

# UNIVERSITY OF UTAH NUCLEAR ENGINEERING PROGRAM'S METAMORPHOSIS OF PUBLIC PERCEPTION OF NUCLEAR ENERGY

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## ABSTRACT

Recent polls in the United States conducted by the Nuclear Energy Institute (NEI) have indicated that as the public awareness of nuclear energy's benefits grows, so too does public support. The University of Utah Nuclear Engineering Program (UNEP) has undertaken various actions, outreach and programs to work towards changing the public perception of nuclear energy both locally and globally. UNEP is using the following three areas to enhance the public perception: social media, outreach to younger generations, and tours and training on our facility. UNEP is a leader in nuclear safety culture and has reached out to the public and other institutions in sharing and training on those concepts. In educating the public using these three areas on the innovative and current happenings with nuclear energy is helping to alter the public's perception of such an important energy source for the world.

## 1. Introduction

Recent polls in the United States regarding nuclear energy have demonstrated some interesting correlations [1], [2], [3], [4]. An NEI survey conducted in the spring of 2016 concluded that among those who felt very well informed about nuclear energy, three times as many strongly favored nuclear energy (54%) as strongly opposed it (18%) as seen in Figure 1 [2]. The surveys also demonstrated that public opinion on nuclear energy is highly changeable and easily persuaded. This is due to the fact that the majority of Americans do not feel they are well informed about the subject. This leads to the idea that if the public were better informed and educated about nuclear energy, the support and perception would be improved.

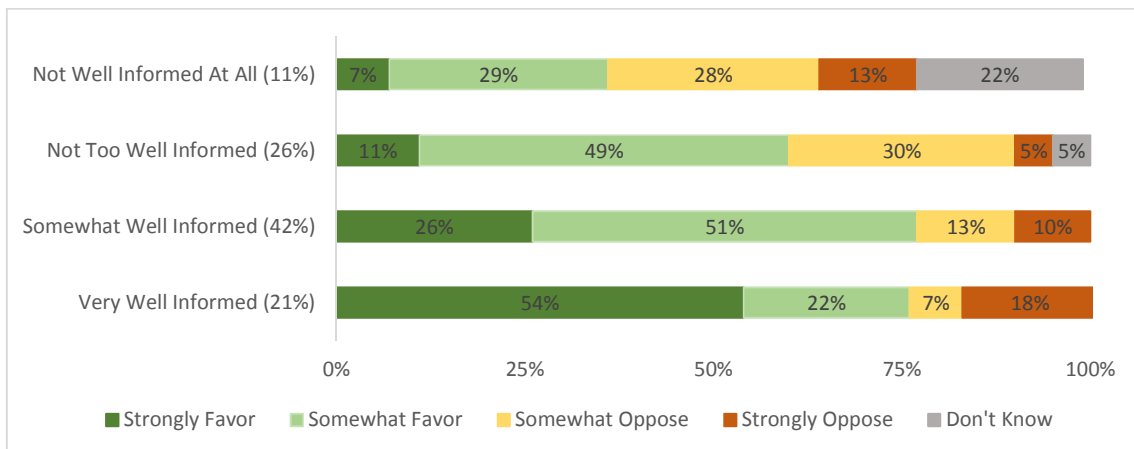


Figure 1: Favorability to Nuclear Energy by Level of Feeling Informed about Nuclear Energy [2]

Three primary areas have been the leading factor in educating and raising awareness. The first is the use of social media. The interesting thing about social media is that it is always changing and morphing as well. Different forms of social media appeal to different generations. UNEP has developed a presence on the various forms of social media that is influencing different individuals in different generations. This form of outreach also penetrates homes and lives in a constant manner. Having positive images and articles of nuclear energy on different social media venues influences the public's perception of nuclear

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energy. The second is outreach to the younger generation. This has been accomplished by UNEP hosting training and lectures for science teachers in local Junior Highs and High Schools on nuclear energy. The science teachers in turn take the lessons they have received and implement them in their science classes magnifying the efforts of UNEP. The Boy Scouts of America also has a merit badge in nuclear science and UNEP has hosted various merit badge clinics and events to the raise understanding of nuclear energy. The third area is giving tours and training on our uniquely designed engineering safety culture.

