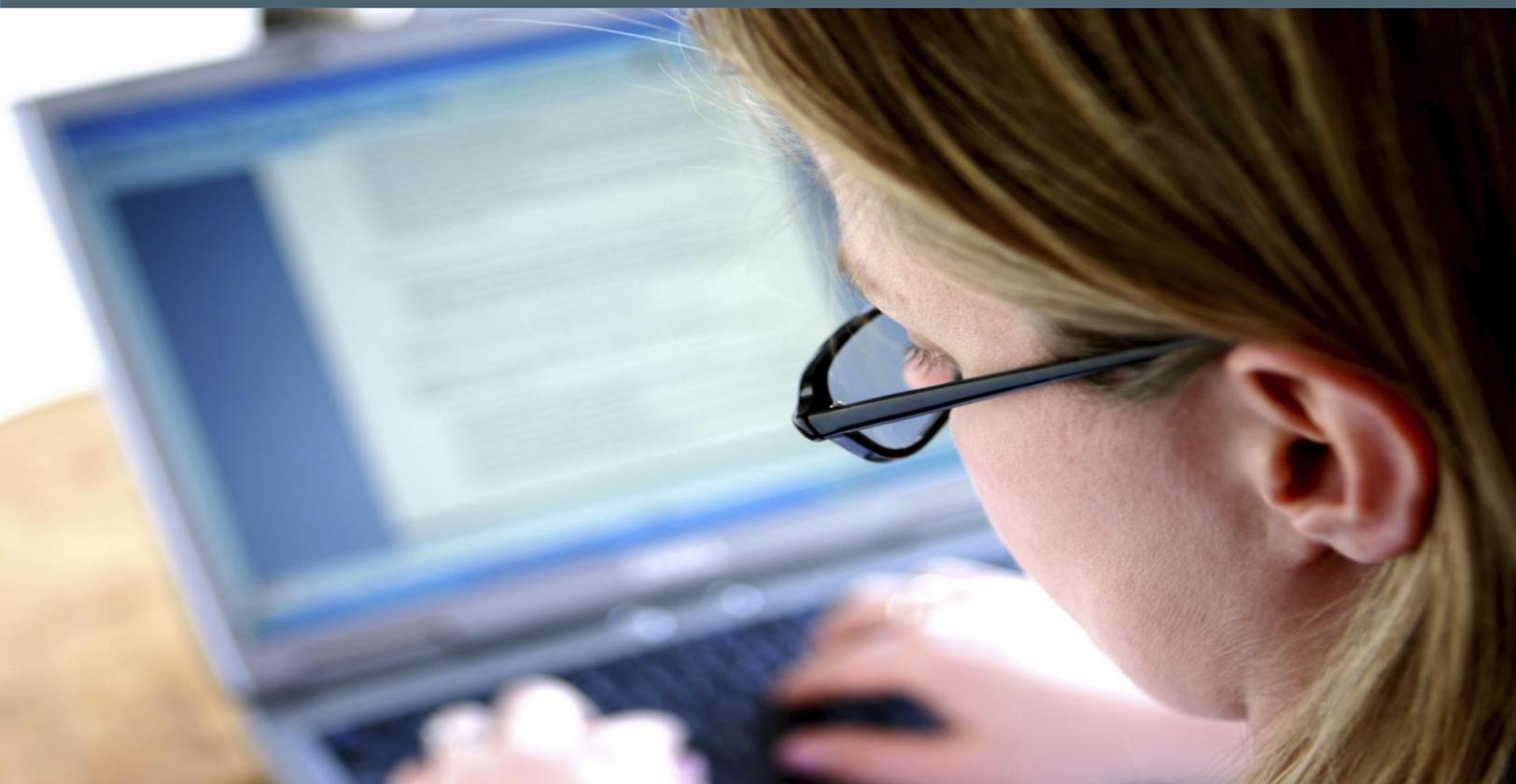


The **Research Alliance** for
New York City Schools

Usage Patterns and Perceptions of the Achievement Reporting and Innovation System (ARIS)



