Teachers’ Views on the GIFT Program: An Interview Study

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Cassandra Drennon & Associates, Inc.
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Susan Reinhardt, Director
Students and Teachers Applying Real Life Science (STARS)
College of Agriculture and Engineering Studies
The University of Georgia
Tifton, Georgia

Prepared by

Cassandra D. Bryant, PhD
Meagan Carter
Cassandra Drennon & Associates, Inc.
675 Pulaski Street, Suite 2700
Athens, Georgia 30601

www.drennonassoc.net
706-543-2971

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Introduction

The Georgia Intern-Fellowships for Teachers program (GIFT) originated in 1990 at the Georgia Institute of Technology when that institution received assistance from two major science and technology organizations committed to preparing young people for future careers in science, technology, engineering, and math (STEM). The program’s key strategy has been to provide teachers with intensive real-world experience by having them spend a summer working alongside researchers in STEM-related fields.

In 2002, the University of Georgia (UGA) entered into a partnership with the Georgia Institute of Technology GIFT program. That year, UGA’s Tifton campus awarded science-related summer fellowships to 12 K-12 teachers in 6 high-need school districts in South Georgia. Currently in its 10th year, UGA’s Gift program has awarded a total of 170 fellowships to teachers from school districts throughout South Georgia as well as from urban school districts surrounding the UGA main campus in Athens. Funding for the program has come from the U.S. Department of Education Teacher Quality Education Program, National Science Foundation, National Institutes of Health, U.S. Department of Agriculture, The University of Georgia, and private industry.

Program Design
The program occurs through several phases:

- In early spring, teachers apply to GIFT for a summer intern-fellowship.

- Selected teachers are matched with a mentor and participate in their intern-fellowship over four to seven weeks in the summer.

- Upon completion of the internship, teachers develop an Action Plan that translates the summer experience into classroom practice.

- A member of the GIFT program staff observes the classrooms of teachers who choose to implement their Action Plans.

Goals of GIFT

- Increase content knowledge
- Develop inquiry-based teaching strategies
- Experience new technologies
- Share ideas with fellow teachers

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1 The Triangle Coalition for Science and Technology Education in Arlington, Virginia, and the Industry Initiatives for Science, Mathematics, and Engineering (IISME) based in California’s Silicon Valley.
• All teachers, along with their mentors, attend a culminating meeting at Georgia Tech designed for teachers to share highlights of their summer learning experience with each other.

• Teachers who successfully complete the internship and Action Plan receive a salary and as many as 5 Professional Learning Units (5 additional Units are awarded if the plan is implemented).

Eligible teachers are those who have been teaching for at least two years and have a contract in place to teach the year following their GIFT internship. The program is considered most appropriate for middle and high school science teachers although elementary school teachers have reportedly benefited from GIFT, as well.

Mentors—scientists from higher education, business, and industry—are recruited annually and receive no compensation for their involvement in GIFT. Many mentors choose to participate in the program year after year.

**Evaluation of the GIFT Program**

GIFT has been evaluated internally by the program staff each year. Methods used in the past have included satisfaction surveys and more recently, a retrospective pre-test that sought to gauge achievement of the project’s short-term goals. In 2010, results of the retrospective pre-test indicated substantial gains in teachers’ content knowledge, inquiry teaching ability, knowledge of technologies, and idea sharing with fellow teachers.

Motivated by a desire to learn more about the long-term impact of GIFT on classroom teachers and their students, GIFT program staff contracted with Cassandra Drennon & Associates, Inc. (CD&A) to conduct a small external evaluation of the program in the Spring of 2011. This evaluation was designed to enhance the program staff’s understanding of the internship experience, and how teachers apply the experience to their classrooms.

