

Report No. M-CASTL-2008-03



**A SURVEY OF EDUCATIONAL NEEDS  
AMONG TRANSPORTATION PROFESSIONALS**

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16. Abstract  One of the goals of the Michigan Center for Advancing Safe Transportation throughout the Lifespan (M-CASTL) is to expand the University of Michigan's (U-M) role in continuing education for transportation safety and mobility practitioners. This goal will be accomplished by developing a Professional Education Program within M-CASTL. This Program will aim to fill traffic safety and mobility needs through on-site education, giving lectures and talks, hosting conferences and seminars, as well as web-casting, video streaming, smart boards, and other media. In order to begin planning for development of the Program, it was necessary to better understand the potential educational needs of professionals working in the fields of traffic safety and mobility. To begin this process, a pilot survey was designed and disseminated, followed by a more in-depth survey submitted to a larger audience. The current report describes the process, the results of the survey, and the implications of those results for building the Program.					
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## **INTRODUCTION**

The theme of the Michigan Center for Advancing Safe Transportation throughout the Lifespan (M-CASTL) is safety and mobility throughout the lifespan. M-CASTL strives to better understand the issues related to this theme through two main avenues: research and education. The research findings and educational materials are then disseminated through our technology transfer efforts. Within the educational initiative, M-CASTL has several programs designed to meet the needs of specific groups and provide funding to develop different types of educational materials. These programs include a Global Education Program, a Transportation Safety and Mobility Certificate Program, a Doctoral Studies Program, the Patricia F. Waller Scholarship, an Outstanding Student of the Year Award, and the Professional Education Program. The current report focuses on activities related to the Professional Education Program.

A primary educational objective of M-CASTL is to expand the University of Michigan's (U-M) role in continuing education for transportation safety and mobility practitioners through on-site education, as well as web-casting, video streaming, smart boards, and other media. The Professional Education Program will attempt to meet this objective by providing funding for M-CASTL's experts to give lectures and talks, serve on advisory boards, and conduct other similar activities. Aside from providing for these opportunities, the Program will also develop a more formal process of educating professionals. In order to begin planning for development of this part of the Program, it is necessary to better understand the potential educational needs of professionals working in the fields of traffic safety and mobility. To begin this process, a pilot survey was designed and disseminated, followed by a more in-depth survey submitted to a larger audience. The current report describes the process, the results of the survey, and the implications of those results for building the Program.

## **METHODS**

M-CASTL's Professional Education Program aims to meet the educational needs of professionals already working in various transportation-related fields. For a discussion of all aspects of the Program in general, please see the 2008 M-CASTL Annual Report or our newsletter, the M-CASTL *Messenger*, available on our website (<http://m-castl.org>).

In order to begin planning for development of the formal Professional Education Program, a pilot survey was developed and disseminated to attendees of the first annual M-CASTL Transportation Research and Education Conference. These survey questions, concerning potential educational needs related to M-CASTL's theme, were added to the Conference feedback questionnaire. Conference attendees were chosen as a starting point because many in this group already work within the traffic safety field and therefore represent a portion of the audience that will be targeted by the Program.

The preliminary survey question responses (from the Conference questionnaire) were meant to serve as a basis by which to create a more in-depth survey of educational needs that would poll a larger audience of traffic safety professionals. Data from the Conference were examined, and a list of potential educational needs was created. This list was used as a starting point while creating the next version of the survey. Additional questions were also added to better understand the nature of the educational needs of our respondents, and the group's preference for how the information should be provided (i.e. in-person classroom format, web-based lecture series, etc.). A question was also added to assess the interest of the target audience in learning more about the "core competencies of highway safety professionals." According to the Transportation Research Board (TRB), these core competencies "are intended to provide the foundation of baseline knowledge for safety education and professional development... [and] represent the minimum set of core knowledge, skills, and abilities to begin functioning effectively in the highway safety field." These competencies were identified by a TRB joint subcommittee and work by Pennsylvania State University. Following creation, the final version of the survey was then converted for use on [surveymonkey.com](http://surveymonkey.com) to aid in ease of application.

Because the purpose of the Professional Education Program is to educate those already working as transportation professionals, the first step in survey dissemination was to identify relevant organizations at which appropriate personnel were employed. Members of M-CASTL's Advisory Board were used as a starting point because this group is largely comprised of local traffic safety or mobility organizations (i.e. Michigan Department of Transportation, Michigan Department of Community Health, automobile manufacturers). In addition to these organizations, individuals from several other key traffic safety and mobility companies, foundations, and government agencies were also identified and added to an email list. An email was then sent to the identified individuals that included a direct link to the website where the survey was hosted. In total, 287 traffic safety and mobility professionals were invited to participate. The survey website remained open for respondents for about a month after the initial email to allow for as many responses to be collected as possible. One area of the survey also encouraged users to send the survey link to others that might be interested, so keeping the survey open also allowed for any additional people to respond. In total, 31 people responded to the

email request. This number of responses was initially disappointing given the much higher number invited to participate, but it is likely that these people are most truly interested in professional education, and M-CASTL's program development in particular. This self-selection will allow us to focus our efforts on the individuals and organizations that have the biggest stake in maximizing the potential of the Program.