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Executive Summary

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EXECUTIVE SUMMARY

The federal government, states, school districts and private foundations are investing hundreds of millions of dollars in educational data management systems. The hope for these investments is that providing better information to teachers and administrators, particularly student performance data, will support school-wide planning, inform classroom practice and ultimately boost student achievement. Like many previous education reform trends, however, the investment in building these sophisticated data systems has yet to be matched by a commensurate investment in research on their implementation or effectiveness. As a result, little is known about how much and in what ways these systems are actually used, what conditions optimize their use, and, in the end, whether they are making a difference.

With support from the Spencer Foundation, the Research Alliance for New York City Schools is undertaking a study of the country's largest and arguably most ambitious school data system, the New York City Department of Education's Achievement Reporting and Innovation System (ARIS). ARIS provides teachers, administrators, school support staff, and parents with access to a multitude of student data and education resources. It was rolled out in 2008 as part of the City's larger education reform agenda—a broad effort to make schools more data-driven, more accountable for results, and, ultimately, more effective for students.

This report offers the first systematic examination of ARIS's actual usage data and sheds light on the extent to which ARIS is achieving its goals. Based on our analysis of a full year of ARIS “clickstream” data, as well as surveys, interviews and focus groups, the study addresses the following questions

- To what extent and in what ways do the City's educators use ARIS?
- What do educators see as the strengths and limitations of ARIS?
- What enhancements and supports do educators believe would make the system more useful?

The remainder of this summary addresses each of these questions in turn. A concluding section offers further insight into whether ARIS is accomplishing the broad and multi-faceted goals for which it was designed—particularly, guiding school planning and accountability, supporting the school-wide “inquiry process” and empowering teachers with data and resources to inform their practice.

To What Extent and in What Ways do Educators Use ARIS?

Clickstream data are generated every time someone logs on to ARIS or navigates to a new page. To determine actual ARIS usage, we analyzed more than 24 million clickstream records, from nearly 1.5 million distinct sessions, which were generated between July 1, 2010 and June 30, 2011. We found that:

- **Most of the City’s educators used ARIS at least once during the 2010-2011 school year, usually for brief periods of time.**

More than 69,000 educators logged on to ARIS at least once during the 2010-2011 school year. This represents 73 percent of all school-based administrators and teachers, including 94 percent of principals, 84 percent of assistant principals, 67 percent of teachers, and 60 percent of other administrative staff. The average user logged on to the system 21 times during the year, for just under five minutes per session.

- **The vast majority of ARIS use involved accessing basic student data, with comparatively less time spent using the system’s analytic, knowledge management and virtual collaboration tools.**

Exhibit ES-1 shows that ARIS users spent a combined total of more than 90,000 hours (82 percent all the time spent on the system) viewing the various forms of data available on students (the ARIS Data areas), including biographical and enrollment information, attendance data, periodic assessment results, state test results and transcripts. Most of this “Data” time was spent with Individual Student Profiles or with information organized at the classroom level (referred to as “Views”). Much less time was spent with system’s advanced reporting features (“Reports”) or what is known as ARIS Connect, which allows teachers to search for instructional tools and share resources and information with one another.

- **A subset of educators used ARIS much more heavily; this group represented 28 percent of users, but accounted for more than 80 percent of all of the time on the system.**

The second column in Exhibit ES-1 shows the activity of the nearly 20,000 teachers and administrators who made the most intensive use of ARIS during the 2010-2011 school year. While these individuals represented just 28 percent of all ARIS users, they accounted for nearly three quarters of all ARIS sessions. And at more than four and a half hours of usage during the year, these heavy users accounted for more than 80 percent of all time spent on the system. By contrast, the remaining ARIS users each spent an average of less than 25 minutes on the system, and more than half of these were logged on for less than five minutes over the course of the year.