A $2,800 evaluation budget enabled CD&A to conduct phone interviews with 10 randomly selected teachers (2 from each of the last 5 years of the program). The sample was stratified to assure five teachers from the northern area of the state and five from the southern area of the state would be represented (Figure 1). Telephone interviews lasted 30-45 minutes. About half the interview focused on the internship experience, and half focused on how teachers applied the internship to their classroom. The following general topics were explored with the GIFT teachers:

1. Why teachers chose to participate in GIFT.
2. What teachers did for their internship.
3. The extent to which the matches between mentors and teachers were successful.
4. The working relationships between interns and mentors.
5. The most significant ways teachers benefited from the internships while they were underway.
6. Whether and how GIFT has had an impact on the participants as teachers.
7. Whether and how teachers have applied the internship experience to their classrooms.
8. Whether teachers believe that GIFT has had an impact on their students.
9. Teachers’ opinions of GIFT as a professional development approach.
10. How the internship experience could be improved, and how to facilitate greater application of the GIFT internship experience to the classroom.

As an incentive to participate, each teacher was offered a $10 Amazon Gift Card, sent as a “thank you” upon completion of the interview. The interviews were recorded nearly verbatim and then coded thematically. The number of teachers interviewed for this study represents 11% of the 88 GIFT Fellows from 2006 to 2010.

In addition to interviewing past participants, key documents were reviewed as part of this study including application forms, promotional materials, and previous evaluation reports.

The remainder of this report presents the most salient themes to emerge from the interviews along with their implications for improving the program in future years.

Figure 1. Georgia Counties Represented by Participants
Findings

The Internship Experience

The internships held by the 10 teachers interviewed for this study were typical of those held by GIFT teachers over the lifetime of the program (Figure 2).

Figure 2. Internships Held by GIFT Teachers Interviewed for This Study

Of all the reasons to participate in GIFT, teachers want “hands on, real world” experience.

In GIFT, the goal is for teachers to increase content knowledge, develop inquiry-based teaching strategies, experience new technologies, and share ideas with fellow teachers. However, when we asked teachers what drew them to the program, they tended not to speak of these goals. Instead, terms such as “hands on” and “real world” surfaced repeatedly. “Getting that first hand
knowledge is indescribable,” said one teacher. Another said, “I was looking for a way to get my hands wet.” Another teacher explained how both he and a colleague who also had been in GIFT enjoyed the “hands on” aspect of science. “My interest was to actually get back into the field,” he said. “I wanted to be a bit of the student rather than the teacher.” Teachers also want to expand their knowledge of science, work with “real” scientists on actual problems, and earn PLUs in “real” non-workshop settings. While teachers value the goals of the program, the implication of this finding is that the delivery method is what makes the difference to teachers.

In GIFT, teachers build on existing skills but are also thrust out of their comfort zones.

A seventh grade science teacher accustomed to teaching about plants and animals interned in Costa Rica where she learned how to correctly collect insect specimens. Another teacher had previous lab experience as a post-doc student and was deemed well prepared to learn tasks in a breast cancer research lab. One high school chemistry teacher who participated in GIFT for three years started his internship doing internet research—something he was comfortable doing—but in subsequent years he took on more responsibility in the lab. “The whole experience was incredible for me,” this teacher said. “I wanted to keep working with the same guy because we were doing more and more each year. Another teacher who did a GIFT internship for two consecutive years also spoke of gradually building his skills but also being subjected to experiences that were entirely new to him:

“I worked with Dr. Pierce, a leader in trying to find markers for breast and colon cancer. We were doing some amazing things. It had been years since I had been in a lab. I was more of an outdoors, environmental guy. On one hand, I wanted that experience to hone my skills in the lab. It’s a good thing to be thrown out of my comfort zone. I hear that from people in the GIFT program all the time—that they are thrown out of their comfort zone but that’s how our students feel, too. It’s good for us to feel that and it gives us more perspective. . . There was just no possible way that I would be able to grasp all the details of biochem and genetics all at once. I could only get my arms around the thing as a whole. I wanted a general understanding. The minutiae I could never fully grasp. I did a lot of hands on prep work. I was doing pieces of experiments.

