

Evaluation of the 2017 National Summer Transportation Institute Hosted at Rowan University

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Abstract

The Federal Highway Administration (FHWA) in partnership with state highway agencies (State DOTs) offers an annual program known as the National Summer Transportation Institute (NSTI). This program is typically held in most states across the nation and aims to increase awareness of the potential career opportunities in the transportation industry among middle and/or high school students. The program focuses on minority, female, and underrepresented groups of middle and/or high school students. In this paper, a discussion of the outcomes of the NSTI program, hosted by Rowan University in the summer of 2017, and the degree to which the program met its goals will be presented. To fulfill these goals, faculty from the Civil and Environmental Engineering (CEE) department and Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs) at Rowan University prepared a comprehensive academic and enhancement curriculum. This curriculum included a variety of activities that aimed to introduce three modes of transportation (i.e., air, land, and water) along with relevant safety concepts to high school students. To assess the degree to which the goals of the program were achieved, several evaluation forms were prepared and distributed to the participating students on daily activities, field-trips, and end of the program evaluation. Based on the analysis of the evaluation forms, it was found that the curriculum utilized was successful at achieving the goals of the NSTI program. The evaluation results also indicated that the participating students enjoyed the various sessions and activities, thus, suggesting that the management of the program at Rowan University was successful.

INTRODUCTION

The Federal Highway Administration (FHWA) in partnership with state highway agencies (State DOTs) offers an annual program known as the National Summer Transportation Institute (NSTI). This program is typically held in most states across the nation and aims to increase awareness of the potential career opportunities in the transportation industry among middle and/or high school students. The program focusses on minority, female, and underrepresented groups of middle and/or high school students and aims to fulfill the following objectives:

- Increase awareness, among minority; female; and underrepresented high school students (grades 9 through 12), of the wide range of transportation modes and potential career opportunities in transportation-related fields;
- Teach high school students Science, Technology, Engineering, and Math (STEM) skills through interactive and fun activities and ultimately improve their STEM skills; and,
- Strengthen the links between the transportation sector and public/private institutions through the creation of partnerships.

Faculty and staff from the Department of Civil and Environmental Engineering (CEE) and Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs) at Rowan University prepared a comprehensive academic and enhancement curriculum to host the NSTI for the summer 2017 semester. This curriculum included a variety of activities aimed to introduce three modes of transportation (i.e., air, land, and water) along with relevant safety concepts to high school students. In general, the goal of the curriculum was to introduce high school students to a broad range of multi-modal components of transportation related careers and improve the students' STEM skills. The academic and enhancement curriculum incorporated a series of lecture sessions, hands-on activities, workshops, and field trips to local government and transportation industry facilities. These activities provided the selected students with an overview of all transportation modes as well as potential career paths in the transportation industry. In this paper, a discussion of the outcomes of the NSTI program, hosted by Rowan University in the summer of 2017, and the degree to which the program increased awareness among high school students is presented.

STUDY OBJECTIVES

The objective of this study is to present the unique curriculum prepared at Rowan University for the NSTI program and evaluate the degree to which the program goals were fulfilled through student feedback. It is believed that the curriculum utilized by Rowan University will benefit other universities and other transportation, engineering or STEM related programs interested in hosting the NSTI in the future.

OVERVIEW OF NSTI ACADEMIC PROGRAM AT ROWAN UNIVERSITY

The 2017 NSTI at Rowan University involved an academic program that aimed to fulfill the overall goal of acquainting high school students with the transportation industry and potential transportation careers. The specific objectives of the program were:

- Educate students by introducing them to the various transportation modes and the transportation industry;
- Motivate students and encourage them, through practical and academic experiences, to pursue careers in transportation-related fields;
- Expose participating students to STEM topics through a set of pre-designed educational activities;
- Introduce participating students to workings of various agencies serving multiple transportation modes on field trips and on-site seminars; and,
- Enhance students' leadership and professional skills through activities designed to introduce them to university life and the main requirements needed to obtain a college degree.

The details of the 2017 NSTI program at Rowan University/CREATEs are presented in Table 1 below. As indicated in this table, the program lasted four weeks with each week given a special theme highlighting one of the three major transportation modes (i.e., Air Transportation, Water Transportation, and Surface Transportation) and Transportation Safety. The program included a registration, orientation, and welcome session; seasoned speaker sessions; hands-on laboratory experimental sessions; a set of field visits to local transportation centers near Rowan University; sessions focusing on STEM and life education; a research competition; and ended with a graduation, awards ceremony, and final remarks session. The following subsections provide a brief description of each of these sessions.