Exhibit ES-1
ARIS Usage During the 2010-2011 School Year

System Areas and Usage Measures	All Users	Heavy Users	Moderate Users	Light Users
Total ARIS Usage				
Total hours	111,510	91,967	17,710	1,833
Minutes per user	96.7	283.3	43.7	4.3
ARIS Data Areas				
Total hours	90,184	74,653	14,084	1,447
Minutes per user	78.2	230.0	34.8	3.4
Individual Student Profiles				
Total hours	29,700	26,111	3,411	179
Minutes per user	25.8	80.4	8.4	0.4
Views				
Total hours	38,315	30,772	6,869	674
Minutes per user	33.2	94.8	17.0	1.6
Data Reports				
Total hours	5,891	4,659	1,088	143
Minutes per user	5.1	14.4	2.7	0.3
System Navigation				
Total hours	16,277	13,110	2,716	451
Minutes per user	14.1	40.4	6.7	1.1
ARIS Connect Areas				
Total hours	21,326	17,314	3,626	386
Minutes per user	18.5	53.3	9.0	0.9
Number of Users	69,190	19,475	24,294	25,421

Source: Research Alliance calculations from ARIS Usage data provided by the New York City Department of Education.

Notes: "Heavy" users accumulated a minimum of 90 minutes of ARIS usage during the year.

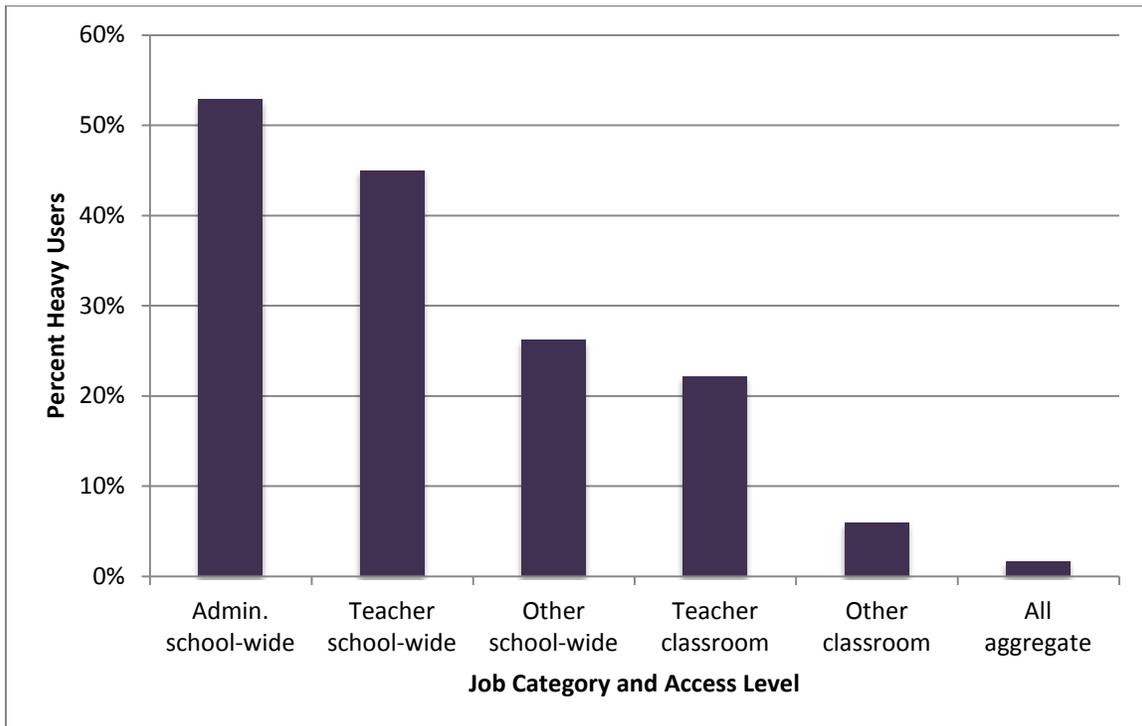
"Moderate" users accumulate between 15 and 90 minutes, and "Light" users accumulated fewer than 15 minutes during the year.