Teachers give their mentors high marks based on how the mentor made them feel, the actions the mentor took, and the traits the mentor possessed.

Across the board, mentors were successful making the teachers feel comfortable and respected. Two teachers went so far as to say that their mentors managed to not make them feel “stupid” when they asked a question. In some cases, teachers felt like the mentors even made them feel like equals. Mentors were able to engender these feelings in the teachers because of the time they took answering their questions. Mentors were also willing to sit and talk, and even bounce ideas off the teachers and
this impressed them. Mentors took time to model and demonstrate their skills, and in many cases they were good about arranging additional learning experiences for the teachers beyond the lab, or introducing teachers with other scientists who would be good connections for them. Teachers lauded their mentors for being personable, knowledgeable, professional, relaxed, and passionate about their work.

Back in the Classroom

Hands-on, real-world experience changes a teacher’s perspective.

We asked teachers what they got out of the GIFT internship when it was underway and, across the board, they responded “skill development and content knowledge.” However, when we asked them about the impact the internship had on them as teachers when they were back in the classroom, participants say that GIFT changed not just what they knew and were able to do in the classroom, but how they thought about themselves, their students, and their teaching.

[GIFT] has re-energized my interest in doing experiments in the classroom. The internship gave me some fresh ideas for enhancing the inquiry-based labs I was already doing.

It made me feel young again.

You come back feeling like you had done something prestigious. I came back with the ability to stand up and present with confidence and having some expertise under my belt.

I have more ideas and a greater perspective now.

It didn’t change how I teach [but] I have a better appreciation for my subject now.

[I] can empathize more with my students’ lack of understanding now.

It has definitely made me more approachable as a teacher. I try to tie in my lessons to something that is real world and practical . . . I’m more creative and more aggressive now about making things happen in the classroom.

I can talk about things now with a feeling of authority.

Again, teachers point to the hands-on, real-world nature of the GIFT program when explaining why it has had a powerful, lasting impact on them. One explained, “Teachers are going to be more creative and have a greater sense of wonder after the GIFT experience . . . Science can be very dry if you teach it in disparate parts that aren’t applicable, [but] when you say, hey, there is science all around you [a realization this teacher personally gained in GIFT]. You’re a scientist and don’t even know it.”
GIFT leads to changes and improvements in classroom practice.

In several ways, teachers change their classroom practices after GIFT. For example, one teacher incorporated some advanced technology that he learned how to use during his internship. In fact, this teacher was asked to teach Advanced Placement Biology based on the fact that he had been in GIFT. Two teachers said they expanded the range of higher-level topics that they taught after GIFT because they felt better prepared to teach them. One teacher said she increased her emphasis on inquiry-based learning.

The teachers characterized many of their new practices as improvements. For example, one teacher who had traveled to Costa Rica on her internship said that she interacts more effectively now with students from Latin America. Her rapport with these students has improved because she shows greater insight into and appreciation for their culture. Similarly, another teacher inspires enthusiasm among his students by sharing stories from his summer internship. Students “beg” to see his pictures, he says. Another teacher who has applied what he learned over the summer to his labs says his labs are now more interesting. One teacher said that when he changed his “cookbook” approach to teaching (where students read a text and search for answers to questions) to a more inquiry-based approach, it has meant that, “The student is actually doing the work and building knowledge now. The lab has become a vehicle for learning.” Similarly, a different teacher said she could now bring concepts to life in the classroom through demonstration. One teacher explained that when labs go wrong, she is now better able to think on her feet, and turn the experience into a learning opportunity.

“My mentor] was really good about getting the students to think about what didn’t work and why. I learned that from him. I developed that process and flexibility [through the internship]. That was very valuable.

Finally, one teacher reflected, “I have definitely exposed them to more science and a broader range of science topics than ever before. I’m more creative and more aggressive now about making things happen in the classroom. I have numerous experts and authorities coming into the classroom now.”

