PROGRAM EVALUATION AND RESEARCH GROUP

The JASON Learning Program In Rhode Island

Year 3 Evaluation Report

June 30, 2015

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ENDICOTT COLLEGE
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> *JASON Learning makes learning pop, that's the best way to describe it.*
> *[Profile interview]*

> *They've all grown up in this area of the state and so many of them didn't realize that the river was there. So it was such an eye-opening experience.*
> *[Profile interview]*

> *One of the main things I really love is the connection all the Expeditions/Missions make with real scientists who are regular, nice, fun, smart people….[They] describe what they were like as adolescents and how they grew to love the field they're in. Love that part of this program—it makes it very unique!* *[Teacher survey]*

The JASON Learning Program in Rhode Island is an inquiry-based science, technology, engineering, and math (STEM) education program funded by the Rhode Island State Legislature. During 2014-15, its third year of operation, it provided free access for 20 districts to the following, depending on cohort:

- Online accounts for all district administrators, educators, and students to the JASON Learning website resources
- Professional development workshops (attended by 84 teachers this past year) and additional teacher resources
- Print resources (student books)
- Admission and on-site programming at the Mystic Aquarium
- Blackstone Valley Field Programs and bussing
- Science Speaker Series events
- Coaches Program for 1-2 teachers from each district
- NGSS Task Force to align JASON Learning materials with NGSS

This current evaluation focuses on teacher implementation of and experience with the JASON Learning Program, and on how teachers see JASON Learning as useful for meeting NGSS requirements. Data was collected through a teacher survey (with 70 responses) and through lengthy interviews with four teachers.

Extended Implementation of JASON Learning

> *I think just having all these resources has really made me a more engaging teacher. I guess it's helped me convey a deeper understanding to the students through all these different modes of learning.* *[Profile interview]*

> *The level of my lessons, the content that I'm covering is better [as a result of JASON Learning].* *[Profile interview]*

Strong teachers who have been actively involved with the JASON Learning program for two or more years, as represented by four teachers from different districts interviewed for this report, are extremely positive about the program.

- They have found the JASON Learning PD workshops to be very useful.
- They are comfortable choosing from among the varied JASON Learning options depending on their needs and the needs of their students.
- They especially appreciate the digital labs and other multi-media options, and the incorporation of real scientists in the books and videos.
- They consistently report strong student engagement and interest when using JASON materials.
- They find JASON materials easy to use or adapt for students with a wide range of learning styles and needs.

Strengths and Benefits of the JASON Learning Program

> *Homework completion when using JASON is off the charts compared to when it's not a JASON assignment. [Teacher survey]*
>
> *It's made me more excited because I understand that students want to learn. Using the video components, using the games, using the hands-on, they become much more successful learners because they get to explore these pretty dense topics, at a more in-depth level. I've heard students say, "I didn't like science, now I like it". [Profile interview]*

According to teachers, JASON Learning provides many benefits for students and for teachers.

- Students are highly engaged by the look and content of JASON resources, both print and online, and like the unique magazine format, digital labs, and online games.
- Students and teachers appreciate the connection to real world resources, relevance to students' lives, and relationship to working scientists.
- Especially in districts without recent textbooks, the JASON materials provide up-to-date content and examples critical to science education.
- Almost three-quarters of survey respondents agreed that JASON Learning has improved student performance in science, that students have a better understanding of science content, and that student enthusiasm for science has increased since implementing JASON Learning.

Teachers also report positive outcomes for themselves through their involvement with JASON Learning.

- They value the JASON PD opportunities, with almost all those surveyed indicating they want to attend more.
- 85% of survey respondents report increased science content knowledge as a result of involvement with JASON training and materials.
- Many teachers credit JASON with increasing their confidence as science teachers. .

Especially in districts where there are no, or hardly any professional development opportunities specifically focused on the discipline of science, and where at least some of the middle school teachers are elementary-certified, the JASON program provides a critical resource in support of quality science education.

Barriers to the Use of JASON Learning

The major barriers to use of the JASON materials are:

- Lack of access to enough computers, which limits half of the teacher survey respondents in their ability to use JASON materials.
- Lack of access to enough books, which limits a third of teachers.
- Lack of funding to cover substitutes so they can attend PD workshops also limits use.

Solving these obstacles would greatly increase the use and usefulness of the JASON materials.

Implementation of Next Generation Science Standards

> *I like JASON because it tends to be a little more open-ended, and that's that whole engineering piece with NGSS that is such a big component, so it's forward thinking. [Profile interview]*

As Rhode Island teachers, schools, and districts transition to basing their instruction on the Next Generation Science Standards (NGSS), at least some are already finding JASON Learning materials to be a helpful resource in that process.

- JASON materials can quickly provide needed, high quality content background, teaching resources and activities for topics that teachers have not taught before.
- A local JASON Task Force is aligning each JASON Learning reading selection, lab, and field assignment with NGSS, starting with *Terminal Velocity*, and creating exemplar lessons to demonstrate three-dimensional learning.
- Some teachers are concerned about relying on materials that could disappear if funding is not continued.

JASON Learning staff will be meeting with district administrators starting this summer to discuss JASON implementation, future strategies and needs, and the potential role of NGSS. Ensuring funding for multiple year access to the materials might also encourage more districts and teachers to depend on JASON Learning materials as they transition to NGSS.

Overall, Rhode Island teachers and their students have had a positive experience with the JASON Learning Program, especially when they have had sufficient access to the materials.

INTRODUCTION

Project Description

The Rhode Island General Assembly appropriated $500,000 to continue JASON Learning implementation throughout Rhode Island. Funds were used to provide programming to 8 new districts who had not previously participated in JASON Learning, and to 12 veteran districts who had received program services from appropriations in 2012-13 and 2013-14, and who wished to continue, in order to maintain their level of programming. As part of this program, all Rhode Island administrators, educators, and students had free online access to all of the extensive resources on the JASON Learning website. Teachers in these districts were also offered print materials (teacher guides and student editions) and professional development workshops covering each of the seven curriculum units. In addition, JASON Learning covered the costs of programming at a field site and at the Mystic Aquarium, and for a visiting science speaker event in the first year. (See Table #1 for a list of Rhode Island districts involved with JASON Learning, and Table #2 for a listing of activities and resources available to participating schools and districts.) A Regional Director of Educational Partnerships, Amy O'Neal, continued to oversee all aspects of the JASON Learning Program in Rhode Island.

Evaluation

The Program Evaluation and Research Group (PERG) at Endicott College was contracted to conduct an evaluation of the 2014-15 school year program activities and outcomes. PERG has carried out over 700 program evaluations and research studies in formal and informal education environments, working with universities, schools, foundations, state and federal agencies, museums and other community-based organizations. Many of these projects have been funded by the National Science Foundation (NSF) or the National Oceanic and Atmospheric Administration (NOAA) to evaluate teacher professional development and curriculum projects.

Evaluators determined the focus and approach of the evaluation in collaboration with the JASON Learning Regional Director.

Evaluation Questions

The evaluation questions for this report, as determined jointly by PERG and JASON Learning, are:

- *Current year:* How have districts, schools, teachers and students participated in the program during the 2014-15 school year? What have been the outcomes of that participation as reported by teachers?
- *Next Generation Science Standards*: How do teachers see JASON Learning as useful for meeting NGSS requirements?
- *Cumulative impacts:* How has involvement with the JASON Learning program impacted 4 teachers who have been involved with JASON Learning for at least 2 years?

Evaluation Activities

In order to collect data to answer the evaluation questions, PERG engaged in the following activities:

- Observation of JASON Learning Coaches meeting, February, 2015
- Review of online JASON Learning materials
- Design and administration of teacher survey, May, 2015
- In-person interviews with 4 participating teachers (at least 1 hour), May, 2015
- Extensive phone conversations with Amy O'Neal, JASON Learning Regional Director of Educational Partnerships.

FINDINGS

The following section shares findings about the JASON Learning Program in Rhode Island in three sections:

- ***Participation in JASON Learning activities*****,** showing the extent of involvement across Rhode Island and among teachers this past year and since it began in 2012;
- ***Teacher profiles*** of four teachers who have been involved with the JASON program for at least two years, providing a rich picture of how teachers who are experienced with the JASON materials use them, and what they and their students perceive as the most meaningful benefits;
- ***Teacher survey results****,* offering more information from a larger and broader group of teachers at different levels of experience with the JASON Learning Program in Rhode Island.

Participation in JASON Learning Activities

Since 2012-13, the Rhode Island General Assembly has been providing funding for JASON Learning implementation. Since that time, 23 districts in Rhode Island have participated in JASON at various levels of programming. Table # 1 describes the timeline of when districts were specifically cited in legislation to receive services. During this 2014-15 school year, programming was provided to 8 new districts and maintained for 12 veteran districts to continue implementing JASON.

