



**Forensic Technology**  
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## **Capturing Key Research Outcomes Using Short Video Vignettes: A Guidance Document**

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*Advancing Technology | Sharing Knowledge | Addressing Challenges*

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## Introduction

This document outlines the process of designing engaging video vignettes to disseminate results from complex research projects in a manner that is easily digestible by practitioners. More specifically, we describe the process we used to capture the key findings and industry take-aways from our research project, which tested the application of field-portable technologies to fire/arson investigation. The intent of our short video vignettes is to provide fire investigators the “so what” of the project and offer some resulting best practices. The videos are also intended to promote the research effort with a focus on improving the efficacy of fire investigations using field-portable technologies. Making these videos freely available via the web will increase access to the fire investigation community and exposure to existing podcasts and published research. If an intended audience never sees the outcomes in a format that allows them to find and digest research, then research results will have only a limited impact.

The academic rigor of applied research requires adherence to the scientific method with a detailed explanation of the processes, methods, data analysis, and outcomes. The majority of public safety practitioners (e.g., law enforcement, fire service, hazmat technicians) have limited time and desire to fully digest such research projects. For researchers, planning and facilitating the research project is only half the battle. Once the project is complete, they need to know the best ways to promote and disseminate the outcomes. In this community, the process should culminate with presentations at conferences and symposia and articles published in professional, national publications common to the field. Additionally, this document will assist future researchers in producing and promoting short video vignettes as an alternative and supplemental means of dissemination.

## Key Roles

**Research Project Coordinator:** This person facilitates the process by involving the right Subject Matter Experts (SMEs) and assisting the videographer with documenting the key take-aways. They serve as the executive director to the videographer and coordinate all aspects of scheduling, scripting, and providing data and are responsible for other logistical needs necessary to achieve all the specified deliverables.

**Videographer:** This person is the expert on capturing and formatting the material as presented by the research SMEs. The videographer offers processes, methods, and platforms that promote engaging video content that is visually appealing to the community of interest.

**Research SMEs:** These are knowledgeable, capable, and credible practitioners. They participate in the research effort and affect research outcomes. They are close to the methodologies implemented and the research results. They provide key take-aways to share with other practitioners. Speaking the same language, they tell their story and explain why the research is important.

## **Process for Results**

Once the outcomes of the research have been verified and the data recorded, the Project Coordinator, key researchers, SMEs, and a competent and capable videographer/producer should begin the planning process for capturing the outcomes using a series of short 3- to 5-minute videos. This keeps the attention span of the viewer and efficiently presents the information in a more enjoyable and more frequently viewed format.

At this stage of the process, the videographer advises on where, when, and how to best capture the participants and the supporting video clips and photography. In consultation with the Project Coordinator, the videographer may use several approaches. One method is to bring key researchers and SMEs into a studio where the environment is more controlled. Alternatively, the team could bring participants into the studio via a web-based video call that can be recorded. This is not ideal for video and sound quality but may be required because of travel constraints and other circumstances.

To achieve the highest quality results, the videographer on this project preferred on-site taping at his studio at Utah Valley University (UVU) in Provo, Utah. When travel to UVU became problematic, we recorded two SMEs via a web-based conference call so they could participate in the short video production. For this project, we required 3 days of studio time for capturing video with research SMEs.

The videos needed to communicate important outcomes and statements about smart practices. The project manager ensured each participant communicated the results through measured and planned scripts or outlines. We provided subjects of the video with a few approaches to learning their lines. First, participants could simply be extemporaneous and respond to a few initiating questions, which the videographer would later stitch together. Second, participants could read a written script through a teleprompter, although this method is not ideal for everyone. Some participants sounded too “wooden” or used an unrealistic cadence, sounding like they were reading. Another approach allowed the videographer to capture an actual discussion between participants who spoke of the process and outcomes in a conversational setting.

The videographer’s processes, equipment, experience, and capabilities will drive the quality of the final products. A good videographer, which we certainly had for this production, can cover small mistakes and make anyone seem poised and professional both visually and audibly during post-production. With professional production methods and capabilities, they can eliminate distractions and keep the viewer focused on the outcomes rather than the person and their presentation abilities.

## **Process Phases**

We captured the video used for the vignettes in roughly four phases. Phase I consisted of several design meetings with SMEs in which they offered their perspectives and then submitted content they felt was important to their individual video. The SMEs met together

virtually on three separate occasions with individual follow-up meetings with the Project Coordinator to coordinate dates with the videographer for on-site video shooting. Phase II included the actual on-site studio work of capturing video of the SMEs, which took 4 days with an additional 5th day to finalize the product. Phase III involved the videographer's editing and post-production time. This phase also involved the Project Coordinator and research SMEs to approve and suggest further editing and reviews. This phase took approximately 60 days. Phase IV involved the submission of the final video products and the development of this guidance document.