Registration, Orientation, and Welcome Session

In this session, the students and their parents were welcomed into the 2017 NSTI program and were introduced to the goals and objectives of the program. Orientation also involved presentations made by NSTI Director and NJDOT Civil Rights Division representative discussing the history of the National Summer Transportation Institute program. In addition, orientation included discussions revolving around the program's curriculum, expectations (e.g., drop off and pickup locations), as well as a review of the forms submitted by participating students.

Seasoned Speaker Sessions

In these sessions, seasoned speakers from the various fields of the transportation industry were invited to speak to the students about potential career paths they can pursue in the field of transportation engineering and other relevant engineering fields. An example of a session includes

a presentation provided by a speaker from the Federal Aviation Administration (FAA) discussing the role of the FAA and potential career paths the students can pursue as part of the FAA, such as aerospace engineer, or air traffic controller. In addition, all these sessions aimed to help the students gain an understanding about the different fields of engineering that can be studied in order to be part of the transportation workforce; that is, other engineering fields are related to transportation not only Civil Engineering.

Hands-On Laboratory Experimental Sessions

The goal of these sessions was to provide the students with a fun, interactive learning environment in which they can discover different aspects of transportation engineering. All of the hands-on sessions were designed so that the students were engaged in the session through building or conducting an experiment. The session related to building and testing a bottle rocket is one example of such activities (Table 1: Week 1, Friday). In this session (Build a Bottle Rocket), the students were introduced to basic but fundamental aerodynamics concepts. Through this session, the students also learned the fundamentals of parametric experimental design by varying the wing size and configurations, bottle mass, and water propellant.

Field Trips and Site Visits

The field trips included site visits and tours of transportation related centers and industry partners in the local region around Rowan University. These trips aimed at making the students learn about and get a taste of how the transportation world functions. An example of these trips is the visit to the FAA technology center in Atlantic City, NJ. In this visit, the students learned about flight simulators and the requirements to learn how to fly an airplane. Other trips showed the students how asphalt is made and placed to make roadways, how traffic is managed and congestion is minimized and controlled, as well as bridges and the degree of work required to maintain them.

Scheduled Day	Week 1: July 24-28, 2017 (Air Transportation)			
Monday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Registration, Orientation & Welcome Rowan Team (8:30 – 10:15AM) Real-World Engineering & Science FAA Personnel (10:30–12:00 AM) Rowan/CREATEs facilities Tour (1:00–5:00 PM) 			
Tuesday:	Departure at 9:30am			
Break: 10:15–10:30 AM	- Tour of the FAA Facilities in Atlantic City (10:30–5:00 PM)			
Lunch: 12:00-1:00 PM	- Presentation by panel of young engineers from different divisions at FAA			
	about careers.			
Wednesday:	- Research Skills (Literature Search)			
Break: 10:15–10:30 AM	• CREATES staff (9:00 – 12:00PM) - GIS and Geo-Visualization			
Lunch: 12:00–1:00 PM	Presentation. Exercise and Discussion			
	• Professor in GIS Department (1:00–5:00 PM)			
Thursdow	- Aerodynamic & Hybrid Cars			
Break: $10.15-10.30$ AM	 Professor in Mechanical Engineering Department (9:00–10:15 PM) 			
Dieak. 10:15 10:50 / 101	- New Jersey DOT Bureau of Materials: What we do			
Lunch: 12:00–1:00 PM	• Staff, NJDOT Bureau of Materials (10:30–12:00 PM)			
	- Aerodynamics Laboratory Experiment			
	 Professor in Mechanical Engineering Department (1:00–5:00 PM) 			

 Table 1: 2017 NSTI Program Curriculum (Week 1: Air Transportation).