## 2. Social Media use at UNEP

Social media influences and permeates many aspects of daily life for Americans today, and the workforce and education areas are no exception. Pew research center surveys gave a variety of reasons why workers use social media at work ranging from ‘taking a mental break from work’ to ‘getting information that helps them solve problems at work’ [5]. Nearly two-thirds of American adults (65%) use social networking sites with age having a strong correlation. 90% of American adults ages 18 to 29 use social media compared to 77% usage among 30 to 49 year olds. With the numbers dropping to 51% usage by 50 to 64 year olds and as low as 35% by those 65 and older [6].

This strong presence of social media in the everyday life of so many adults and young people make it a powerful tool to influence and educate them with regards to the benefits and uses of nuclear energy. In October 2013, UNEP began using two different social media tools, facebook and twitter, to begin to educate students, staff, and the public on nuclear energy and the research being conducted and taught at the University of Utah [7]. Posts have been made using these tools to publicize nuclear engineering seminars to announce the research and publications being produced at UNEP. Figures 2 and 3 show snapshots of the current screens for UNEP’s facebook and twitter pages respectively.

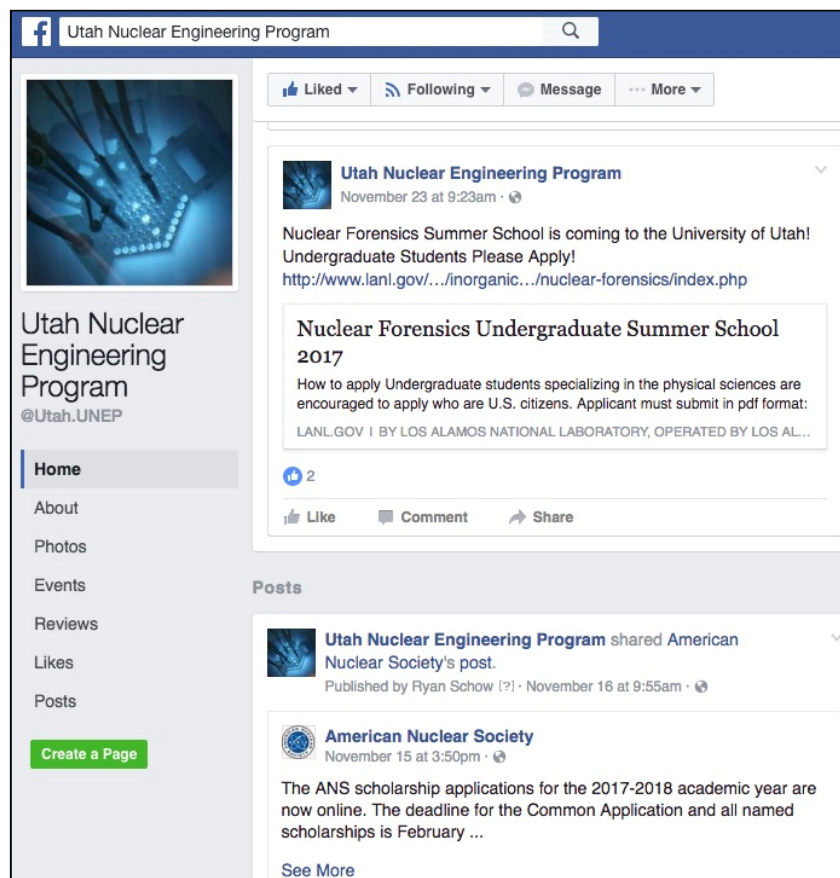


Figure 2: UNEP Facebook Page and Example Posts



Figure 3: UNEP Twitter Page and Example Tweets

The interesting trend that started with facebook, twitter and all social media platforms use was at first it was limited to being followed by staff and students. As posts were made mentioning students or interesting pictures or articles posted, many of the friends and family of the students started following and liking the posts and tweets. This trend results in exponential growth and impact. Popular posts have referenced articles from 'environmentalist that were once opposed to nuclear energy but now support it' to 'What if I took a swim in a typical spent nuclear fuel pool?'. Most social media accounts also have the ability to track web page visits, weekly total reach, and people engaged. On an average week the UNEP facebook page has a weekly total reach of approximately 600-800 individuals with approximately 100-200 people engaged each week. The social media reach is much greater than the size of students and staff in UNEP.