The type of information heavy users accessed in ARIS did not vary significantly from that of light and moderate user. The heavy users did not use either the Reports function or the Connect feature disproportionately more than the other types of users. This suggests that while the heavy users were on ARIS more than other users, they were not generally engaging in comparatively more complex uses of the system.

- **The heaviest ARIS users were predominantly administrators and teachers who were given access to school-wide (versus individual class) information.**

Educators are offered two levels of access to information in ARIS. Administrators and some teachers are given access to information on all students in their school. Other teachers are only given access to information on students in their classes. Exhibit ES-2 shows that school administrators and teachers with school-wide access were the heaviest ARIS users. These educators logged on to the system an average of 59 times during the year, accumulating nearly five and a half hours of usage each. Notably, 94 percent of all New York City schools had at least one heavy ARIS user with access to school-wide information.

**Exhibit ES-2
Percent of Educators Who Were Heavy ARIS Users
by Job Category and Level of Access**



Source: Research Alliance calculations from ARIS usage data provided by the New York City Department of Education.

Notes: “Heavy” users accumulated a minimum of 90 minutes of ARIS usage during the year. The “Other” job category includes counselors, administrative assistants, and support staff. Users with school-wide access can view information for all students in a school. Users with only classroom access can view information only for students enrolled in a particular class. All users with just aggregate access can view only data summarized at the school level.

By contrast, heavy classroom-based usage among teachers was much less prevalent. Teachers with access only to information about students in their classes logged on to ARIS an average of 15 times during the year, accumulating just over 60 minutes of total time on the system. None of the City's schools had a majority of its teachers making heavy classroom-based use of ARIS, and 26 percent of schools had six or more teachers who were heavy classroom-based users.

What do Educators See as the Strengths and Limitations of ARIS?

To examine educators' perceptions of ARIS, we surveyed 627 teachers from 23 middle schools, which were broadly representative of the City's nearly 250 grade 6-8 schools. In 10 of these schools, we also conducted in-person interviews with administrators and data specialists and focus groups with teachers.

Educators highlighted a number of ways that ARIS has been useful. For most of the teachers we surveyed, ARIS has become the primary source for key student data, including state test results, periodic assessment scores, attendance records, student biographic information, and current courses and grades. This is significant, given that prior to ARIS, teachers had to track down information on their students from a variety of electronic and paper sources (and in some cases, did not have direct access to the data and had to request it from an administrator). Teachers found the data in ARIS particularly useful in the beginning of the year, as it provided a "blueprint" of the new students entering their classrooms.

ARIS has become a convenient "single stop" for educators seeking student data, especially at the whole-school level. The administrators we interviewed explained how they used ARIS for a variety of school-wide planning and decision-making. Many reported using ARIS data to target professional development, for example, or to coordinate after-school supports.

Our surveys and fieldwork also suggest that early technology issues, such as sluggishness in the system, have largely been resolved. But educators cited other barriers that continue to undermine ARIS use. Many saw inadequate training as a significant obstacle, for instance. Well over 70 percent of those surveyed felt they needed more training to use the system effectively. Teachers also reported that the data available in ARIS, which is generally loaded into the system at the beginning of the year and does not change, is of limited value for classroom instruction. Finally, educators reported that ARIS's more complex analytic and knowledge management functions are often difficult to use and are not particularly relevant for their day-to-day work.

What Enhancements and Supports do Educators Believe Would Make the System More Useful?

Our surveys, focus groups and interviews pointed to several potential strategies to overcome the perceived limitations of ARIS and make the system more useful. Not surprisingly, these include improving and expanding ARIS's content. The educators we spoke with wanted

better and different kinds of data in ARIS, including more regular, real-time assessment data that could be used to inform classroom instruction, as well as non-academic information, such as updates on student behavior, detailed information from Individual Education Plans (for students with special needs) and more information about students' home lives. Teachers also said they would appreciate the opportunity to input data, rather than simply accessing it from ARIS.