TABLE #1 PARTICIPATION OF RHODE ISLAND DISTRICTS IN JASON LEARNING, YEARS 1,2 &3

First Cohort 3rd year of Implementation	Second Cohort 2nd year of Implementation	Third Cohort 1st year of Implementation
Districts Included in the 2012-2013 appropriation	**Districts Included in the 2013-2014 appropriation**	**Districts Included in the 2014-2015 appropriation**
Central Falls	Burriville	Chariho
Newport*	Bristol Warren	East Greenwich
Pawtucket	Cranston	Johnston
Providence*	East Providence	Lincoln
Smithfield	Jamestown	Portsmouth
West Warwick	North Providence	Scituate
Westerly	Warwick**	South Kingstown
Woonsocket		Tiverton

**Newport and Providence participated in JASON Learning's Immersion Program through after-school programming only. Given the differences in JASON implementation within them and the need to limit the scope of this evaluation, these districts were not surveyed and are not included in the data presented.*
***Although Warwick was specifically named in the second appropriation (2013-2014), this district also participated during the 2012-2013 school year. Because this evaluation's focus is primarily on the impact of participation, Warwick will be considered part of the first cohort.*

Each district involved with JASON Learning had one or two teachers operating as coaches. These coaches met with the JASON Learning Regional Director, Amy O'Neal, three times during the year, and received special opportunities for their students in return (see Table #2). They provided feedback about opportunities to support the district activities, challenges, and needs of the science teachers, and operated as a link to the district from the program.

TABLE #2 RESOURCES AND MATERIALS RECEIVED BY DISTRICTS DURING 2014-2015

Programming	First Cohort	Second Cohort	Third Cohort
	3rd year of Implementation	2nd year of Implementation	1st year of Implementation
	JASON Learning Districts Cited in 2012-2013 Appropriation	JASON Learning Districts Cited in 2013-2014 Appropriation	JASON Learning Districts Cited in 2014-2015 Appropriation
Online Access	Free Online Access for all administrators, educators, and students	Free Online Access for all administrators, educators, and students	Free Online Access for all administrators, educators, and students
Professional Development Workshops	Free PD with teacher packs*	Free PD with teacher packs*	Free PD with teacher packs*
JASON Coaches Program	Participation for up to two coaches per district in JASON Learning Teacher Advisory Group	Participation for up to two coaches per district in JASON Learning Teacher Advisory Group	Participation for up to two coaches per district in JASON Learning Teacher Advisory Group
Admission to Mystic Aquarium	Free admission to Mystic Aquarium year round	Free admission to Mystic Aquarium year round	Free admission to Mystic Aquarium year round
Mystic Aquarium On-Site Programming		Free Mystic Aquarium on-site classes for students through March 31, 2015	Free Mystic Aquarium on-site classes for students through March 31, 2015
Blackstone Valley Field Programs (or customized, local experience)	One Field Trip per coach (25-38 participants per group)	One Field Trip per coach (25-38 participants per group)	One Field Trip per coach (25-38 participants per group)
Field Program Bussing		One bus per district for up to two groups	One bus per district for up to two groups
Print Resources (student books)	One set of 30 student books per coach (coach selects the curriculum)	One set of 30 student books per coach (coach selects the curriculum)	Two sets of 30 student books per new school involved (school selects the curriculum)
Scientist Speaker Series			Science Speaker Series (typically one event per school involved)

**Each teacher who attends a training receives a teacher pack each time they participate in that curriculum. A teacher pack consists of a teacher guide, a student edition, and the accompanying DVDs/CDs*

Each year, JASON Learning offers full-day workshops for teachers in participating districts. These workshops cover each of the curriculum books (units) or "operations", and include training in the content as well as use of the website and materials. During the 2014-15 school year, 84 teachers attended these workshops.

TABLE #3 PROFESSIONAL DEVELOPMENT WORKSHOP ATTENDANCE BY DISTRICT FOR EACH YEAR OF IMPLEMENTATION 2012-2015

Districts listed by Beginning JASON Participation Year	Professional Development Workshop Attendance			
	2012-2013	2013-2014	2014-2015	Total all 3 Years
3rd Year Districts				
Central Falls	7	9	3	19
Pawtucket	9	6	3	18
Smithfield	6	6	0	12
West Warwick	3	10	13	26
Westerly	12	4	2	18
Woonsocket	13	8**	0	21
Warwick*	28	12	1	41
2nd Year Districts				
Bristol/Warren	NA	2	4	6
Burrillville	NA	6	0	6
Cranston	NA	19**	20**	39
East Providence	NA	9	10	19
Jamestown	NA	2	0	2
North Providence	NA	6	0	6
1st Year Districts				
Chariho	NA	NA	2	2
East Greenwich	NA	NA	2	2
Johnston	NA	NA	5	5
Lincoln	NA	NA	4	4
Portsmouth	NA	NA	8	8
Scituate	NA	NA	4	4
South Kingstown	NA	NA	2	2
Tiverton	NA	NA	1	1
Totals	78	99	84	NA

**Although Warwick was specifically named in the second appropriation (2013-2014), this district also participated during the 2012-2013 school year and so will be included as a 3rd year district.*
***Almost all teachers in these instances attended an abridged type of workshop: a 45-minute to 4-hour in-district training typically conducted afterschool instead of the full-day offsite training.*

Finally, selected teachers participated in an NGSS/JASON Task Force. This group began to draft matrices aligning the JASON Learning *Terminal Velocity* curriculum materials with NGSS and Common Core standards. These teachers are also developing an exemplar lesson to demonstrate three-dimensional learning. The Task Force intends to create matrices and exemplar lessons for each of the JASON Learning curricula over the next few years.

Teacher Profiles

PERG evaluators have assembled profiles of four teachers from different districts across the state who have at least two years of experience using the JASON Learning materials. These teachers were chosen because they have had a chance to become very familiar with the materials, and have utilized significant amounts of them for two or three years. As the profiles show, they have also integrated the JASON Learning materials into their teaching and rely on them to meet important educational needs for their students. Evaluators visited the teachers in their classrooms during May of 2015 and held extensive conversations with them about their experiences with JASON Learning.

Teacher A

Teacher A has spent almost his entire one-and-a-half decade teaching career at his current middle school, where he teaches 8th grade science. The school serves a diverse urban and suburban community with a high transient population. About a third of the students qualify for free or reduced lunch, while many others come from upper middle-class families. He likes the school, feels supported by the administrators, and has a good, collaborative relationship with the other 8th grade science teachers.

Since Teacher A started using JASON materials a little over two years ago, his school has provided each student with a Chromebook and transitioned to using the NGSS standards. Each of these changes has supported increased use of the JASON Learning program.

Teacher A uses parts of the JASON Learning units as an online textbook. He also uses or modifies relevant JASON labs and games, and allows his students to use the JASON website as a trusted resource for doing independent research. As the transition to NGSS has required teaching new curriculum topics, JASON Learning materials have helped him cover many of the new standards. In all, he uses JASON materials to help cover about half of his curriculum for the year.

Teacher A's students like using the JASON materials, and he does too. He used the Monster Storms Operation (unit) to help his students learn about the science of hurricanes and tornadoes as well as about environmental issues, leadership, engineering, and what actual people in a variety of related jobs do, among other things. His students built levees after playing the JASON hurricane game, and tested their ability to keep out water. After working with the material in *Tectonic Fury*, his students constructed buildings and watched to see if they could stay upright in an earthquake simulator.

> *JASON Learning makes learning pop, that's the best way to describe it.*

Teacher A has always taught using extensive hands-on methods and personally developed lessons, and the JASON materials support these approaches. He finds it easy to modify the JASON materials to suit his purposes. For instance, he sometimes likes to add a challenge focus for his students, and has modified one of the labs to include more engineering. Teacher A also likes how JASON supports his desire to assess students through their ability to apply what they have learned to a real life situation.

According to Teacher A, JASON's multiple activities make it easy for him to provide differentiated learning opportunities for his students with varying learning styles and achievement levels. The extensive references and resources also make the JASON materials a good starting place for research by both students and teachers. The resources are current, provide exciting images, and the information is related to real events, places, and people. Teacher A and his students especially like the live shows (or taped) with scientists that give students a chance to ask questions.

> *JASON Learning is at a good level that [the 8th graders] can understand. It is challenging all students, from lower level to gifted. I like that. …. [I can give extra credit for additional, harder work] geared for gifted students. They always say we teach to the middle. This changes that.*

The transition to NGSS in Teacher A's school has necessitated teaching new topics in 8th grade and meeting new standards within those topics. Teacher A has found the JASON Learning materials particularly helpful for teaching many of these new topics, where he does not already have years of activities and materials assembled. If and when the material is aligned with NGSS, he predicts that even more teachers will be eager to use the JASON materials.

> *Myself and my colleagues have always offered a lot of hands-on activities. By doing, you learn more. … JASON made it easier to come up with different activities. I've transitioned into something I haven't taught in a while. For the last 8 years I taught biology and the nervous system. Last time I taught earth science, it was more on paper. With [JASON's] Tectonic Fury, there are live visuals that you can actually see. There's nothing like a digital image enhancing one's learning.*

Teacher A's biggest concern regarding JASON is about being able to count on using the materials, especially as he and his team have become dependent on them to meet a large percentage of their NGSS-related curricular needs. He is also concerned about cost of paying for substitutes so teachers can attend the much-needed PD on using the materials and the different content.

Overall, Teacher A likes the high level of student interaction and interest when working with JASON materials, the high quality and visual appeal of the materials, the opportunities for his students to demonstrate learning in interesting ways, and that the materials are up-to-date and connect well with his students. He also likes that the materials are easy for him to use and adapt for his own purposes and for use with a wide variety of students, and that they address many of the new standards.

Teacher B

Teacher B has been teaching science for about half of her two-decade teaching career. She teaches 7th grade in a very economically diverse community, with 40% who qualify for free and reduced lunch while many others come from middle and upper-middle class families. She likes working with her colleagues very much, and feels well supported by her principal and other administrators in the district. She likes working in this school and with these students.