Students benefit from GIFT, too.

When teachers change their classroom practices it can affect the students in positive ways. For a few teachers, the impact on students was merely assumed. “They have a more knowledgeable teacher,” one said, “so that must have an impact.” Another said she hoped that GIFT had broadened the students knowledge. “I can explain things a little differently [and] that might spark an interest in them,” she surmised. Several teachers, however, felt quite certain that their students were benefiting indirectly from GIFT because they were being exposed to new topics that teachers had learned about during their internship (e.g. cancer, biofuels, DNA). Then there were two teachers who were able to provide evidence that students were affected by GIFT.
“The fact that they ask more questions is an indicator that they are engaged,” one teacher said. “Their time on task has increased because they are more engaged,” another said. She went on to share proudly that she had students come back and say, ‘I feel like a scientist.’ “You just don’t get that every day!”

**Implementing the Action Plan is challenging for some teachers.**

Four of the ten teachers with whom we spoke said it was challenging to directly apply what they learned in the internship to their classrooms, even though (as discussed in the previous findings) they were able to identify ways the internship positively impacted them and their students. Two teachers ended up teaching new subjects in the year following their internships. Two other teachers attributed the problem to a mismatch between the specialty of the mentors and what the teachers actually taught. One said, “To really translate this, let’s make sure that there is a good match between the internship and what you do in the classroom. If they don’t match, there won’t be application.” Another said, “It would help if [teachers] got matched with someone close to what they teach.” This person also thought that teachers needed to know the Georgia Performance Standards “backwards and forwards” in order to recognize what in the internship would be applicable in the classroom. One teacher thought that the mentors could perhaps give more examples of how to use the information from the internship in the classroom.

**Teachers agree with one another that GIFT is a highly effective form of professional development and one that they prefer over other PD options.**

GIFT teachers are effusive in their praise of the program. No summary of their views would be as powerful as their individual testimonials:

*I have been teaching 14 years and I've gone through the GIFT program twice. If I could, I would do it every summer. It is phenomenal. It made me understand how the world works around me.*

*I think it helps that you're working with professionals in the field. We see other teachers but we don't interact with scientists so that is an excellent part of it. You're seeing research as it happens and it opens your eyes to what is going on outside the classroom. The scientists see what teachers are up to so it works both ways.*

*It is the best form of professional development. I have done so much in the classroom and wondered, ‘What in the world are we doing this for?’ But, the hands on experience—actually living the knowledge—is 100% retention. We weren't watching a video; we were standing there with this bug and I can quote back what the guys said.*

*I love it. I think it is an excellent model. It is an excellent model and other teachers have been able to immediately use it in the classroom.*
I think of all the professional development I have been through, it has to be the single best one. You are immersed in your topic. You have great support from your mentor. I still email my mentor for help. You are immersed in that learning. You are doing it. There is no other way to really . . . you can't sit in a presentation or three-hour workshop and get what you get out of GIFT.

I think this is the way it ought to be. This ought to be the standard in my opinion. Sitting in a classroom and hearing about topics is not what we should be doing. That's the old style. The hands on, collaborative part should really be the strength. What we're doing should be the model for professional development. I really don't know why we don't do it every year.

I loved it. It was a lot of work and so I don't know how many people would want to devote most of their summer to doing this. I did get a stipend and that helped. It was so much more interesting than the usual staff development.

I'd rank it as the highest form of professional development that I've done. It allows you to become a student in the lab. I didn't get that from other kinds of professional development.