Another important area for improvement is training and support. Many educators would like additional training, including sessions that are differentiated to meet the needs of users with varying levels of experience and sessions that are much more hands-on. Some educators also called for more dedicated time to learn about and use the system.

Conclusion

Findings from the analysis of ARIS usage data and educators' perceptions of the system provide a mixed assessment of whether ARIS has achieved its ambitious and multi-faceted goals.

As a tool for aggregating data from disparate systems, improving access to information and creating a convenient one-stop resource for educators, especially for school-wide planning, ARIS has been successful. Most educators used the system in some way during the 2010-2011 school year. How much time they spent on ARIS varied greatly, and the heavier users were those whose roles extend beyond the classroom and into larger, school-wide planning. This seems to be largely a function of the kind of information available in ARIS. Assessment data, grades, attendance rates, and credit accumulation data are useful for administrators, data specialists, coaches and inquiry team members, who need to understand and track broad trends in student performance. For school-wide planning and for monitoring a school's progress within the City's accountability system, ARIS gets high marks.

As a source of support for the collaborative school inquiry process—which brings teachers together to review student data, identify learning challenges and develop strategies to address those challenges—ARIS has been partially successful, but underutilized. Those with school-wide roles are using the system heavily. In focus groups and interviews, educators reported that they see ARIS as a valuable tool for the inquiry process. At the same time, the more complex analytic and knowledge management functions—housed in the Reports and ARIS Connect areas—are used much less frequently than the system's basic data tools. Some educators told us that, rather than wrestling with Reports, they often download data from ARIS and then use other resources (e.g., Excel) to manipulate and present it to colleagues. And many teachers were skeptical about the utility of ARIS Connect for sharing knowledge and supporting their work.

Lastly, the findings indicate that ARIS's greatest limitations lie in its use by teachers to inform their instructional practice. Teachers noted both a lack of training in sophisticated uses of the system and a lack of time to engage with ARIS's virtual learning communities and instructional resources. But the biggest issue may be the largely static nature of ARIS's data. To

help teachers adjust their lesson plans on a daily or weekly basis or to tailor their instruction to meet individual student needs, more and different kinds of information would have to be added to the system.

Recommendations and Next Steps

Looking forward, to the next generation of school data systems that are currently in development in New York and around the country, the ARIS experience suggests a number of valuable lessons. Clearly, the data that a system is designed to house should align with its stated goals (e.g., real-time assessment data to inform classroom instruction). In addition, developers should think carefully about the utility of advanced analytical and “community” functions, like ARIS Reports and Connect. At the very least, these features need to be tested under real-world conditions, to ensure that they meet educators’ needs and make sense in the context of their busy work lives. It is possible that a less top-down—more “crowd-sourced”—approach to developing these tools, in which educators are able to request or even create ARIS “apps” to support their work, would help make them more effective.

While the first year of this study has painted a rich picture of ARIS use and educators’ perceptions of the system, there are still a number of important questions about ARIS that need to be answered. First, if, as our findings indicate, ARIS appears to be best suited as a tool for school-wide planning (as opposed to classroom instruction), what does this school-level usage look like? It would be helpful to examine in much more depth how administrators, inquiry team members and data specialists are using the system to guide organizational development and improvement. Second, are there schools where ARIS *is* being used by teachers to guide classroom instruction? Our study shows that this is not the norm, but it is possible that some schools have figured out how to make ARIS more relevant for day-to-day instruction. If so, their practices, including their approach to training, deserve a closer look. Finally, of course, there is the question of whether ARIS use is associated with improved student achievement. In the second year of our study, we hope to examine year-to-year changes in ARIS use and whether those changes are related to changes in achievement—that is, did schools that increased their use of ARIS also see improved test scores?

All of these questions are important for the design and rollout of future data systems. Understanding where ARIS has met or exceeded expectations, and where it has fallen short—and building knowledge, more broadly, about how people use data in schools—will surely enhance the effectiveness of future efforts.

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