Friday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Build a Bottle Rocket Learn, design, build, test Technician in College of Engineering (9:00–12:00 PM) Intro. to Microsoft Excel Excel and Engineering: An interactive exercise CREATEs staff (1:00–5:00 PM)
Scheduled Day	Week 2: July 31-August 4, 2017 (Land Transportation)
Monday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Early Departure 8AM New York. New Jersey Port Authority Visit (9:00–12:00 PM) Traffic Management Center Visit (1:00-5:00PM)
Tuesday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Critical Thinking, Problem Solving & SAT Prep CREATEs staff 9:00–10:15 AM) Careers at NJDOT and Local Municipalities Manager, NJDOT 10:30-12:00 PM) Enhance Students Written Communication Skills Rowan Staff (1:00–5:00 PM)
Wednesday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Highway Geometric Design Professor in Transportation, Department of Civil Engineering (9:00–10:15 AM) Traffic Engineering Basics
	 Intro to Paving Materials & Building a Model CREATES /Rowan staff (3:00 – 5:00PM)
Thursday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Intelligent Transportation Systems Professor in Transportation, Department of Civil Engineering (9:00–10:15 AM) Pothole Detection Technologies and Applications
	 Basics of Machine Learning in Transportation Professor in Transportation, Department of Civil Engineering (1:00– 5:00 PM)
Friday:	 Intro. To "Big Data" Analytics and Technologies Professor in Transportation, Department of Civil Engineering (9:00–10:15 AM)
Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Roadway & Bridge Construction Careers Director, Delaware River Port Authority, :30–12:00 PM) Intro. to Microsoft Word & Weekly Evaluations Doctoral Student, Department of Civil Engineering (1:00–5:00 PM)
Scheduled Day	Week 3: August 7-11, 2017 (Water Transportation)
Monday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Basics of Water Based Transportation Professor in Water Resources, Department of Civil Engineering (9:00–10:15 AM) Flood Management & Transportation Systems Professor in Water Resources, Department of Civil Engineering (9:00–10:15 AM) DE River Port Authority visit (1:00–5:00 PM)

Tuesday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM Wednesday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Porous Pavement Doctoral Student, Department of Civil Engineering (9:00–10:15 AM) NY/NJ Port Authority(PANYNJ) Careers Staff, PANYNJ (10:30–12:00 PM) Financial Learning Certified Financial Planner and Adviser (1:00 – 5:00 PM) Engineering: An Umbrella of Disciplines Director, Delaware River Port Authority (9:00–10:15 AM) Engineering & Everyday Life Director, Delaware River Port Authority (10:30–12:00 PM) Septa Transit Museum and Railroad Museum (1:00–5:00 PM)
Thursday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Underwater Controlled Vehicles - Learn, Design, Build, and Test Mr. Eric Dubois (9:00–12:00 PM) Dredging & Water Transportation Personnel, US Army Corp of Engineers (1:00–2:15 PM) Intro. to Microsoft PowerPoint Doctoral Student, Department of Civil Engineering (2:30-5:00 PM) Student Presentation (9:00–10:15 AM)
Friday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Careers at the Army Corps of Engineers: Marine District Personnel, US Army Corp of Engineers, (10:30–11:45 AM) Buoyancy & Basics of Fluid Mechanics
Scheduled Day	Week 4: August 14-18, 2017 (Safety)
Monday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 The Science (and Art) of Traffic Safety Consulting Engineer in Transportation(9:00–12:00 PM) Careers at South Jersey Transportation Authority A Field Visit (1:00-5:00 PM)
Tuesday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Local Asphalt Paving Plants A Field Visit (9:00–12:00 PM) Technology Based Career Paths Programmer, Cisco (1:00-2:00PM) Basic and High Performance Programming Professor in Department of Electrical Engineering (2:00–5:00 PM)
Wednesday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Transportation Research Competition Post-doctoral Associate, CREATEs/ Rowan (9:00–10:15 AM) Transportation Topic Selection and Paper Outline Post-doctoral Associate, (CREATEs/Rowan (10:30–12:00 PM) Team Research Post-doctoral Associate, CREATEs/Rowan (1:00–5:00 PM)
Thursday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Team Research Post-doctoral Associate, CREATEs/Rowan (9:00–10:15 AM) Team Research Post-doctoral Associate, CREATEs/Rowan (10:30–12:00 PM) Team Research Post-doctoral Associate, CREATEs/Rowan (1:00–5:00 PM)
Friday: Break: 10:15–10:30 AM Lunch: 12:00–1:00 PM	 Team Research Post-doctoral Associate, CREATEs/Rowan (9:00–12:00 PM) Student Presentations & Evaluations (1:00–3:00 PM)

STEM and Life Education Sessions

In addition to activities presented above, faculty and staff at Rowan University offered sessions on engineering, research and writing skills, budgeting skills, as well as computer skills (i.e., MS Word, Excel, and PowerPoint). All of these sessions were given as a spin out of transportation engineering problems to ensure maintaining the relevance of the program and its sessions to transportation engineering. An example of these sessions is the one offered to teach the students how to use Excel to solve transportation engineering problems such as determining sight distance and finding the number of seconds needed to maintain a traffic signal in "Red" position between cycles.