GIFT is a whole lot better than the usual professional development. Everyone wants to tell you how to teach but there is no professional development that allows you to advance your understanding of the content and its applications except GIFT.
After the first summer that I did a GIFT internship, the Project Director recommended that I and another teacher to go with some other folks on a trip for a week to explore alternative energy options for the state of Georgia. We went to Colorado to the National Renewable Energy Laboratory, a wind farm and a bio diesel plant, where we looked at solar panels. We basically hit all the aspects of alternative energy and went all over the west and Midwest. That was an experience of a lifetime. We were the only teachers on the trip. I was able to bring pictures back to my class and my students got very interested and excited about it, too.

When I went back to the GIFT program in 2006, we were asked to apply for and be a part of a Department of Education service-learning grant. We got a lot of money from the Department of Education to teach our students about biofuels and part of that was for our students to teach the community. I was able to buy pretty much all the equipment needed to make biofuels in the classroom with my students. We set up annual Bio Fuels Expos where my students would do experiments all year long and then they would have a community expo to teach the community about it. We had a lot of fun with that. Of course I was getting even more excited about everything.

The following year, I went back to the GIFT program for a third year. I really had an epiphany that the students really enjoyed learning chemistry about something they could relate to better. Gas prices were going up and they were excited that they could make fuel themselves. I realized that if I looked at the textbook used, I could pretty much work biofuels into every single chapter. The GIFT program only requires you to write one or two lessons. I sat down that summer and wrote a lesson for every chapter in the textbook. So ever since then, I have been using those lessons. We use these labs instead of the ones that students don't see the point in. The Project Director secured a grant after that, in 2008, from the Board of Regents. I was able to get certified as a bio fuel educator. It's been wild. It just goes from there, so really my experience in the GIFT program has taken me beyond just working over the summer.

I get emails from people all over the world asking about lessons plans. I have a website that I put the lesson plans on and people from all over contact me. I do workshops around the state on teaching biofuels, and I've taught at Athens Tech. I've also done presentations at the science teachers’ conference. This is incredibly amazing because it is still affecting me even though it was five or six years ago that I was in the program.
Summary and Recommendations

The interview sample for this study was small; only 10 randomly selected teachers over the life of the program had the opportunity to contribute. Nevertheless, a consistent picture of the GIFT program as a powerful form of professional development emerged. The program relies on hands-on, real-world intensive summer internship experiences supervised by mentor scientists who the teachers laud for being knowledgeable, patient, and highly personable. After a summer internship, teachers report not just changing their classroom practices, but improving those practices considerably. Moreover, they consistently describe positive changes in how they view themselves as teachers, and how they view students and their teaching practice. The clear message coming out of this interview study, however limited in scope, is that the professional development model is strong. Some of the findings have implications for minor program improvements:

- There are four program goals for GIFT and all the teachers were unequivocal about achieving one of them—increasing content knowledge and skill. A few of the teachers had examples of using new technologies and increasing their use of inquiry-based teaching strategies. In none of the teachers’ stories did sharing with fellow teachers emerge as a salient outcome. In fact, one teacher mentioned that she felt detached from the other teachers by the end of the summer and wished for even a contact list or periodic updates on members of her cohort.

In the future, it may be worthwhile for program staff to examine more intentionally how and to what extent the GIFT program prepares teachers to develop inquiry-based teaching strategies and also share knowledge with other teachers. The fact that teachers tend not to discuss the program in these terms may suggest a need to strengthen the program in these areas.

- Staff may want to consider putting greater emphasis in either the program goals or promotional material on the “hands on, real world” experience that GIFT is uniquely capable of offering. Material that vividly highlights what the opportunity has to offer in contrast to other professional development options may inspire and galvanize potential donors as well as future program participants.

- While teachers are readily able to say how GIFT has changed them for the better—often a change in perspective was considered significant—some struggle to say how these changes have impacted students. Staff may want to heighten teachers’ awareness of the range of ways the GIFT experience ultimately impacts their students, especially in the case of those who do not go so far as to implement their Action Plans.

- Teachers were very clear about the attributes of a successful mentoring relationship. Staff may want to consider incorporating these insights into the selection, preparation, or evaluation of mentors in the future.