## **Videographer's Notes**

RTI International (RTI) commissioned the Utah Fire and Rescue Academy (UFRA), which is part of Utah Valley University, to create a video series highlighting a process that utilizes gas chromatography/mass spectrometry (GC/MS) devices in fire and arson investigations. The Project Coordinator, David Matthew, arranged a pre-production meeting with UFRA Video Producer Daniel DeMille and UVU Professor Andy Byrnes to go over the process and plan the production schedule.

Production of the graphics and virtual "green screen" set began in mid-October 2021. We created the graphic look from scratch with Adobe After Effects, where graphic templates were created to be used in the Adobe Premiere Pro editing software. We made the virtual set from actual photos taken around the UFRA campus. Filming of David Matthew, Dr. John DeHaan, and the "Doug and Ross" Zoom interview took place the week of October 11, 2021, at the UFRA production studio in Provo, Utah. We filmed Mr. Matthew and Dr. DeHaan in front of a green background in 4K HD (3840 × 2160) utilizing a Red Scarlet digital motion picture camera and a Sony a7sii DSLR camera. We recorded audio separately on a Sound Devices 774T digital audio recorder using a Sennheiser G4 wireless microphone and a Sennheiser MKH 416 boom microphone.

Mr. Matthew and Dr. DeHaan used a teleprompter system to deliver their scripts. Dr. DeHaan also voiced over several short video clips, which were screen captured on an iMac computer, where he pointed out some of the characteristics of the GC/MS printouts. The Zoom interview used two iMac computers to screen record each individual in the call (i.e., Doug Byron in Georgia and Dr. Ross Harper in Oklahoma) separately. This provided a discrete video clip of both Mr. Byron and Dr. Harper, further aiding the editing process. Additionally, Zoom has the ability to record discrete audio tracks of each participant, which was helpful during the editing process by allowing better control over the sound from each person in the interview.

Mr. Matthew provided a live, off camera, introduction and a closing to guide Doug and Ross during the recording. Later, Mr. Matthew recorded his introduction and ending on camera at the green screen. Dr. DeHaan's questions had been recorded earlier, and the audio portion was played back live during the interview allowing Mr. Byron and Dr. Harper to respond appropriately.

Editing via Adobe Premiere Pro and After Effects began later that week, and the videos started to take shape. Mr. Matthew and Dr. DeHaan provided media (e.g., photos, videos, charts and graphs) that they had obtained over the course of the project to insert into the videos. A few weeks later, Rick Jones was able to visit the UFRA studio in Provo to film his interview in front of the green screen, similar to the interviews of Mr. Matthew and Dr. DeHaan.

The editing process took place during the month of November, with the project SMEs providing and reviewing initial drafts. We added music from Universal Production Music, and additional edits and updates were made throughout November and into early December, when the final reviews took place. Once the videos were approved, they were exported utilizing the Adobe Media Encoder. Exported masters were provided in the Apple ProRes 422HQ format (1080p 24). “YouTube” quality (1080p Full HD-16Mbps) H.264 “Final” videos were also provided, and all was uploaded to Box (a cloud storage system used by UVU) for distribution.

We produced four videos, totaling 25 minutes 27 seconds of finished content:

- David Matthew’s GC/MS Project Overview (7:30)
- Dr. John DeHaan’s “Forensic Scientist” perspective (5:28)
- Rick Jones’s “Fire Investigator” perspective (5:43)
- Doug Byron and Dr. Ross Harper’s “Fire Debris Laboratory” perspective (6:46)

## **Conclusion**

To achieve maximum impact, research projects should consider using social media and short video vignettes to reach end users in a more engaging and meaningful way. Academic peer-reviewed research is often published in scientific journals that require a subscription and therefore is not readily accessed—specifically by public safety practitioners. Thus, meaningful changes to procedures or policy are less likely to be adopted. Tripathy et al. (2017) said, “In addition to published articles, preprints, conference papers and posters, presentations, reports, working papers, protocols, preprint copy, research data and videos are all evidence of your research activity. By making them all publicly accessible you can increase visibility, preserve your output and make it available for future use.”

If researchers only use the typical resources available for presenting cutting-edge research (e.g., scientific journals and conference presentations) but the field practitioners who are impacted by the results do not regularly access those resources, then the research outcomes are severely diminished. Research projects designed to impact public safety field practitioners, and practitioners in other disciplines who do not regularly consume scientific literature, need to seek alternative methods to reach their intended audiences.

## Reference

Tripathy, J. P., Bhatnagar, A., Shewade, H. D., Kumar, A. M. V., Zachariah, R., & Harries, A. D. (2017). Ten tips to improve the visibility and dissemination of research for policy makers and practitioners. *Public Health Action*, 7(1), 10–14. <https://doi.org/10.5588/pha.16.0090>

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