Research Competition

In the fourth week of the program, the students were required to participate in a transportation related research competition. This competition involved the students selecting the transportation theme they were interested in learning about and then writing a paper and preparing a presentation. Guidance was provided throughout the competition to help the student research and find relevant information and prepare the presentation. The students were then asked to present their findings during the Graduation, Awards, and Final Remarks session at the end of the program. Attendees of the concluding session ranked the students and the top three ranked student groups were presented with an award.

Graduation, Awards, and Final Remarks Session

The NSTI program ended with a graduation ceremony and closing remarks meeting. In this meeting, the Program's Director concluded the program by providing the students and ceremony attendees (i.e., parents, Rowan University faculty and staff, and NJDOT Civil Rights representatives) with final remarks on the program's success and lessons learned. In addition, students received all the information shared with them throughout the program.

EVALUATION OF EFFECTIVENESS OF NSTI AT ROWAN UNIVERSITY

To evaluate the extent to which the goals of the program were achieved, several evaluation forms were prepared and distributed to the students on daily, field-trip, and end of the program basis. The daily evaluation forms aimed at gauging the students' ratings of the speakers and topics covered in a particular day. The field trip forms involved asking the students about the field trip and gauging how informative and enjoyable they found the trip. Finally, the overall program evaluation form was distributed to the students at the end of the program. This form aimed to gauge the overall execution of the program and evaluated the students' overall rating of the speakers, field trips, laboratory experiments, and other activities that took place during the program. Tables 2 through 4 present the forms and questions the students were requested to fill/answer as part of the program evaluation effort.

It is noted that Questions 2, 13, and 26 in Table 2 (General Evaluation Form) were utilized to assess the increased awareness among the students with regard to the various transportation careers and transportation modes. These questions specifically ask the students their rating of how much they learned about transportation careers. Question 26 also asks about the students' awareness of transportation modes; as all modes of transportation were covered in the field trips, the students should provide high ratings if their awareness of the different transportation modes.

	Rating Scale:							
	1: Strongly Disagree 2: D	isagree	3:Agree	4:5	Strongly	Agree		
Usi foll	ng the rating scale provide above, please sp owing statements:	becify your	level of ag	greeme	nt/disagr	eement	with the	
SP	EAKERS/PRESENTERS							
1. 2. 3. 4.	Overall, information presented was clear and i I learned new things about transportation caree Speakers responded well to questions: Speakers were excited about the program:	nteresting: ers:		1 1 1 1	2 2 2 2	3 3 3 3	4 4 4 4	
<u>FIE</u>	ELD TRIPS							
5. 6. 7. 8.	Field trips were informative and interesting: Field trips added realism to topics covered: Field trips increased my understanding of topic The number of field trips offered was appropri	cs: iate:		1 1 1 1	2 2 2 2	3 3 3 3	4 4 4 4	
<u>SE</u>	SSIONS & WORKSHOP							
9. 10.	Sessions and workshops helped me learn more about transportation: Sessions and workshops gave practical experie related to transportation:	ences		1	2 2	3	4	
11. 12.	Activities were informative, interesting, and fu	ın:		1 1	2 2	3	4 4	
<u>ST</u>	AFF							
 13. 14. 15. 16. 17. 	Staff were very interested in me becoming awa transportation careers: Staff were very helpful when I had problems: Staff had a good attitude towards academic exe Staff were available when I had questions: Staff were friendly and encouraging when I had	are of cellence: ad difficulty	:	1 1 1 1 1	2 2 2 2 2 2	3 3 3 3 3	4 4 4 4 4	
<u>GE</u>	NERAL							
18.	The length of the program was	1 (To	oo short)	2 (Just	right)	3 (Too	long)	
19.	The number of speakers was	1 (To	oo few)	2 (Just	right)	3 (Too	many)	
20.	The number of projects was	1 (To	oo few)	2 (Just	right)	3 (Too	many)	
21.	The number of field trips was	1 (To	po few)	2 (Just	right)	3 (Too	many)	
22.	The number of hours spent in class was	1 (To	po few)	2 (Just	right)	3 (Too	many)	
23. 24.	The program was both educational and fun: I wish to return to the program next year: Please elaborate on reasons for selecting answe	er:		1 1	2 2	3 3	4 4	

Table 2: NSTI Program Evaluation Form (Distributed at the End of the Program).