Teacher B has attended free professional development sessions for all of the JASON Learning curricula, either during the year or in the summer. She has found them to be extremely valuable for content knowledge learning, especially since she does not have a science background and her district does not provide science content professional development.

Teacher B utilizes different parts of the JASON Learning materials each year, depending on her students. She uses readings from the books, hands-on labs, online videos, and a couple of the field assignments. In the past, she has projected the material onto her wall due to lack of access to computers. Her school now has more computer carts, which makes access much more reliable. Her classroom also has an eight year-old set of science textbooks that she uses as a resource for her students. However, she develops most of her own materials from online sources, as do her colleagues. She appreciates the quality resources JASON Learning has added to her classroom, in support of her inquiry-based teaching.

> *I have some [JASON Learning] things I have found that are tried and true. Some are digital labs, they are phenomenal!... I use several of the videos that are online, particularly the "Meet the Scientist", where you see the scientists with students going out into the field doing research. Those are their favorites, it really excites the kids. …The kids really respond to the digital labs. …Homework completion when using JASON is off the charts compared to when it's not a JASON assignment.*

The 7th grade includes three units of study, and JASON provides material for two of them. Teacher B gives her students options, such as learning about either volcanoes or earthquakes. They can choose to use JASON Learning materials if they want to. Her students like the materials, but the reading level can be challenging. However, some of her students use the online option of listening to the computer read the text to them. She also has one set of print books available. While her students will also use the more traditional and easier to read textbooks and other resources in her classroom, they like the JASON Learning magazine-type layout, graphics, and diagrams. She estimates that 75-80% of her students use some form of the JASON materials as at least 1 of their sources for an assignment. Overall, she finds that her students are much more engaged when interacting with JASON materials, even if they are just reading an article, especially when they are using the online version.

> *The other set of books is very easy and self-directed. Sometimes they go there to get preliminary information. But if it's really something they are interested in, they won't go to the easy one. JASON Learning is more informative.*

Teacher B cannot tell if her students are learning more or better than before she started using JASON Learning materials, or if the novelty of the computer is responsible for some of the positive response. She can tell that they are more interested in the content when using JASON resources. For instance, her students love a digital lab about testing minerals, which they enjoy more now using JASON Materials than when she used to teach it without them. Another digital lab that her students love involves choosing a geographic location that features a specific landform and running simulations of the earth processes that created it.

> *I used to do it as a project where they had to research it all and figure it out. It was so tedious to figure it all out on their own. Here they run simulations, and they are so engaged in it. I think they understand how the processes of the earth created this land form. I think they get the big idea faster and better than if they had to read it all without the visual, and there was no way to provide that visual myself. That simulation was perfect…. It doesn't always result in deeper learning, but in some places I've seen them understand some difficult and complicated things that would have been hard to understand from just reading or even me explaining.*

According to Teacher B, the ability to search the JASON materials makes them especially useful. Being able to search by NGSS standard would be even more helpful, particularly since it can be complicated to evaluate if something fits a standard. As 7th grade science teachers in Teacher B's district prepare to transition to NGSS next year, they are writing JASON Learning materials into their curriculum as possible resources. She thinks the JASON materials will be especially helpful for teaching the new topics that have not been required in 7th grade before. However, they are all nervous about relying so heavily on the JASON materials in case funding stops.

Overall, Teacher B likes that her students find JASON Learning materials highly engaging, and that the resources support her desire to base her teaching on inquiry learning. She has relied on the materials and the training to fill in her own science content gaps, and has noticed that her most curious students will always choose the JASON Learning materials when given a choice. Her 7th grade team is relying on JASON materials to help them meet the new NGSS standards, hoping that funding will continue to make them available to their district.

Teacher C

Teacher C has been teaching middle school science for eight years in a low income and diverse urban setting. She originally found JASON Learning materials while searching for online curriculum resources, and was enthusiastic when Amy O'Neal contacted her district about participating in the program. She has been using JASON Learning materials for more than three years, and has attended several JASON professional development workshops. These workshops have helped her to explore the materials more thoroughly, which has increased her usage of them. She feels supported in her use of JASON by her principal, and collaborates with her colleagues on determining the most useful sections of the JASON Learning materials to meet their needs.

Teacher C's classroom has 30 copies of one of the JASON Learning curriculum unit books (there are currently 7) and she often uses a projector to teach with the online content. While her class has access to a computer cart, this cart is shared by six different classrooms and is often needed for statewide testing. Given these restrictions, Teacher C would like to use JASON textbooks more often and is hoping to get one or two more classroom sets of the unit textbooks on different topics.

Teacher C mixes and matches JASON print and digital materials with other resources to meet her teaching needs. She looks for subject matter aligned with the Rhode Island Grade Span Expectations (GSE's, soon to be replaced by NGSS), interesting labs, and engaging presentations of content. Since the district textbooks she uses for much of her curriculum are 15 years old, she finds that her students are more engaged by the colorful, relevant, and more current topics of the JASON materials. She uses them to supplement the district text as often as possible. However, the JASON Learning materials do not include enough of what she is required to cover for use as a primary curriculum source. Lack of computers in school and at home are also a major limiting factor.

> *[My students] are more excited about learning about science [when using JASON Learning materials]… For instance, there's a big section on Tsunamis that has to do with wavelength and energy. And that pulls the kids in, more so than this textbook would. This textbook just isn't as inviting or as high interest [as the JASON materials.]*

Teacher C particularly likes the ways in which JASON can make science more relevant to the lives of her students. For example, she and her students appreciate the videos of scientists from diverse backgrounds.

> *[JASON Learning] takes us right into [scientists'] labs. It shows us what they do on a daily basis. It identifies what is a mechanical engineer [for them]. That piece is valuable… It makes it relevant. Like, why do I need to study this? Well, if you understand this, you can move towards working with crash dummies.*

Teacher C's students look forward to anything interactive. She has replaced many of the labs she used to use with JASON Learning labs (often adapted), because of their high quality and positive student response. She also finds them more open-ended, with more engineering components. In addition, the digital versions do not need the equipment and materials that might be required for an actual lab. Her students also love the trips to the Mystic Aquarium and to the nearby Blackstone Valley for the Field Program.

> *They've all grown up in this area of the state and so many of them didn't realize that the river was there. So it was such an eye-opening experience. Then … [a scientist] came and we pretty much ran a lab on the dock. They got to scientifically measure things, he brought tools and we measured the turbidity in the river, we measured the speed; he just dropped a twig into the river. That was eye opening to me, with what few tools, what you could accomplish.*

Teacher C feels that the JASON Learning materials give her "more tools in my toolbox" to help her students understand science, and to help her reach more of her students. For instance, when some of her struggling students used the JASON Learning *Coaster Creato*r game, they were motivated to learn about potential energy and kinetic energy to improve their coaster, in hopes of a higher score.

Teaching with JASON Learning materials has also increased Teacher C's enthusiasm for teaching. As her students become more engaged and successful, she has become more excited about teaching them.

> *It's made me more excited because I understand that students want to learn. Using the video components, using the games, using the hands-on, they become much more successful learners because they get to explore these pretty dense topics, at a more in-depth level. I've heard students say, "I didn't like science, now I like it". They just love being up out of their seats and doing things. I think just having all these resources has really made me a more engaging teacher. I guess it's helped me convey a deeper understanding to the students through all these different modes of learning.*

Teacher C and her colleagues will be required to cover a completely new set of topics next year as the district implements NGSS. The district will be providing kits to the science teachers for the first time, which should make it easier to do actual labs. Teacher C will wait to see how and what to supplement with JASON Learning materials until after these changes are made. She is hopeful that the NGSS alignment matrices currently being created by a JASON Task Force will encourage use of the JASON materials and also save teachers time. Teacher C is also hoping that the district will research how JASON Learning materials can support the curriculum.

Overall, Teacher C wants to make science engaging and relevant to her students. She depends on JASON materials to provide the kinds of hands-on, interactive experiences that her students like the best, and that make her more enthusiastic about teaching. She and her students appreciate the contemporary feel and content of both the print and online JASON resources, as well as getting to know real scientists through JASON videos. In addition, the JASON-provided field trip experience adds an important dimension to her students' understanding of their local environment. However, limited books and computers are major barriers to Teacher C's use of JASON Learning materials.

Teacher D

Teacher D is a seasoned teacher who has taught science at her current school for almost 20 years. She has no ELL students and only a small percentage of students eligible for free or reduced lunch, as well as a small percentage of students with special needs. Parental involvement is good, she feels well supported by school and district administrators, and she has time to collaborate with colleagues each week. She started using JASON Learning materials 4 years ago.

Teacher D's school has 1 or 2 classroom sets of each book in the JASON Learning curriculum series, which are shared by all of the 6th, 7th, and 8th grade classes. She also projects JASON videos onto a big screen TV on her wall. She picks and chooses from the parts of the JASON Learning materials that match the topics she is required to cover, which is currently about a third of her 8th grade curriculum topics. In addition, her students use Prentice Hall topical textbooks, materials developed by Teacher D, and online videos.

Like the other science teachers interviewed, Teacher D has developed an extensive repertoire of resources and materials that she uses, and often modifies, to build her lessons throughout the year. JASON learning is high on her list for several of the curriculum areas she is currently teaching. When the topic she is covering is available in JASON, she often has her students use the texts for required reading because she finds them more up-to-date and engaging than the other text that is available to her.

