



## Safety Center’s Level 3 Training Evaluation

**By Safety Center Team Members: Keith Trimels and Ilse van Goth, IDT Group  
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### Identifying the training evaluation methodology

Congress authorized the Safety Center to move the needle of rural transportation safety – supporting the nationwide transportation goal of Towards Zero Deaths. FHWA clarified that Safety Center goal as furthering the safety culture within organizations responsible for non-urbanized transportation networks.

To achieve the cultural shift, FHWA directed the Safety Center to provide transportation professionals across the discipline spectrum with the most effective safety tools and strategies currently available. So we set out to cost-effectively create and deliver trainings that accelerate change – and make it possible for agency managers, planners, operations staff and maintenance crews to do their jobs better the very next day.

But initiating a cultural shift requires more than expanding safety knowledge throughout the rural transportation industry. It demands individuals take their new knowledge and apply it to their jobs, then further transform their organizational culture by sharing that knowledge with colleagues. Therefore, we chose to measure the Safety Center’s training effectiveness at a level beyond what is traditionally used in the transportation industry.



**Figure 1 - Kirkpatrick’s Four Levels of Learning**

Typically, transportation training is evaluated at Kirkpatrick Level 2 – Learning as seen in Figure 1. This measures how well the participants were able to internalize the knowledge and skills conveyed in the training.

Conducting an evaluation at Kirkpatrick Level 3 – Behavior level measures to what extent the participants have applied or shared their new knowledge and skills. This is more indicative of the cultural shift the center seeks to produce. But it had to work across the multiple training delivery methods used by the Safety Center including webinars, instructor-led training (ILT)

and video.

So despite the additional time and costs associated with evaluating training at an ultimate Kirkpatrick Level 3, the team decided it was in fact the best way to measure the Center’s impact. Our challenge then became conducting an objective evaluation within the logistics, time and budget constraints under which the Safety Center operates.

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## Evaluating ILT and webinars

To achieve this goal, the team chose a two-stage survey-based evaluation for webinars and ILT. The first stage what is a traditional Kirkpatrick Level 2, while the second stage is our adapted version of Kirkpatrick Level 3.

The Level 2 evaluations were conducted using a combination of true/false and multiple choice questions to assess participant mastery of each training event's stated learning outcomes. The evaluations were conducted by electronic survey to all registered training event participants.

The Level 3 evaluations consisted of a self-assessment of knowledge and new skills application and sharing conducted three months after the training event. While the self-assessment doesn't follow the traditionally-used objective observation methods often associated with Kirkpatrick Level 3, it does capture the spirit and intent of a Level 3 evaluation. Most important, it provides us with an indicator of a cultural shift within target organizations while honoring the Center's constraints.

For webinars and ILT, the Safety Center conducts the survey approximately three months after the training, and it follows a five-question format:

- Question #1 screens the survey participants to ensure they attended and remember the training.
- Questions #2 and #3 quantitatively measure at what level the participant has applied the new knowledge, as represented by the learning outcomes, to their job responsibilities.
- Question #4 quantitatively measures how broadly the participants have shared that knowledge with their colleagues.
- Question #5 collects qualitative feedback on how the knowledge has been applied and shared.

The following are examples of the five questions from one of the Safety Center's webinars:

1. Did you attend the Rural Safety Center's "Rural Signing and Marking Resources" training event that was held live in February 2016?
2. I can identify critical safety and liability issues in signing and marking.
3. I can identify the benefits of signing and marking maintenance.
4. With how many members of my organization have I shared my knowledge of signing and marking safety or liability issues, or the benefits of signing and marking maintenance?
5. Please provide examples of signing and marking knowledge you have applied on your job or shared with other members of your organization.

## Evaluating video-based events

Because asynchronous video-based trainings such as YouTube do not capture viewer ID, we could not use a survey evaluation. That means capturing a Level 2 evaluation is not possible.