	Table 2 (Continued): NSTI Program Evaluation	lation]	Form.		
25.	I would prefer to stay in a dormitory for the whole program:	1	2	3	4
	Please elaborate on your reasons why:				
26.	The program included field trips to all transportation modes:	1	2	3	4
	Please elaborate on reasons for selecting answer:				
27.	The length of the program was just right:	1	2	3	4
	Please elaborate on your reasons why:				,
28.	The number of speakers at the program was sufficient to achieve NSTI goals (not too many & not too few): Please elaborate on reasons for selecting answer:	1	2	3	4
29.	The number of field trips was just right (not too many & not too few): Please elaborate on your reasons why:	1	2	3	4
30.	The number of workshops/sessions was just right (not too many & not too few) Please elaborate on reasons for selecting answer:	1	2	3	4
31.	The number of hours in class was appropriate (not too many & and not too few) to accomplish the goals of the NSTI: Please elaborate on your reasons why:	1	2	3	4
32.	When would be the best time to schedule next year's NSTI?				

Please share your general comments about the NSTI. Please list any subjects that you would like to see covered in future NSTI programs that was not covered in this one. Were there any questions you have about the program that you haven't had a chance to ask?

Table 3: Speaker and Session Evaluation Form (Distributed on Daily Basis).
Rating Scale:

Rating Deale.						
1: Strongly Disagree	2: Disagree	3:Agree	4:Strongly Agree			

Using the rating scale provided above, please specify your level of agreement/disagreement with the following statements:

1.	Session/Workshop objectives were made clear to me:	1	2	3	4
2.	Concepts presented were related to the field of transportation:	1	2	3	4
3.	Material was presented in an organized manner:	1	2	3	4
4.	I felt free to ask questions in session/workshop:	1	2	3	4

Please describe what you found most informative and interesting about today's sessions and discuss any strengths or weaknesses of how the topics were covered.

Table 4: Field Tr	ip Evaluation Form (Distributed I	During Trips).			
Rating Scale:						
1: Strongly Disa	gree 2: Disagree	3:Agree	4:Strongly Agree			

Using the rating scale provide above, please specify your level of agreement/disagreement with the following statements:

1.	The field trip was informative and interesting:	1	2	3	4
2.	Presented concepts were related to transportation:	1	2	3	4
3.	Material was presented in an organized manner:	1	2	3	4
4.	Good examples were used to clarify the material:	1	2	3	4
5.	Used examples were helpful in understanding topic:	1	2	3	4
6.	I enjoyed the trip's activities and the material covered:	1	2	3	4
7.	Transport to and from the trip location was well planned:	1	2	3	4
8.	I felt free to ask questions during the tour:	1	2	3	4
9.	The trip increased my awareness of transportation careers:	1	2	3	4

Please describe what you found most informative and interesting about today's field trip:

IMPLEMENTATION RESULTS

The student feedback obtained throughout the program from the participating high school students is presented in Figures 1 through 3 below. Figure 1 presents the averaged ratings per evaluation category (i.e., Speakers, Field Trips, Workshops/Laboratory Experiments, Staff, Program Length, No. of Speakers, No. of Laboratory Experiments/Workshops, No. of Field Trips, and Hours Spent in Class) obtained from completed NSTI Overall Program Evaluation Forms (Table 2 above). As can be seen from Figure 1, the average ratings obtained for the speakers, sessions and laboratory experiments, field trips, and staff ranged from 3.65 to 4. These ratings may indicate that the students have learned about the different transportation modes. This is believed to be the case because the students were specifically asked to provide ratings of the extent to which they learned about transportation related topics (e.g. sessions and workshops helped me learn more about transportation). The ratings presented in Figure 1 for the speakers, sessions, trips, and staff also indicate that the team at Rowan University was successful at managing the program.