Teacher D's students expect hands-on, fun activities in her classroom, which she provides using JASON Learning resources and other sources. She finds that the JASON Learning hands-on activities hold her students' interest. She also likes their high quality and the ability of her students to access them online. She even developed some of her own worksheets to go along with these activities when she could not find them in the texts or online.

> *When I first started I thought, Prentice Hall is OK, and then as I got into JASON, I thought, oh my gosh, but these video clips, and the way a scientist runs through a whole chapter, the games that are available, the interactives, that's beyond what Pearson had. … [JASON Learning] has gone way beyond, in terms of the technology…. [JASON Learning] is more like a magazine. It's so colorful, the pictures are good, it has that glossy feel. It's a different thing when kids open a book like this rather than that [10 year old Prentice Hall book.]*

The most unique feature of the JASON Learning materials, as far as Teacher D is concerned, are the scientist videos. She likes to start a new unit with one of these short videos that introduce a real scientist who continues throughout the unit. Her classes also like the real students who work with the scientists. Two students from her school applied and one of them was accepted to be one of these *Argonauts.*

> *The Terminal Velocity unit … features another scientist, a regular guy, who talks about how he got interested in [what he does] … He works with the Institute for Highway Safety and he works with making cars safe [crash dummies]. It's just tapping into what kinds of jobs they have and what they were interested in when they were kids; it's priceless, really…. I think [my students have] been turned on through seeing the scientists, through seeing Middle School students… I know there are some kids who without them even realizing it, got turned onto something in science [from JASON Learning materials.]*

Teacher D has not participated in any science professional development other than many JASON Learning trainings for quite some time. She was originally trained as an elementary teacher, and has worked to develop her science background over the years. She credits JASON Learning PD and materials with giving her confidence to develop her approach to the engineering aspect of the STEM requirement in the new Common Core standards.

> *The level of my lessons, the content that I'm covering is better [as a result of JASON Learning]. I have taught about climate change before. … This [JASON Climate Change book] has refined the way I've taught it and I felt good about it. It made me feel more confident in my lessons. … [Prentice Hall has material on climate change], but it's 10 years old.*

The lack of computers and the need to share books with other teachers has limited Teacher D's use of the JASON Learning materials. Her district is beginning to supply all students with Chromebooks, which will affect her classes in a couple of years. She thinks that will change how she uses the JASON Learning materials, and expects that she may use them a lot more often. However, Teacher D is a teacher who recognizes and values the bigger role that quality teaching plays in student outcomes, regardless of resources. While she is happy to have resources as high quality as JASON materials to select from, she will continue to be deliberate in her selection process, especially given the prospect of teaching to new standards.

Teacher D's school has not yet transitioned to NGSS, but the teachers are hoping that their current practices will meet most of the new standards. From what she has investigated so far, she thinks that JASON Learning materials will align well with NGSS, and is hoping that JASON will provide alignment information for their materials.

Overall, Teacher D has a strong appreciation for the JASON Learning materials and professional development. Jason Learning has become one of her preferred resources because she values its potential to make science engaging and relevant for her students and because of its high quality and uniqueness. She and her students especially like the fun, hands-on activities and the scientist videos. As a teacher with an elementary education degree, she has also relied on JASON to strengthen her own content knowledge and confidence in making connections across STEM topics, now required by NGSS standards. She is looking forward to increasing her use of the JASON Learning materials as her school begins to equip all students with computers.

Teacher Survey Results

In order to get data from a broad sample of Rhode Island educators who have used JASON Learning materials, a survey link was emailed in May to all teachers who had attended a JASON Learning professional development workshop in the past three years. 171 teachers received the survey, and 70 teachers completed all or much of it resulting in a 41% response rate. Response rates varied across the participating districts, as reported below in Table #4. Survey findings are presented in Tables #5 through #31 in this section.

TABLE #4 TOTAL AND DISTRICT SURVEY RESPONSE RATE

District response rate	Total completed surveys	Total JASON participants contacted	% Response rate
3rd Year Districts			
Central Falls	5	11	45%
Pawtucket	4	9	44%
Smithfield	4	5	80%
West Warwick	6	16	38%
Westerly	2	13	15%
Woonsocket	5	12	42%
Warwick*	5	28	18%
2nd Year Districts			
Bristol/Warren	4	6	67%
Burrillville	1	6	17%
Cranston	11	19	58%
East Providence	7	12	58%
Jamestown	1	2	50%
North Providence	0	6	0%
1st Year Districts			
Chariho	2	2	100%
East Greenwich	1	2	50%
Johnston	3	5	60%
Lincoln	1	4	25%
Portsmouth	5	8	63%
Scituate	1	2	50%
South Kingstown	1	2	50%
Tiverton	1	1	100%
Total Sample	70	171	41%

**Although Warwick was specifically named in the second appropriation (2013-2014), this district also participated during the 2012-2013 school year.*

Because some respondents skipped questions or did not complete the entire survey, no question set has more than 68 responses and many have less. This year's survey included many questions that have been part of past JASON evaluation surveys, as well as new queries. However, a new response alternative was added to many of the questions using a likert scale; respondents could now choose "neutral", as well as "strongly disagree", "disagree", "agree", and "strongly agree". This resulted in more response variation than previously seen and illuminated some of the uncertainty teachers felt about particular issues. However, it should be noted that this limits the ability to make comparisons with previous years' survey questions that did not include a neutral option.

All teachers who had attended at least one JASON Learning PD within the last three years were encouraged to complete the survey, regardless of their level of implementation (limited implementation was often due to lack of computer or book access, PD taken late in the year, or other causes beyond a teacher's control). This may also account for some of the large number of "neutral" responses, related to a lack of much experience with the materials.

Demographics and Descriptive Data

Teachers

Teachers who responded to the survey represent an experienced group; 64% of the sample has been teaching for more than 10 years. Only 8% (5 teachers) are newer teachers with three or less years of experience. Responses came from teachers of grades 5 through 12, and these teachers have used JASON materials with students in all of these grades. However, JASON Learning was used by far the most with 6th, 7th, and 8th grade students. Survey respondents are all science teachers but a few, primarily at the 6th grade level, teach other subjects as well.

TABLES #5, 6 & 7
SURVEY SAMPLE: YEARS TEACHING, CURRENT SUBJECTS, AND GRADES TAUGHT

TABLE #5

Number of years teaching	%	Total N=60
0-3 years	8%	5
4-10 years	18%	11
11-15 years	18%	11
16-20 years	33%	20
21 or more years	22%	13

TABLE #6

Current subject(s)	%*	Total N=59
Science	100%	59
Mathematics	12%	7
English Language Arts	3%	2
Social Studies	3%	2
Technology	2%	1
Special Education	3%	2
English As a Second Language	2%	1

TABLE #7

Grades taught using Jason this school year	%*	Total N=66
4th	0%	0
5th	2%	1
6th	24%	16
7th	35%	23
8th	46%	30
9th	3%	2
10th	6%	4
11th	6%	4
12th	5%	3

Please note: Total N=# includes teachers responding to at least one of the items within each question area. % denotes that teachers were allowed to choose more than one option in the question area. In these cases percentages may sum greater than 100%.*

Survey respondents have attended multiple PD workshops over the past 3 years. The sample includes 21 teachers who attended at least one workshop in 2012-2013, 39 who attended at least one in 2013-2014, and 41who attended at least one in the current year, 2014-2015. (Please note that in Table #8 below, the numbers listed for each year represent the number of teachers attending at least one session that year. An individual teacher may have attended multiple sessions in that year but will only be counted once. The totals for each column thus represent the total # of individual teachers in the sample attending that year, not the frequency in which they attended. However, because teachers also could attend multiple years, the row totals may include the same teacher more than once.)

TABLE #8 SURVEY SAMPLE: PROFESSIONAL DEVELOPMENT WORKSHOP ATTENDANCE BY DISTRICT FOR EACH YEAR OF IMPLEMENTATION 2012-2015

Districts listed by beginning JASON participation year	Professional Development Workshop Attendance among Survey Respondents			
	2012-2013	2013-2014	2014-2015	Total all 3 Years
3rd Year Districts				
Central Falls	3	3	2	8
Pawtucket	3	3	2	8
Smithfield	4	4	0	8
West Warwick	0	2	4	6
Westerly	2	1	0	3
Woonsocket	5	3*	0	8
Warwick*	4	3	1	8
2nd Year Districts				
Bristol/Warren	NA	2	2	4
Burrillville	NA	1	0	1
Cranston	NA	11*	8	19
East Providence	NA	5	7	12
Jamestown	NA	1	0	1
North Providence	NA	0	0	0
1st Year Districts				
Chariho	NA	NA	2	2
East Greenwich	NA	NA	1	1
Johnston	NA	NA	3	3
Lincoln	NA	NA	1	1
Portsmouth	NA	NA	5	5
Scituate	NA	NA	1	1
South Kingstown	NA	NA	1	1
Tiverton	NA	NA	1	1
Totals	21	39	41	NA

** Workshops in these districts consisted of 1-2 hour afterschool courses conducted within district due to lack of funding for substitute teachers.*

Students

Survey respondents (54) reported that 4466 of their students participated in JASON Learning program activities during the 2014-15 school year, for an average of 83 students per survey respondent.