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But we still wanted to identify an indicator of Level 3 application and sharing, so we did an exhaustive literature review. After extensive research, the team determined that video viewership over time could provide a *qualitatively-correlated* measurement for evaluation.

Therefore, we decided to use a three-month window of viewership for evaluation to create a comparable time duration with the webinar and ILT training events. We start by capturing the total viewership of the instructional video at the following points in time: **Day 1, Day 3, Day 7, Week 2, Month 1** and **Month 3**. Then, we plot the results over time to create a trend line. The shape of this trend line indicates how extensively the video was shared.<sup>1</sup>

## Overall training results through year 2

To conduct the ultimate analysis at Kirkpatrick Level 3, there is a three-month window between the training event and the follow-up Level 3 data collection. Therefore, we've analyzed the data for training events from September 2015 through July 2016, which equates to an October 2016 Level 3 evaluation.

The training priorities identified by the Stakeholder Group, with input from FHWA, drove most of the Safety Center's training during this period to webinars. Of the ILT training conducted by Center personnel, all were conducted in conjunction with other transportation organizations. As a result, we did not always have access to the attendee list for follow-up surveys. And when we did, the number of responses were so small as to be statistically invalid. So our training analysis through year 2 includes only webinars and videos.

## Level 2 for webinar events

As Figure 2 shows, every training event achieved average participant mastery above the typical 70% competency threshold, with the 79.8% in July being the lowest.

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<sup>1</sup> Keith A Trimels and Ilse van Goth. *Evaluating the Effectiveness of Video-Based Instruction*. IDT Group. April 6, 2016.

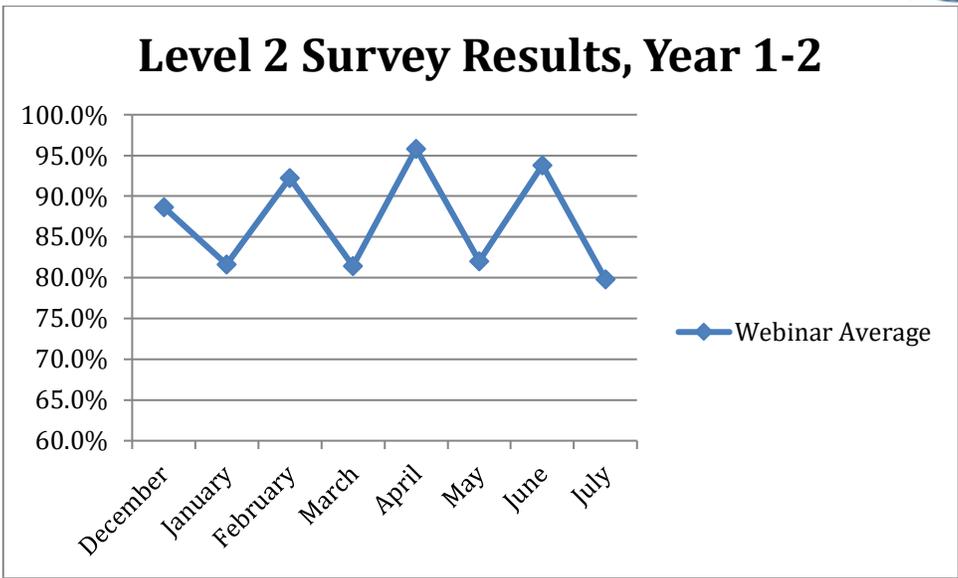


Figure 2 - Average Level 2 Mastery Measurement

An obvious pattern is the saw tooth nature of the graph, with results alternating between over 90% to just over 80%. In analyzing the data further, the higher levels of mastery were for more technical or engineering-centric courses while the lower ones were for conceptual-type events.