## **RESULTS**

There were three main issues assessed by the professional education survey: educational needs among current traffic safety professionals, interest in learning more about the TRB core competencies, and understanding the respondents' preferred format for receiving educational materials.

Shown in Table 1 are the overall results of the potential topic areas of educational needs among our target group<sup>1</sup>. To assess this issue, the topics determined by the Conference survey were listed, and respondents were asked to mark their top three choices (i.e. which topics would be most beneficial about which to learn). As can be seen in these data, the topics most important to our respondents were screening of older drivers, issues related to dementia and driving, and technology and driving. To ensure that there were not other important topics not explicitly identified during the pre-survey, an open-ended question was included to allow respondents to list other important topics; these data are included in Table 2. As can be seen in this table, some of these topics were unique, while some represent overlap with already identified educational topics. Because the purpose of this survey was to identify needs most relevant to the largest number of professionals, the topics identified as highest priority will be considered first, with other topics considered later, particularly when creating educational programs for specific job categories where these topics were most salient.

<b>Rank</b>	<b>Educational topic</b>	<b>Frequency</b>
1	How to screen older drivers at risk	45.2%
2	Dementia and driving	41.9%
2	Technology and driving	41.9%
4	Developmental psychology as it relates to driving	38.7%
5	Distracted or drowsy driving	35.5%
5	Transitioning from driving to other transportation modes	35.5%
5	Traffic engineering and traffic flow	35.5%
8	Other states' approaches to older drivers	29.0%
8	Traffic safety research methodology and statistics	29.0%
10	Aggressive driving	22.6%
11	Drunk driving	19.4%
11	Information on driving rehab	19.4%
13	Sustainable/livable communities	16.1%
14	Road rage/aggressive driving	9.7%

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<sup>1</sup> Due to the low number of respondents, statistical analyses were not conducted on the data. Only rank, frequencies, and means are provided where appropriate.

<b>Table 2. Additional Educational Topics</b>
Bicycling, rideshare, public transportation use
I would assume aggressive/distracted driving would encompass drunk driving and road rage issues.
Visual impairments and driving in teens/young adults with developmental disabilities
Economic matters related to elder transportation
Underage drinking
Statistical evidence regarding benefits of driver education/driver training
Techniques for teaching teens
Non-transportation safety professional's perspectives on culture and safety culture
Use of quick clearance for non-recurring traffic incidents
Teen driving
Determining readiness to drive in the learning disabled population
First Responder communication and Safety
Team approach to traffic issues MDOT, Local Road Commissions, Police, Fire, and Tow Services

All of the respondents that took part in the survey work in the traffic safety and mobility field, but there is some variation in the type of work done by these individuals. To examine any potential differences in educational needs by job category, the top three choices were examined by this factor, with the results shown in Table 3. As can be seen in this table, each job category had a different topic ranked as their top choice, but the general trends followed those shown in Table 1. Topics related to older drivers were rated highest by health professionals and those working in industry, with traffic engineering and technology rated the highest for holding positions in non-profit and police organizations. Those working in state government listed distracted and drowsy driving as the most important educational topics.

<b>Table 3. Top 3 Choices by Job Category</b>			
<b>Job Category (N)</b>	<b>Rank</b>	<b>Educational topic</b>	<b>Frequency</b>
Health Professionals (6)	1	Dementia and driving	5
	2	Developmental psychology as it relates to driving	4
	2	Transitioning from driving to other transportation modes	4
Industry (8)	1	How to screen older drivers at risk	5
	2	Dementia and driving	4
	3	Developmental psychology as it relates to driving	3
Non-Profit (5)	1	Traffic engineering and traffic flow	5
	2	Technology and driving	4
	3	[4-way tie]	3
Police (4)	1	Technology and driving	3
	1	Traffic engineering and traffic flow	3
	2	Distracted or drowsy driving	2
State Government (8)	1	Distracted or drowsy driving	4
	2	Aggressive driving	3
	2	Developmental psychology as it relates to driving	3
	2	How to screen older drivers at risk	3

The survey also assessed respondents' interest in learning more about the five core competencies of highway safety professionals identified by TRB. As shown in Table 4, understanding the factors contributing to highway crashes, injuries, and fatalities, as well as developing effective interventions and countermeasures to deal with these issues was identified as most important by our respondents. This result is not surprising because many of our respondents work in a very practical capacity in the highway safety field, and a better understanding of this competency will lead directly to reduced morbidity and mortality, the direct goal of many of these organizations.