TABLE #9 SURVEY SAMPLE: ESTIMATED NUMBERS OF THEIR STUDENTS OF PARTICIPATING IN JASON LEARNING PROGRAM ACTIVITIES 2014-15

Among survey respondents, estimated number of total and average students participating in JASON Learning program activities 2014-15	
Estimated # of students participating in JASON Learning program activities 2014-15	4466
Average # of students per teacher responding	83
Total teachers responding	54

As reported by these teachers, their students have the following demographic characteristics:

TABLES # 10, 11, 12 & 13
SURVEY RESPONDENTS' STUDENT DEMOGRAPHICS

TABLE #10

Race of participating students N=45	%
White	67%
Hispanic	18%
African American	7%
Multiracial	4%
Asian	3%
Native American	0%

TABLE #11

Percent receiving English Language Learner (ELL) services	%	Total N=53
0-20%	81%	43
21-40%	8%	4
41-60%	8%	4
61-80%	0%	0
81-100%	4%	2

TABLE #12

Percent receiving special education services	%	Total N=53
0-20%	59%	31
21-40%	38%	20
41-60%	4%	2
61-80%	0%	0
81-100%	0%	0

TABLE #13

Gender of participating students	%	Total N=48
Male	51.9	48
Female	48.0	48
Transgender	0.1	48

Positive Features of JASON Learning Materials

According to survey results, Rhode Island teachers like teaching with JASON materials for a variety of reasons. When "agree" and "strongly agree" responses are combined, ***over 85%*** of teachers like teaching with JASON Learning materials for multiple reasons:

- Up-to-date nature of content
- Online option
- Connection to real world resources
- Inclusion of diverse group of practicing scientists
- Motivating and engaging

Large majorities of teachers also like the materials because they are:

- Aligned to standards they need to teach
- Encourage critical thinking
- Work for students with multiple learning styles
- Relevant to their students

TABLE #14 TEACHER PERCEIVED BENEFITS TO USING JASON LEARNING MATERIALS

What teachers like about using JASON materials	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total N=65
They are current and up-to-date.	0%	0%	6%	59%	36%	63
They are connected to real world resources.	0%	1%	7%	53%	39%	65
They expose students to a diverse group of practicing scientists	0%	1%	9%	48%	42%	65
They have an online option.	0%	1%	8%	58%	33%	65
They are aligned with the topics I am expected to teach.	0%	2%	7%	66%	24%	64
They are motivating and engaging for my students.	0%	2%	9%	57%	32%	65
They encourage critical thinking.	0%	1%	12%	59%	29%	64
They work for students with multiple learning styles.	0%	2%	15%	47%	36%	65
They are relevant to my students.	0%	2%	15%	52%	30%	64
They are better than what I would have had to use otherwise.	0%	5%	20%	47%	28%	65
They allow for differentiation of content for students at different levels.	0%	5%	22%	44%	29%	65

A very strong indicator of the quality of the JASON Learning materials is the intention of teachers to continue using them. Ninety-five percent (95%) of respondents intend to use the materials the same amount next year, or more, than they used them this past year. Many report that they would like to increase their use of these materials, but are limited by lack of computer or book access. Also, some changes in use of the materials (both increases and decreases) are likely to result from modifications in curriculum due to implementation of NGSS.

TABLE #15 TEACHERS' PLANS FOR USING JASON LEARNING MATERIALS NEXT YEAR

Intention to continue using JASON next year	%	Total N=61
I do not intend to continue using JASON Learning materials next year.	3%	2
I intend to use them less than I used them this year.	2%	1
I intend to use them about the same amount that I used them this year.	51%	31
I intend to use them more than I used them this year	44%	27

Utilization of JASON Learning Materials

This was the first year of implementation of JASON Learning for almost half of the teachers who responded to the survey. Almost a quarter of the respondents have been using these materials for 2 years and another quarter for 3 years. A few teachers started using JASON materials before they were officially available to them through the state.

TABLE #16 TEACHERS' NUMBER OF YEARS EXPERIENCE WITH JASON LEARNING

Number of years implementing JASON	%	Total N=60
First year of implementation	45%	27
Second year of implementation	22%	13
Third year of implementation	23%	14
Other	10%	6

Rhode Island teachers indicated utilizing many components of the JASON Learning program during this past school year. A small number of teachers used entire JASON Learning units (Operations) with their students (3% of survey respondents), slightly more used entire chapters (Missions/Expeditions) within the units (15%), while most picked out those parts they liked the best and/or that were most relevant (80%) to mix and match with other materials. About one-quarter also reported that their students used JASON Learning materials independently.

TABLE #17 TEACHERS' MANNER OF USING JASON MATERIALS

Manner of use of JASON materials	%	Total N=66
I use parts of JASON Learning units and chapters in my teaching.	80%	53
I use other JASON Learning materials and resources in my teaching.	35%	23
My students use JASON Learning materials independently as resources.	26%	17
I implement entire JASON Learning chapters (Missions/Expeditions) in my teaching.	15%	10
I implement entire JASON Learning units (Operations) in my teaching.	3%	2

A small number of teachers reported using no chapters or Missions/Expeditions from the JASON curricular materials (12%--they were involved with the program in different ways). A few others used more than 10 JASON Missions with their students (3%) during this academic year, with most falling between these extremes. The curricula units or Operations used the most were *Tectonic Fury* and *Terminal Velocity*, as they most closely matched the curriculum topics covered by the most teachers.

TABLES #18 & 19
USE OF JASON LEARNING MATERIALS BY UNITS AND CHAPTERS

TABLE #18

Number of JASON Learning chapters used this school year	%	Total N=67
None	12%*	8*
1-2 chapters	49%	33
3-5 chapters	28%	19
6-10 chapters	8%	5
Over 10 chapters	3%	2

TABLE #19

JASON Learning units used this school year	%*	Total N=64
Tectonic Fury	50%	32
Terminal Velocity	45%	29
Infinite Potential	28%	18
Resilient Planet	27%	17
Climate: Seas of Change	16%	10
Monster Storms	14%	9
Wetlands: Race to Restore	3%	2

** This number includes 5 teachers who reported using parts of JASON Learning chapters and units in Table #17, suggesting that they may have misinterpreted the question in Table #18 as asking how many entire chapters they used this year.*

Over half of the respondents have used a variety of JASON curriculum materials with their students (59%). Almost half reported that their students have viewed JASON Learning videos and animations (49%), and have used the digital labs and games (46%) either alone or in conjunction with curriculum materials. Students have also visited the Mystic Aquarium, participated in the Blackstone River Valley field trip, and attended science speaker events at their schools arranged by JASON Learning.

TABLE #20 FREQUENCY OF TEACHER/STUDENT MODES OF PARTICIPATING IN JASON LEARNING PROGRAM

JASON program teacher and student participation 2014-15	%*	Total N=68
I have participated in a JASON Learning professional development workshop this school year.	68%	46
I have used JASON Learning curriculum materials (e.g. multimedia articles, hands-on labs, field assignments) in my class.	59%	40
I have implemented JASON Learning curricula and lesson plans with my students.	57%	39
My students have viewed JASON Learning videos and animations.	49%	33
My students have used JASON Learning digital labs and/or games.	46%	31
My students have visited the Mystic Aquarium.	29%	20
My students have participated in the Blackstone River Valley field trip.	21%	14
My students have attended JASON Learning science speaker events held at a school in my district.	16%	11
My students have viewed live JASON events (either live or recorded.)	10%	7
Other	7%	5

Support for and Barriers to Use

Administrative Support

Teachers indicated high levels of support by district and school level administrators for their participation in JASON Learning activities.

TABLE #21 PERCEIVED DISTRICT ADMINISTRATIVE SUPPORT FOR JASON LEARNING

Administration support of JASON Learning	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total N=68
Administrators at the district level (e.g., Superintendent, Curriculum Director, etc.) support participation in JASON Learning program activities.	1%	2%	12%	59%	26%	65
Leadership team members at my school (e.g., Principal, Assistant Principal, etc.) support participation in JASON Learning activities.	1%	2%	13%	54%	30%	65

Barriers to Use

Over half of survey respondents indicated that they experience barriers to their use of the JASON online materials and over two-thirds reported the same about JASON print materials. About half of the teachers cited lack of computer access as a major limiting factor in their use of the JASON materials. Lack of access to enough copies and different volumes of the print books has also limited use of JASON Learning by a third of the respondents. Although not specifically asked about on the survey, teachers also need professional development training in the content and use of each unit/book, but they do not always have access to a substitute teacher.

TABLE #22 ACCESS TO JASON LEARNING MATERIALS

Access to JASON Learning digital and print materials	%	Total N=64
Lack of sufficient access to individual computers for my students limits my ability to use JASON online materials with my classes as often as I would like.	51%	34
I am able to use JASON online materials with my classes as often as I would like.	45%	30
Lack of access to enough printed JASON books for my students limits my ability to use JASON materials with my classes as often as I would like.	33%	22
I am able to use JASON print materials with my classes as often as I would like.	31%	21

These barriers are also reflected in the general comments section at the end of the survey. Almost half of these comments mentioned problems with digital and print access in their districts.