Figure 1 also shows that the rating obtained from the students regarding the program's length, number of speakers, number of sessions and laboratory experiments (or workshops), number of field trips, and hours spent in class ranged from 2.1 to 3.8. With regard to program length, number of speakers, and number of workshops the students viewed the program as being slightly long. This is actually explained by looking at the rating obtained for the number of field trips (i.e., rating of 3.8) with the students asking for more field trips and less time spent in class (i.e., rating of 2.1). In other words, it was expected that the participating students would be more interested in doing hands-on activities where they are involved (as opposed to only listening during a standard class lecture); thus, explaining the results. Overall, it can be concluded based on these observations that the students would prefer to have more hands-on activities (e.g., laboratory experiments) and field trips. The authors believe that this finding will be helpful to other universities or institutions interested in hosting an NSTI in the future.

To better understand the success of the NSTI at achieving its goals, it is necessary to take a deeper look at both the ratings obtained for each of the particular sessions/workshops and field trips. Figure 2 below presents the averaged students' ratings for all 15 sessions and workshops held as part of the NSTI. These results were obtained from the speaker/session evaluation forms (Table 2 above) distributed on a daily basis. The ratings shown in Figure 2 for all 15 sessions ranged from 3.5 to 4. These results indicate that the students found the sessions related to transportation fields and its corresponding materials to be presented in a clear and organized matter. Therefore, it can be concluded that the instructors did an excellent (rating > 3) job presenting the materials. The results also indicate that the lecture sessions and laboratory experiments successfully fulfilled the goal of the NSTI program.

With regard to the field trips, the ratings obtained from the students are presented in Figure 3. As illustrated in this figure, the majority of the field trips had an excellent rating (> 3 Points) for all trips. This is mainly attributed to the success the field trip organizers had in managing the visits and presenting transportation related information to the participating students. One question on the field trip evaluation form was related to awareness increase with the students. For this particular question, the ratings for the field trips were high (> 3 Point) indicating that the students became aware of some transportation modes that they were not necessarily familiar with before the field trip. Overall, the ratings for the field trips suggest that the program was successful at increasing awareness among the NSTI program participating students.



Figure 2: Average Student Ratings per Session/Workshop as Obtained from Feedback on NSTI Speaker/Session Evaluation Form.



Figure 3: Average Student Ratings per Field Trip as Obtained from Feedback on NSTI Field Trip Evaluation Form.

CONCLUSIONS AND RECOMMENDATIONS

This paper presented the academic and enhancement curriculum prepared by faculty and staff at the Civil and Environmental Engineering Department for the National Summer Transportation Institute (NSTI) hosted at Rowan University. The curriculum prepared by Rowan University faculty and staff aimed at increasing awareness, among minority high school students (grades 9 through 12), of the wide range of transportation modes and potential career opportunities in transportation-related fields. The curriculum involved a variety of activities such as lecture sessions, hands-on laboratory experiments, field trips, and a research competition. The success of the program was gauged using several (i.e., daily-, trip-, and overall- basis) evaluation forms prepared for this purpose.

Based on the results presented and the analysis conducted as a part of this study, the following conclusions were drawn:

- The academic and enhancement curriculum utilized by faculty and staff at Rowan University was successful at achieving the goals of the National Summer Transportation Institute (NSTI) program. This is believed to be the case because the student evaluation forms showed high ratings for the speakers, sessions and workshops, and field trips. These activities have increased the awareness of the transportation industry among the participating students and may have resulted in an increase in their overall interest in the transportation field.
- The average student ratings for both the speakers/sessions and the field trips were high (> 3 out of 5). This is a direct indication that the participating students enjoyed these sessions. Therefore, it can be concluded that the faculty and staff at Rowan University were successful at the overall management of the NSTI program.

Furthermore, the following list provides recommendations for successfully hosting an NSTI program in the future. These recommendations are based on feedback from the NSTI students and the analysis of such feedback:

- It is recommended that universities interested in hosting the NSTI program in the future to utilize a shorter, two-week duration for the program; as opposed to hosting a four-week long program.
- It is also recommended to focus on hands-on and laboratory experiment activities as well as field trips when developing an academic and enhancement curriculum. These activities were popular among the students participating in the NSTI at Rowan University.

ACKNOWLEDGEMENT

The authors would like to acknowledge the USDOT, the Federal Highway Administration, and the New Jersey Department of Transportation/Division of Civil Rights for funding this study through the National Summer Transportation Institute.