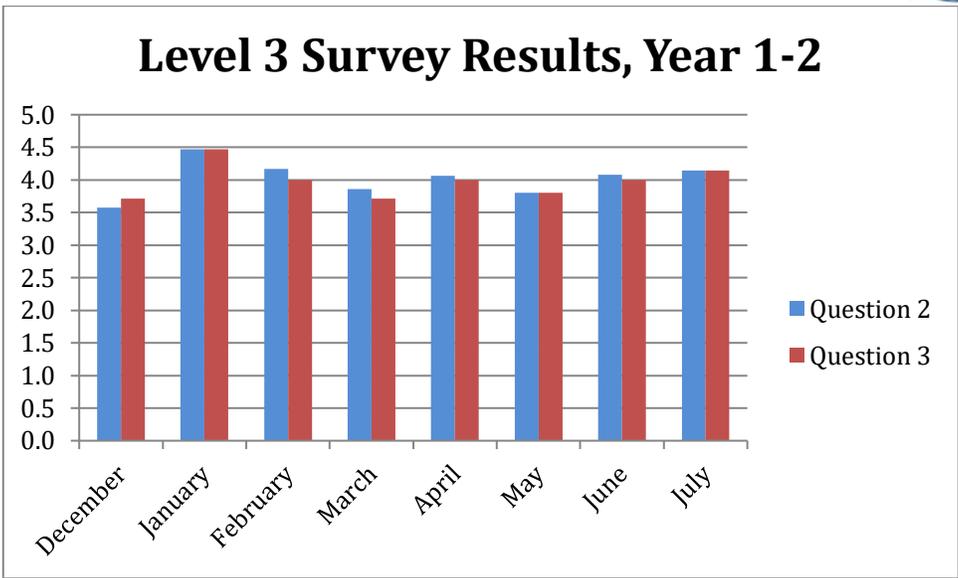
This is reasonable given the technical skew of the average training event participant, and the applicability of these technical courses to his or her job. In addition, it becomes easier to define and test discrete technical facts compared to policy-level concepts.

**Level 3 for webinar events**

For the Level 3 responses to questions #2 and #3, a 3 rating equates to *neutral*, 4 to *agree* and 5 to *strongly agree*. And those ranges are applied to questions that measure the participants' application or sharing of their knowledge upon returning to their responsibilities.

As Figure 3 shows, the training events scored in the 3.5 – 4.5 range. That means that overall, the participants were consistently applying or sharing their new knowledge.

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**Figure 3 – Self-Assessed Application and Sharing of Learning**

Question #4 sought to quantify the breadth at which the participants shared the information they gained with their colleagues. The answers represented ranges of sharing from none to more than 10 colleagues.

Over eight webinars, the sharing ranged from a statistical none to 5 colleagues. The average share over the entire analysis was approximately two colleagues – meaning for each attendee, two additional transportation professionals were exposed to the information.

The number of webinar participants ranged from a low of 38 to a high of 114, with an average of 81 participants per webinar throughout the analysis period. When combined with the responses to question #4, we can extrapolate that each webinar conveyed the information to 243 transportation professionals.

### Level 3 for video-based events

As previously mentioned, our literature review found no other instances of our qualitative analysis approach having been used to measure video-based events for Level 3. But as noted in the IDT Group write-up, this approach has been used to measure marketing effectiveness.

We also have a unique analytical situation for the Introduction to Road Safety Culture video. Two identical videos were released on two different days; video #1 was released with no email marketing while video #2 received our normal notification emails. The results are stark.