> *I have used the interactive games in my classroom, but I have only been able to get a class set of laptops a few times this year for my classroom. I do not have a class set of the workbooks, so my resources are limited.*
>
> *I wish I had more access to these materials and computers. Our school is in an urban district with limited funds and resources.*
>
> *I love what I have been able to participate in and only wish there was some way to incorporate these materials into class more, but without computers, or textbooks, it is nearly impossible for me to add all the extra time into planning my lessons*
>
> *If the district wants us to use this program then they should make sure we have the materials needed…. We lack both technology and materials.*

JASON Professional Development and Teacher Outcomes

Survey respondents have attended at least one JASON Learning PD workshop during the past three years. One full day workshop is offered each year on each of the seven different curriculum units, although two districts (Cranston and Woonsocket) have also hosted short, after-school versions locally for their own teachers. The majority, slightly over half, of survey respondents have attended one or two JASON workshops. During this same time, 15% of respondents attended no other science PD workshops, and 45% attended one or two other workshops. Hence, for many teachers, the JASON workshops provide an important and sometimes only source of science PD.

TABLES #23 & #24
TEACHERS' PROFESSIONAL DEVELOPMENT PARTICIPATION

TABLE #23

JASON Learning PD participation over 3 years	%	Total N=66
0	2%	1
1-2	53%	35
3-4	30%	20
5-6	14%	9
More than 6	2%	1

TABLE #24

Other science PD participation since starting with JASON	%	Total N=65
0	15%	10
1-2	45%	29
3-4	26%	17
5-6	5%	3
More than 6	9%	6

The overwhelming majority of survey respondents (87%) reported they would like to participate in additional JASON PD opportunities. Most also indicated that JASON Learning PD has helped them to develop new hands-on learning activities for their students, and credit JASON Learning workshops with motivating them to use more technology in their classes.

TABLE #25 JASON LEARNING PROFESSIONAL DEVELOPMENT OUTCOMES

Outcomes from JASON PD	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total N=65
JASON Learning trainings have helped me to develop new hands-on learning activities for my students.	0%	2%	11%	64%	23%	65
JASON Learning trainings have motivated me to use more technology in my science classes.	0%	2%	22%	55%	22%	65
I am interested in participating in additional JASON Learning training opportunities.	0%	3%	10%	50%	37%	64

In addition to benefiting from the professional development workshops, teachers also reported gains from working directly with student and teacher materials. The combination of experiences has resulted in increased science content knowledge for most respondents (85%). Many also credit JASON Learning with helping them feel more confident in their ability to teach science content (71%), and in their ability to integrate STEM topics (73%), among other things.

TABLE #26 TEACHER OUTCOMES FROM PARTICIPATION IN JASON LEARNING

Teacher response to JASON Learning participation	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total N=65
My participation in JASON Learning has increased my knowledge in one or more science topics.	0%	2%	13%	61%	24%	65
As a result of my participation in JASON Learning, I feel more confident in my ability to integrate science, technology, engineering, and mathematics (STEM) during instruction.	0%	2%	25%	50%	23%	65
As a result of my participation in JASON Learning, I feel more confident in my ability to teach content in one or more science topics.	0%	2%	26%	46%	25%	65
As a result of my participation in JASON Learning, I have noticed a shift in my teaching philosophy.	1%	13%	50%	28%	8%	64

Many teachers indicated that their involvement with JASON Learning has contributed to changes in the way they approach teaching science, using Jason Learning or non-Jason Learning materials. About half now make more connections to science careers and "real-world" experiences, 42% now present new information in a variety of ways, and 24% incorporate more "hands-on" activities in their teaching. Forty-four percent (44%) of survey respondents indicated that their teaching methods were already similar to those encouraged by JASON Learning,

TABLE #27 THE IMPACT OF JASON LEARNING ON TEACHING METHODS

Changes in approach to teaching science	%	Total N=62
Make more connections to science careers and "real-world" experiences.	52%	32
Integrate technology more often into my teaching.	50%	31
My usual teaching methods were already similar to those I now use with JASON materials.	44%	27
Present new information in a variety of ways.	42%	26
Incorporate more "hands-on" activities in my teaching.	24%	15
Use more cross-curricular and thematic approaches.	7%	4
Other	2%	1

Student Response to JASON Learning

All survey respondents, except for 1% of respondents, either agreed or were neutral when asked about a variety of student responses to JASON materials. Almost three-quarters agreed that JASON Learning has improved student performance in science, that students have a better understanding of science content, and that student enthusiasm for science has increased since implementing JASON Learning. Almost as many agreed that JASON materials challenge students to use high-level problem-solving skills, and 59% think that students who were not previously interested in science have become more engaged with it.

TABLE #28 TEACHERS' PERCEPTION OF STUDENT RESPONSES TO JASON LEARNING

Student response to JASON Learning resources	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total N=64
Students are challenged to use high-level problem solving skills during JASON Learning lessons/units.	0%	1%	28%	46%	25%	62
Student enthusiasm for science has increased since I've implemented JASON Learning in my classes.	0%	1%	26%	52%	21%	63
I believe that students have a better understanding of science content since using JASON Learning.	0%	1%	27%	56%	17%	63
I believe that JASON Learning has improved student performance in science.	0%	1%	27%	58%	15%	63
Students who were not previously interested in science have become more engaged when participating in JASON Learning activities.	0%	1%	40%	42%	17%	64

The survey also asked teachers about observations of student academic performance or engagement with science during use of JASON Learning materials or activities. Teachers indicated whether none, some, about half, or the majority of their students exhibited certain changes. According to teachers, the most students exhibited the following responses (starting with the highest numbers):

- More engaged during class
- More motivated and enthusiastic about science
- More interested in exploring further topics in science
- Connect content with their own lives more often
- Express more interest in science careers
- Use evidence more often to support their work
- Do better on quizzes and tests

TABLE #29 TEACHERS' PERCEPTION OF JASON LEARNING IMPACT ON STUDENT ACADEMIC PERFORMANCE AND ENGAGEMENT

Changes in student academic performance/engagement with science	None of my students	Some students	About half of my students	The majority of my students	Total N=55
My students are more engaged during class.	2%	22%	20%	55%	55
My students are more motivated and enthusiastic about science.	3%	27%	23%	47%	55
My students are more interested in exploring further topics in science.	3%	30%	20%	47%	55
My students connect the content with their own lives more often.	3%	30%	29%	38%	55
My students use evidence more often to support their work.	4%	33%	33%	30%	53
My students express more interest in science careers.	4%	32%	37%	26%	54
My students do better on quizzes and tests.	5%	37%	39%	18%	54
My students hand in more or higher quality homework than usual.	8%	41%	34%	16%	54

Next Generation Science Standards - NGSS

Many Rhode Island teachers are already using or are planning to use JASON Learning materials in support of their district's implementation of the Next Generation Science Standards. For many others, they do not know yet whether or how the JASON materials will be helpful to them. This may be because they are not familiar enough with the materials yet, or because they do not know what transitioning to NGSS will entail. However, about three-quarters of survey respondents agreed that JASON resources align well with NGSS. (About an additional 10% think that JASON resources align well with the Rhode Island Grade Span Expectations (GSE).

TABLE #30

PLANS TO USE JASON LEARNING MATERIALS TO SUPPORT TRANSITION TO NGSS

Using or plan to use JASON to support district implementation of NGSS	%	Total N=64
Yes	58%	37
No	2%	1
I don't know	41%	26

TABLE #31 TEACHERS' PERCEPTION OF WHETHER JASON LEARNING IS ALIGNED WITH GSE AND NGSS CURRICULUM STANDARDS

Alignment of JASON Learning with GSE and NGSS	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total N=65
JASON Learning Curricula and resources align well with Rhode Island Grade Span Expectations (GSEs).	0%	2%	15%	59%	24%	65
JASON Learning Curricula and resources align well with Next Generation Science Standards (NGSS).	0%	4%	21%	49%	25%	64

SUMMARY AND DISCUSSION

Rhode Island teachers have had a positive experience with the JASON Learning Program, especially when their students have sufficient access to the materials. Teachers with experience utilizing the materials have been able to make extensive use of the JASON resources in support of their learning objectives, as shown in the teacher profiles. They appreciate the unique opportunities the materials provide and the strong positive student response to them. A wider sample of teachers who responded to the evaluation survey have implemented a range of resources provided by JASON. They confirmed the assessment of JASON Learning provided by the profiled teachers, of unusual and effective resources that can engage and motivate their students, and that help teachers meet some of their own content needs. Survey respondents also felt constrained by the lack of enough access to the online materials or to the books. Finally, the JASON Learning materials may prove to be an important tool for many districts in their transition to implementing the Next Generation Science Standards, especially if they can be confident that their access to them will continue.

Participation and Use of the JASON Learning Program

In funding the JASON Learning Program, the Rhode Island General Assembly has offered an extremely rich and high quality set of resources to educators in Rhode Island. Teachers from 20 districts have used the JASON Learning Program this past year. Over the past three years, 190 teachers have attended JASON professional development workshops, with 84 attending during the 2014-15 school year, preparing them to utilize JASON's print and online materials. Thirteen scientists have spoken at schools in 9 districts, and 26 school groups from 16 districts have gone on a JASON-provided field trip. (Evaluators do not have access to the actual number of teachers who have used JASON materials with their students, or the number of students who have interacted with JASON materials.)