<b>Rank</b>	<b>TRB Core Competencies</b>	<b>Frequency</b>
1	Demonstrating the knowledge and skills to assess factors contributing to highway crashes, injuries, and fatalities; identifying potential countermeasures linked to the contributing factors; applying countermeasures; and implementing and evaluating the effectiveness of the countermeasures (i.e. evaluating the effectiveness of the implemented intervention/countermeasure using appropriate statistical techniques in safety management).	15
2	Understanding the management of highway safety as a complex multidisciplinary system (i.e. identifying how crash-contributing factors interact; explaining the "Four E's" of traffic safety: engineering, education, enforcement, and emergency medical services).	7
2	Understanding the origins and characteristics of traffic safety data and information systems to support decisions using a data-driven approach in managing highway safety (i.e. describing the specialized national databases available for safety management -- e.g., FARS, GES, CVISN, and WISQARS -- and how they address deficiencies; accessing and using traffic safety and public health data systems for identifying and tracking crash trends, targeting high-risk groups, and planning programs at the national, state, and local levels).	7
4	Being able to develop, implement, and manage a highway safety management program (i.e. utilizing scientific management techniques in planning, implementing, and evaluating highway safety programs).	6
5	Understanding and being able to explain the history of highway safety and the institutional settings in which safety management decisions are made (i.e. identifying the safety aspects of major transportation legislation; explaining and providing examples of the importance of highway safety relative to other transportation priorities).	3

The final goal of the survey was to assess the respondents' preferred format for receiving educational materials. The five choices are listed in Table 5 along with mean rating of each choice. The choices were presented on a scale from 1 to 4, with 1 representing "very dissatisfied" and 4 representing "very satisfied." As is shown in the table, the formats that received the highest ratings are those that involve in-person contact. These formats were followed by others that are not conducted in-person, but allow for interaction between the expert and those receiving the education. However, the respondents stated that they would be either somewhat satisfied or very satisfied with all of the possible choices. While it is understandable that the in-person choices would be rated the highest, these choices would also be most expensive to implement, and would likely reach the smallest audience. In further developing the Professional Education Program, all of these issues will have to be weighed in the decision of how to proceed. Table 6 shows the results of the preferred educational format by respondents' job category (top 2 choices only). Respondents from most job categories still preferred in-person formats with the exception of those in industry. When developing further educational materials, this potential difference will be further explored with those working in this category.

<b>Format</b>	<b>Mean</b>
Seminars and conferences	3.56
In-person classroom	3.36
Web-based live seminars	3.22
Web-based educational modules	3.15
Web-based lecture series (e.g. videos)	3.11

<b>Job Category</b>	<b>Rank</b>	<b>Format</b>	<b>Mean</b>
Health Professionals	1	Seminars and conferences	3.67
	2	In-person classroom	3.40
Industry	1	Web-based educational modules	3.71
	2	Web-based lecture series (e.g. videos)	3.29
Non-profit	1	Seminars and conferences	4.00
	1	Web-based live seminars	4.00
Police	1	Seminars and conferences	4.00
	2	In-person classroom	3.33
State Government	1	Seminars and conferences	3.50
	2	In-person classroom	3.43

## **DISCUSSION**

As described earlier, the survey of traffic safety and mobility professionals had three primary goals: to assess the potential educational needs of this population, to assess interest in learning about the core competencies of highway safety professionals identified by TRB, and to understand the respondents' preferred format for receiving educational materials. The results of the survey provide a good starting point for understanding the educational needs of this group. The topics identified during the Conference pre-survey provided a good overview of the educational needs of this population to which the current survey added. As we continue to build the formal portion of the Professional Education Program, the survey results will serve as a guide in prioritizing which topics to consider first.

As mentioned earlier, the educational topics most important to our respondents were screening of older drivers, issues related to dementia and driving, and technology and driving. When considering the highest priority topics by respondent's job category, topics related to older drivers were rated highest by health professionals and those working in industry. Traffic engineering and technology were rated the highest by those holding positions in non-profit and police organizations. Those working in state government listed distracted and drowsy driving as the most important educational topic. While there is some overlap in these ratings, there are clear differences based upon the relative importance of a topic and one's job responsibilities. These results suggest that differences in work may lead to different gaps in knowledge as well as different educational interests. As M-CASTL moves forward in developing the Professional Education Program, a wide variety of educational materials should be developed to meet these needs, and these materials should be tailored to the most interested groups.

Results related to the core competencies for highway safety professionals also provide interesting information related to the educational needs of this group. The topic chosen most often by respondents was the competency most related to practical application of highway safety issues. This is not surprising, given that most of these individuals work directly with motorists or in injury prevention. This result suggests that educational programs for this group should include proven countermeasures that can be implemented in practical ways to reduce injury and deaths among motorists. This group would also likely be receptive to a "best practices guide" or a seminar designed to teach the group how best to implement or evaluate a new promising intervention.

The final issue assessed by the survey was the respondents' preferred format for receiving education. Formats that involve direct interaction between the expert and the respondent were the most preferred, however all listed methods were rated very highly (the lowest mean score was 3.11 out of 4.00). When considering how to implement a specific educational program, M-CASTL should consider the content, the audience, the anticipated impact (i.e. number of people) of the education, as well as cost when determining which method to utilize. It is likely that within the Professional Education Program various educational materials and exercises will be developed using several different methods of dissemination.