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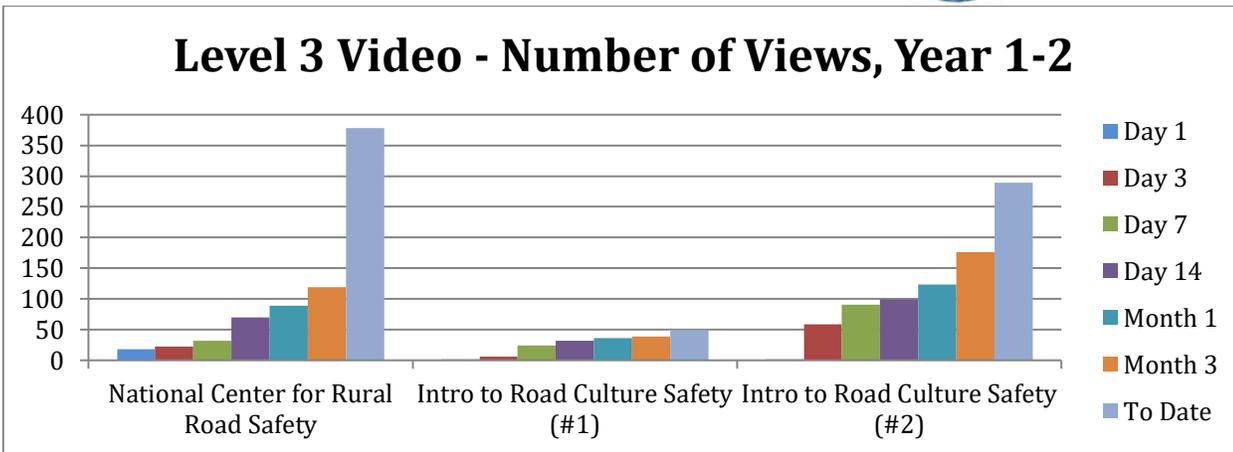


Figure 4 – Video-Based Training Views Over Time

As Figure 4 shows, video #2 had over 4x the views at the 3-month mark as video #1. Clearly, push marketing is required to maximize the video-based training distribution.

Also of note is the relatively linear, increasing slope of viewers for the Center's introductory video as well as Safety Culture video #2. As noted in *Evaluating the Effectiveness of Video-Based Instruction*, this indicates a video that is being shared by previous viewers.

**NOTE:** It is not possible to directly measure how video viewers may or may not have applied the knowledge in their workplace.

With that acknowledgement, the two videos that were accompanied by an email marketing campaign have received 378 and 289 total views as of October 28, 2016. This compares favorably to the 243 average participants reached by each webinar when including the participants combined with the number of colleagues they shared the webinar information with.

### Year 3 training improvements

The analysis shows that for the webinars, the participants are retaining a high level of learning, and are consistently sharing it with their colleagues. And for videos, the number of views is much larger when the video is launched with a structured marketing campaign.

Overall, this means the quality of the Center's training efforts have yielded results. But for the Center's third year in operation, we plan on making adjustments to extend our outreach efforts.

We will modify our marketing of both webinar and video-based training events. By integrating innovative email marketing techniques as well as possible joint-venture email relationships with other transportation organizations, we believe we can expand our contacts per training event. We have also recognized the importance of expanding the Center's email list. This represents the most efficient way to reach transportation professionals who can benefit from the Center's offerings – and for us to continue to increase the reach of our training efforts.

An example of a technique we will use to deliver additional training and expand the Center's footprint is through the use of job aids. For busy transportation professionals, downloadable

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tools such as checklists, reminders, how-to's, etc. are often more convenient than scheduling an ILT course, a webinar or even at 15-minute video. And job aids are more likely to connect with kinesthetic learners than a webinar or video-based training event.

For job aids that are developed as part of a webinar, an email could be sent out post-webinar to the Center's entire list. If done correctly, it could expand the reach of useful information and even reinforce the availability of viewing the webinar on-demand.

For standalone job aids, they could be used to not only expand knowledge throughout the industry but also to grow the Center's mailing list. By using a gated approach that requires entering a name and email to download the job aid, the Center can add professionals who may benefit from existing or future Center training.

With these tools, it's not possible to conduct a true Level 3 evaluation. However, we can use a follow-up survey to obtain qualitative data related to how useful those who downloaded the job aids found them, and even how many folks they may have shared them with.

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