According to educators interviewed and surveyed for this report (all of whom have attended at least one JASON PD session), most teachers use JASON Learning materials as important resources to cover some of their required curriculum topics, along with other sources. Teachers appear to pick and choose which JASON materials to use based on:

- Curriculum topics (JASON materials do not include all topics)
- Student interest
- Availability of computers, projector, books
- Need and availability of other resources

Students accessed JASON materials through individual or shared computers in their classrooms or in computer labs, by watching images projected on screens or walls in their classrooms, or through print books. They read content, engaged with digital and non-digital labs, played games, did research, and watched videos, all provided by JASON, both with classmates and independently.

Experienced and Cumulative Implementation of JASON Learning

Strong teachers who have been actively involved with the JASON Learning program for two or more years, as represented by the four teachers interviewed for this report, are extremely positive about the program. These educators work in varied districts, and have been teaching for 8 years to over 20 years. Three of the four are JASON coaches, and all have attended several JASON PD workshops, which they have found to be very useful. These veteran teachers pride themselves on providing their students with quality instruction based on a variety of types of resources, including materials they create themselves, materials they research from online sources, and district-supplied texts. They are also comfortable choosing from among the JASON Learning options depending on their needs.

Each teacher likes working with the JASON materials, and gave examples of very positive responses to the materials by their students. They consistently reported strong student engagement and interest when using JASON materials, and especially appreciated the digital labs and incorporation of real scientists in the books and videos. They also find the JASON materials easy to use or adapt for students with a wide range of learning styles and needs. Clearly, experienced teachers who have had the opportunity to attend JASON PD workshops and the time to incorporate JASON content and activities into their teaching are very pleased with the results.

Strengths and Benefits of the JASON Learning Program

According to teachers, JASON Learning provides many benefits for students and for teachers.

- Students are highly engaged by the look and content of JASON resources, both print and online.
- They like the unique magazine format, digital labs, and online games.
- They also appreciate the connection to real world resources, relevance to students' lives, and encouragement of critical thinking.
- The videos that help students learn about and feel a relationship to practicing scientists are also a big favorite.
- Especially in districts without recent textbooks, the JASON materials provide up-to-date content and examples, which is a significant factor in science.
- Almost three-quarters of survey respondents agreed that JASON Learning has improved student performance in science, that students have a better understanding of science content, and that student enthusiasm for science has increased since implementing JASON Learning.

Over 85% of survey respondents like teaching with JASON materials for these and other reasons. (Most of the others are "neutral" about the strengths of the materials, at least sometimes because they have not been able to implement very much of them yet.)

In addition to the benefits of more engaged and enthusiastic students, teachers also reported positive outcomes for themselves through their involvement with JASON Learning.

- They value the JASON PD opportunities, with almost all wanting to attend more.
- Involvement with JASON training and materials has resulted in increased science content knowledge for 85% of survey respondents.
- Many teachers credit JASON with feeling more confident as science teachers.
- Some also report improving their teaching in other ways as well.

Especially in districts where there are no or hardly any professional development opportunities specifically focused on the discipline of science, and where some or many of the middle school teachers are elementary-certified, the JASON program provides a critical resource in support of quality education.

Barriers to the Use of JASON Learning

The major barriers to use of the JASON materials are the lack of access to enough computers and enough books.

- Half of the teachers surveyed indicated that lack of access to computers limits their ability to use JASON online materials as often as they would like.
- A third indicated that lack of access to printed books limits their ability to use JASON materials as often as they would like.

Another significant obstacle in at least some districts is the lack of funding to cover substitutes. Each of the seven JASON curriculum units requires a day of training for most teachers to be comfortable enough with the content and resources to implement them. The inability to attend these workshops limits any or extensive use of the materials. Two districts arranged for short, afterschool sessions in their district, but this is likely not adequate to support robust implementation for most teachers. Solving these obstacles would greatly increase the use and usefulness of the JASON materials.

Financial constraints also limit the opportunities for schools to participate in JASON-sponsored field trips with practicing scientists, attend programs at the Mystic Aquarium, and for scientists to speak at more schools. Additional funding could provide buses and other programming for schools beyond their first or second year, and for more teachers.

Implementation of Next Generation Science Standards

As Rhode Island teachers, schools, and districts transition to basing their instruction on the Next Generation Science Standards, many are finding JASON Learning materials to be a helpful resource in that process. The topics teachers are expected to cover at each grade level are often different with NGSS, leaving the educators without the benefit of accumulated resources and activities, and sometimes without the needed science background. (At least some and perhaps many middle school teachers are elementary certified only.) According to frequent users, JASON Learning can meet these needs quickly, for the topics it covers. However, teachers may require (additional) JASON Learning PD for help with content knowledge and with how to fully utilize the resources to meet their needs. Some teachers have also expressed concern about relying on materials that could disappear if funding is not continued. It would be helpful to ensure access to the materials for multiple years.

JASON Learning in Rhode Island has taken seriously the need for their materials to be aligned with NGSS, in order to further increase their usefulness. Consequently, a local Task Force has been formed this past year in support of Rhode Island's transition to full NGSS implementation. This group of local teachers and administrators has worked on aligning each reading selection, lab, and field assignment with NGSS, starting with *Terminal Velocity*. It has also started to create an exemplar lesson for each JASON curriculum unit to demonstrate three-dimensional learning. (The JASON website already includes NGSS alignment information for the *Climate: Seas of Change* curriculum.)

JASON Learning program has the potential to be extremely helpful to many districts as they implement the Next Generation Science Standards, if teachers can get enough access to the materials and to the training offered by JASON. JASON Learning staff will be meeting with district administrators starting this summer about a number of issues, including the potential role of NGSS.

Rhode Island teachers, when they and their students have sufficient access to training and materials, have had a very positive experience with the JASON Learning Program. Both teachers and students enjoy the materials and are motivated by them. According to teacher reports, they also succeed in increasing science interest and achievement for many students. Finally, they have the potential to support successful district, school, and classroom transitions to the Next Generation Science Standards.

APPENDICES

Appendix A: JASON Learning Teacher Profile Interview Protocol

Appendix B: JASON Learning Online Teacher Survey

APPENDIX A
JASON Learning Teacher Profile Interview Protocol

1. **What JL materials have you and your students used this year, or do you plan to use this year?** *(In all or just some of your classes?)* [Probe] Can you help me understand more about how you use them? I'm wondering about things like…*(computer/text; whole Operation/pull out sections or chapters; games, etc.)*

2. **Is that more or less than you have used in past years?** (*If less, why?)*

3. **How do you decide what JL materials to use?** *(Is computer availability an issue in your decisions?)*

4. **What did you stop using/doing in order to use the JASON materials? What did they replace?**

Quality of JASON Learning program

5. **How do the JASON materials and program compare to other materials/curricula you use/have used?** What are its strengths and weaknesses?

- *(Do you recommend these materials/this program to colleagues? Why or why not?)*

Students

6. **How do students respond to teaching using or based on JASON materials? How would you compare their response to JASON program materials to their response to other materials/ approaches/curricula?** Please be specific.

7. **What evidence, if any, do you have of student learning/understanding due to JASON?** (tests, participation/ engagement, comments, etc.)

8. **What evidence do you have of an influence on student interest in science and/or STEM careers?**

9. **Have you noticed any other changes in students you attribute to the JASON program?**

10. **Have you noticed any particular impacts on certain types of learners, ie special education, ELL, advanced, etc.?**

Teachers

11. **Has the JASON program materials and PD led to any changes for you as a teacher, in how you teach, in how you think about your teaching, or other changes?** Please explain.

- *What was your science instruction like before you were introduced to JASON?*

Choosing to use and implementing JL materials

12. **Why did you decide to start using the JASON materials? How did you hear about it?**

13. **What conditions in your school assisted your choice to use JL materials and your implementation of them?** *(i.e. admin support, other teachers also using JL materials, training, time to plan, materials, computer availability, etc.)*

14. **What conditions in your school interfered with choosing to use JL materials and your implementation of them**? *(What challenges do you face in utilizing JASON Learning materials with your students?)*

Other

15. What else would you like me to know about your use of JASON Learning in your classroom and school?

16. Have you been involved in other science programs or grants?

17. What kind of support do you get in your school or district re: your use of JASON materials?

NGSS

18. Do you think JASON Learning can help you meet your NGSS-related instructional needs? How?

19. What else would be useful from the JASON program in relation to addressing NGSS?

School context

20. Help me understand what kind of school this is? What is it like here, and in the district? [*Size of school, grade levels, no. of other MS's; involvement level of parents, education level of parents; high needs school or district?; district science coordinator? Etc.]*

APPENDIX B
JASON Learning Online Teacher Survey

Introduction

Thank you for taking this survey about your experiences with JASON Learning. Your honest replies will help the program to improve and will inform the State Legislature about how JASON Learning has affected you, your teaching, and your students.

Your responses will be completely confidential. No one from the project, your school, or district will see your direct responses. The Evaluation Team will report aggregated results only from all completed surveys combined, and any quotes will have all identifying information removed.

Your participation in this survey is voluntary. You may exit the survey at any time or skip any questions you do not wish to answer. If you have any questions about the survey, please contact Gretchen Porter at the Program Evaluation and Research Group at gporter@endicott.edu or 978-816-7617.

The survey should take approximately 10-15 minutes to complete.

Please complete the survey as soon as possible, and no later than Wednesday, May 20.

Thank you again for your participation.
Joan Karp
Gretchen Porter
PERG evaluation team

***1. "I agree that I have been informed of the purpose of this study, and that I waive written consent by checking below."**

◯ I agree

JASON Learning Implementation

2. In which of the following JASON Learning program activities have you participated this school year, 2014-2015? [Please select all that apply].

