arts courses whose teachers are certified in the arts, you would need to link individual students to individual course sections and the individual teachers who taught those course sections.
By location of school (e.g., rural or urban schools), type of school (e.g., charter or traditional public schools) or school level (e.g., elementary or middle schools).	"In State X in 2017/2018, 91% of students in rural schools and 93% of students in urban schools attended schools with certified arts instructors."	Information about the urbanicity of every school. Clear designations of each school's type. Clear designations of school level.	Analysis of "urbanicity" is most appropriate at the state level. Some states lack reliable definitions of urban, suburban and rural schools. Designations like "elementary school," "middle school," or "high school" can present challenges when some schools break the typical mold (e.g., K–7 schools or 7–12 schools).

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