

INTERDISCIPLINARY INNOVATION WORKING GROUP (I-IWG)

Developing Effective Communication Techniques to Relate Graduate Level Research toward Informal Educational Audiences and Improving Workforce Development Understanding

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Dates of Workshop: October 21-22, 2015
Fidel Student Center, New Mexico Tech

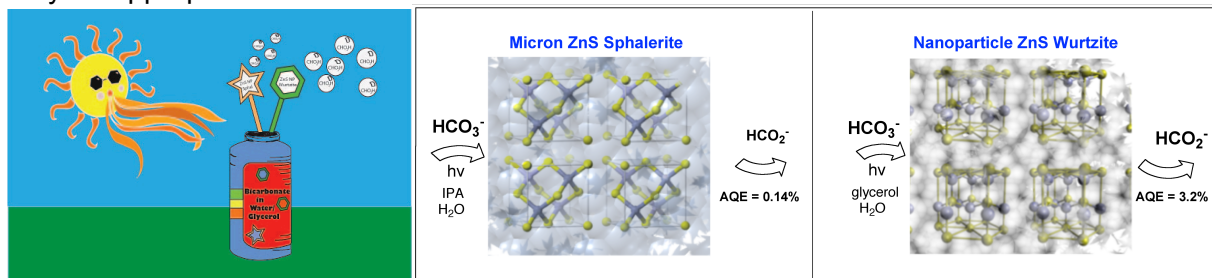
Objectives

Key objective for the IWG involving effective communication include (1) engaging cross-talk between science team members and those involved with informal education and workforce development. (2) Gain understanding of highly effective pedagogical presentation skills by comparing researchers current skills in generating helpful graphics of their science projects in easier-to-understand representations as well as developing high quality video production and video distribution of research activities. (3) Finding solutions toward overcoming communication and information transfer gaps. (4) Find resources within the state that can assist in improved graphical representations of research findings as well as involve graduate and undergraduate training toward relating their research in both eye-catching graphical content as well as video production. Ultimately, these defined outputs are likely to increase background knowledge of the ongoing research activities relevant to the Energize New Mexico program.

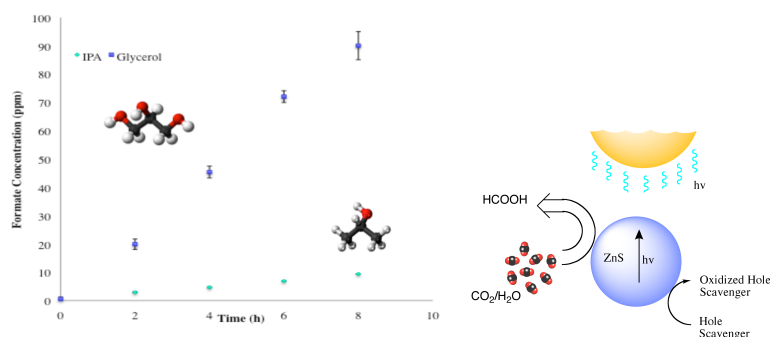
Key Ideas Discussed

Animation and other video techniques – the IWG initially met for lunch and watched the PBS Nova documentary “Uranium: Twisting the Dragon’s Tail” by narrator Derek Muller, Ph.D. Physics. After the viewing, the group discussed effective techniques from the show and how artfully the explanation of radioactivity was portrayed. The group agreed that our goals would not come close to this high quality production, but we were inspired and hopeful to utilize some elements of this production style.

Graphical representation - Albeit a small group in attendance, organizer Michael Heagy and Omar Holguin were among the participants who shared their experiences in table of content compositions with the IWG. Two sets of graphical representations were presented to the group by Heagy to obtain responses and feedback on the information conveyed in each panel. The IWG participants commented on their impressions of the information and which context each may be appropriate.



Effect of ZnS crystal structure and hole scavenger on the photocatalyzed reduction of bicarbonate to formate Daniel P. Leonard and Michael D. Heagy*



Next, Mr. Austin Madrid from JAK Media LLC provided a 1 hr lecture on video do's and don't in generating short video clips for a general audience. He demonstrated some of his productions to the IWG participants and explained some of the simple techniques available in Adobe Premier, Applie iMovie such as transition, dissolves, free images and music, that can easily generate great impressions to the viewer.

Video design and recording - During the first afternoon and dinner, conversation was directed towards a theme for the IWG's video, as members from the Solar research team and Bioalgal were present, the video theme turned towards describing the absorption of light and how that correlates to solar energy along with portraying an optical absorption spectrum. In addition, the script highlighted one of the NM EPSCoR scientists, Prof. Mahinda Ranasinghe, who received NSF EPSCoR funds to purchase an ultra fast laser spectroscopy instrument. So a brief interview was conducted on camera (Apple iPhone) and Dr. Ranasinghe explained to NMT graduate student Hanqing Pan, the basics of his laser system. The final video production included a good mix of free video clips, our IWG animation describing optical absorption, a three-view or perceptive video interview with Dr. Ranasinghe and interesting music to entertain the viewer.

The latest video version can be obtained by visiting the link <https://youtu.be/oYmN0nKIL6Q>

Knowledge Generated

Overall, the IWG left the meeting with a number of new experiences and new background knowledge. These outcomes included:

- (1) Software used in generating simple to complex table of content graphics
- (2) Story board generation of a 3-5 minute video
- (3) Script writing for our student interviewer to pose during the Q/A session. How to write short questions that allow for brief and concise answers.
- (4) Video software manipulation of programs such as Adobe Premier
- (5) Voice recording and over-dubbing of audio onto a video clip
- (6) Illustration to all IWG of one important yet difficult component to understand: laser spectroscopy

Future outcomes of this IWG on Effective Communication include the following activities

- (1) Sharing of the final cut video product with other components of the NM EPSCoR research teams as well as Workforce development team.
- (2) Utilize the final video to prompt other research teams to think about their research in terms that a general audience can understand and appreciate.
- (3) For the next NM EPSCoR all hands meeting, a short video contest is being sponsored to promote all of the science research teams to produce similar presentations.

IWG Effective Communication Participants

Alice Loy Co-PI	Global Center for Cultural Entrepreneurship
Natalie Rogers	NM EPSCoR
Selena Connealy	NM EPSCoR
Omar Holguin	NMSU
Hongmei Luo	NMSU
Hanqing Pan	(graduate student NMT)
Austin Madrid	JAK Media LLC
Mahinda Ranasinghe	NMT
Michael Heagy	NMT

Images from the IWG



Austin Madrid discusses video editing with Hanqing Pan



Mike Heagy and Selena Connealy listen as Austin explains the importance of visual communication