- [ ] I have implemented JASON Learning curricula and lesson plans with my students.
- [ ] My students have attended JASON Learning science speaker events held at a school in my district.
- [ ] My students have used JASON Learning digital labs and/or games.
- [ ] My students have viewed JASON Learning videos and animations.
- [ ] I have used JASON Learning curriculum materials (e.g. multimedia articles, hands-on labs, field assignments) in my class.
- [ ] My students have viewed live JASON events (either live or recorded.)
- [ ] My students have visited the Mystic Aquarium.
- [ ] My students have participated in the Blackstone River Valley field trip.
- [ ] I have participated in a JASON Learning professional development workshop this school year.

Other (please specify)

3. In regards to your access to JASON Learning print and digital materials, please select all that apply:

- [ ] Lack of sufficient access to individual computers for my students limits my ability to use JASON online materials with my classes as often as I would like.
- [ ] I am able to use JASON online materials with my classes as often as I would like.
- [ ] Lack of access to enough printed JASON books for my students limits my ability to use JASON materials with my classes as often as I would like.
- [ ] I am able to use JASON print materials with my classes as often as I would like.

4. In regards to the manner in which you use JASON materials in your teaching, please select all that apply:

- [ ] I implement entire JASON Learning units (Operations) in my teaching.
- [ ] I implement entire JASON Learning chapters (Missions/Expeditions) in my teaching.
- [ ] I use parts of JASON Learning units and chapters in my teaching.
- [ ] I use other JASON Learning materials and resources in my teaching.
- [ ] My students use JASON Learning materials independently as resources.

5. Jason Learning currently offers 6 different curricula units or "operations": Which of these units have you used with your students this school year?

- ☐ Terminal Velocity
- ☐ Infinite Potential
- ☐ Monster Storms
- ☐ Resilient Planet
- ☐ Tectonic Fury
- ☐ Climate: Seas of Change
- ☐ Wetlands: Race to Restore

6. Within these curricula units there are typically 3 to 5 different chapters or "missions/expeditions." Approximately how many of these chapters have you used with your students this school year, out of the total 26?

- ○ None
- ○ 1-2
- ○ 3-5
- ○ 6-10
- ○ over 10

7. In which grade levels did you teach using any Jason Learning materials this school year? [Please select all that apply]

- ☐ 4th
- ☐ 5th
- ☐ 6th
- ☐ 7th
- ☐ 8th
- ☐ 9th
- ☐ 10th
- ☐ 11th
- ☐ 12th

8. Select the response that best describes the extent to which you agree or disagree with the following statements about the JASON Learning Operation and online resources you have implemented this year:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe that JASON Learning has improved student performance in science.	◯	◯	◯	◯	◯
I believe that students have a better understanding of science content since using JASON Learning.	◯	◯	◯	◯	◯
Student enthusiasm for science has increased since I've implemented JASON Learning in my classes.	◯	◯	◯	◯	◯
Students who were not previously interested in science have become more engaged when participating in JASON Learning activities.	◯	◯	◯	◯	◯
Students are challenged to use high-level problem solving skills during JASON Learning lessons/units.	◯	◯	◯	◯	◯

9. Select the response that best describes the extent to which you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My participation in JASON Learning has increased my knowledge in one or more science topics.	◯	◯	◯	◯	◯
As a result of my participation in JASON Learning, I feel more confident in my ability to teach content in one or more science topics.	◯	◯	◯	◯	◯
As a result of my participation in JASON Learning, I feel more confident in my ability to integrate science, technology, engineering, and mathematics (STEM) during instruction.	◯	◯	◯	◯	◯
As a result of my participation in JASON Learning, I have noticed a shift in my teaching philosophy.	◯	◯	◯	◯	◯

10. Select the response that best describes the extent to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Administrators at the district level (e.g., Superintendent, Curriculum Director, etc.) support participation in JASON Learning program activities.	◯	◯	◯	◯	◯
Leadership team members at my school (e.g., Principal, Assistant Principal, etc.) support participation in JASON Learning activities.	◯	◯	◯	◯	◯
JASON Learning Curricula and resources align well with Rhode Island Grade Span Expectations (GSEs).	◯	◯	◯	◯	◯
JASON Learning Curricula and resources align well with Next Generation Science Standards (NGSS).	◯	◯	◯	◯	◯

11. Approximately how many JASON Learning professional development workshops have you participated in (total) during the past 3 years?

- ◯ 0
- ◯ 1-2
- ◯ 3-4
- ◯ 5-6
- ◯ more than 6

12. Approximately how many other science professional development workshops have you participated in (total, not including JASON Learning PD) since you started using JASON Learning materials?

- ◯ 0
- ◯ 1-2
- ◯ 3-4
- ◯ 5-6
- ◯ more than 6

13. Select the response that best describes the extent to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
JASON Learning trainings have helped me to develop new hands-on learning activities for my students.	◯	◯	◯	◯	◯
JASON Learning trainings have motivated me to use more technology in my science classes.	◯	◯	◯	◯	◯
I am interested in participating in additional JASON Learning training opportunities.	◯	◯	◯	◯	◯

14. I like teaching with JASON Learning materials because...

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
They are current and up-to-date.	○	○	○	○	○
They are aligned with the topics I am expected to teach.	○	○	○	○	○
They are motivating and engaging for my students.	○	○	○	○	○
They encourage critical thinking.	○	○	○	○	○
They have an online option.	○	○	○	○	○
They expose students to a diverse group of practicing scientists	○	○	○	○	○
They are relevant to my students.	○	○	○	○	○
They are connected to real world resources.	○	○	○	○	○
They work for students with multiple learning styles.	○	○	○	○	○
They allow for differentiation of content for students at different levels.	○	○	○	○	○
They are better than what I would have had to use otherwise.	○	○	○	○	○

Other (please specify)

15. Has your use of JASON Learning materials or JASON PD workshops contributed to changes in the way you approach teaching science (using any materials) in any of the following ways?

I now:

- ☐ Integrate technology more often into my teaching.
- ☐ Incorporate more "hands-on" activities in my teaching.
- ☐ Present new information in a variety of ways.
- ☐ Make more connections to science careers and "real-world" experiences.
- ☐ Use more cross-curricular and thematic approaches.
- ☐ Other - please specify below.
- ☐ My usual teaching methods were already similar to those I now use with JASON materials.

Other changes (please specify)

16. To what extent do you intend to continue using JASON Learning materials next year?

- ○ I do not intend to continue using JASON Learning materials next year.
- ○ I intend to use them less than I used them this year.
- ○ I intend to use them about the same amount that I used them this year.
- ○ I intend to use them more than I used them this year

If you intend to use JASON Learning materials less or not at all, please tell us why.

17. Have you observed changes in your students' academic performance or engagement with science with JASON Learning program activities and materials in any of the following ways:

	None of my students	Some students	About half of my students	The majority of my students
My students are more engaged during class.	◯	◯	◯	◯
My students are more motivated and enthusiastic about science.	◯	◯	◯	◯
My students use evidence more often to support their work.	◯	◯	◯	◯
My students hand in more or higher quality homework than usual.	◯	◯	◯	◯
My students do better on quizzes and tests.	◯	◯	◯	◯
My students are more interested in exploring further topics in science.	◯	◯	◯	◯
My students connect the content with their own lives more often.	◯	◯	◯	◯
My students express more interest in science careers.	◯	◯	◯	◯

Other changes? (please specify)

18. If you have observed changes in your students' academic performance or engagement with science with JASON Learning program activities and materials, please provide us with 1-2 specific examples.

19. Are you using or planning to use JASON curriculum to support district implementation of NGSS?

◯ Yes

◯ No

◯ I don't know

20. During the 2014-2015 school year...

Approximately how many of your students have participated in JASON Learning program activities? ☐

21. Of the students who participated in JASON Learning, approximately what percentage are the following...
(These percentages should sum to 100%)

African American ☐
Asian ☐
Hispanic ☐
Multiracial ☐
Native American ☐
White ☐

22. Of the students who participated in JASON Learning, approximately what percentage are the following...
(These percentages should sum to 100%)

Male ☐
Female ☐
Transgender ☐

23. Of the students who participated in JASON Learning, approximately what percentage receive English Language Learner (ELL) services?

◯ 0-20%
◯ 21-40%
◯ 41-60%
◯ 61-80%
◯ 81-100%

24. Of the students who participated in JASON Learning, approximately what percentage receive special education services?

◯ 0-20%
◯ 21-40%
◯ 41-60%
◯ 61-80%
◯ 81-100%

25. How many years have you implemented JASON Learning in your classroom?

- ◯ This is my first year of JASON Learning implementation.
- ◯ This is my second year of JASON Learning implementation.
- ◯ This is my third year of JASON Learning implementation.
- ◯ Other (please specify)

Other

26. How many years have you been teaching?

- ◯ 0-3 years
- ◯ 4-10 years
- ◯ 11-15 years
- ◯ 16-20 years
- ◯ 21 or more years

27. What grade level(s) do you currently teach? Please select all that apply.

- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12

28. In what subject area(s) do you currently teach? Please select all that apply.

- [ ] Science
- [ ] Mathematics
- [ ] English Language Arts
- [ ] Social Studies
- [ ] Technology
- [ ] Special Education
- [ ] English As a Second Language

Other (please specify)

29. Is there anything else you would like to add?

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June 30, 2015

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