A recent trend indicated that much of the younger generation was moving to new and more transient social media. In order to try to keep with up with the most popular social media among the college students, Instagram and Snapchat accounts were formed for UNEP in early 2016. Instagram is an online mobile sharing app for smartphones. Users cannot post to it from a computer. Compared to other social networks, Instagram is relatively simple and is focused mostly on sharing photos and short videos. A screenshot taken from a mobile device of the UNEP Instagram post is given in Figure 4. Snapchat is another mobile app that allows users to send and receive 'self-destructing' photos and videos. Photos and videos taken with the app are called snaps. Snapchat uses a mobile device's camera to capture snaps and wi-fi technology to send them. The app allows the sender to draw or insert text on the snap and determine how many seconds (1 to 10) the recipient can view it before the file disappears from the recipient's device. Messages can only be viewed once and during the viewing period, the recipient must maintain contact with the device's touchscreen or the snap disappears. Figure 5 shows a screenshot taken from a mobile device of a snap from UNEP.



Figure 4: UNEP Instagram Post

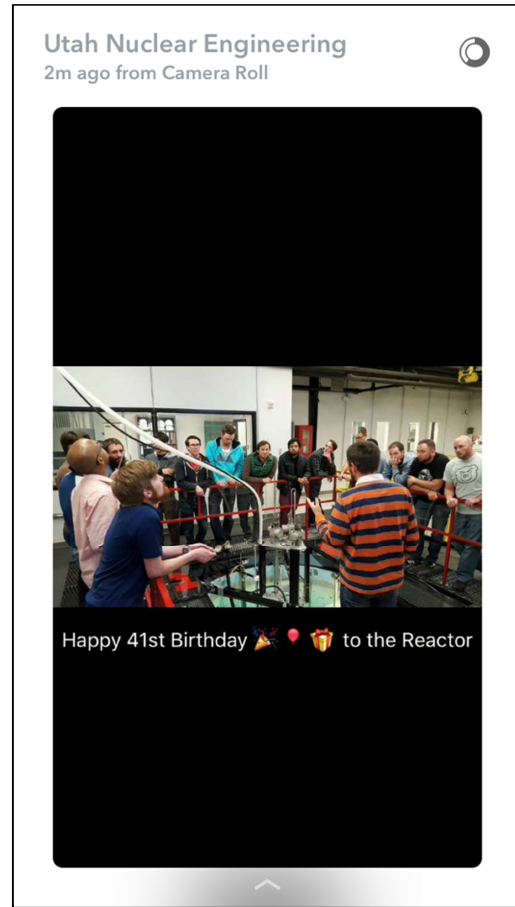


Figure 5: UNEP Snapchat Snap

At first, it seems useless to have pictures or videos that disappear after only 10 seconds but the younger generations in the U.S. heavily use and communicate using Snapchat. On any given day, Snapchat reaches 41% of all 18 to 34 year-olds in the U.S. [8] According to Snapchat Internal Data, Snapchatters watch over 10 billion videos per day, which is more than a 350% increase in the last year alone [9]. Social media use by UNEP has allowed an educational and positive impact on numerous individuals both locally and internationally.

### 3. Outreach to Younger Generations at UNEP

In addition to using social media, UNEP has also focused on reaching out to high school and junior high age youth through actual interactions and training. First, UNEP has held science teacher workshops for science teachers in the Utah area. The workshop included a tour of the nuclear reactor and facilities. After the tour, a workshop was conducted with various hands on activities and resources for teachers showing practical and applicable lessons for the classroom. Teachers were also given Geiger counters obtained through American Nuclear Society grants to use in their classrooms. A picture of one teacher workshop is given in Figure 6. This allowed a small amount of time training teachers in the facility to go and share insight to hundreds of students in the area about the benefits and uses of nuclear energy. The students in turn go home and share their insights with their parents and families. The second method is through the Boy Scouts of America (BSA).

BSA has a merit badge title nuclear science. As part of the requirements to earn the merit badge, boys must come to a nuclear facility and learn about nuclear energy. UNEP has hosted hundreds of Boy Scouts each year in assisting and training them on the uses and benefits of nuclear energy as seen in Figure 7.

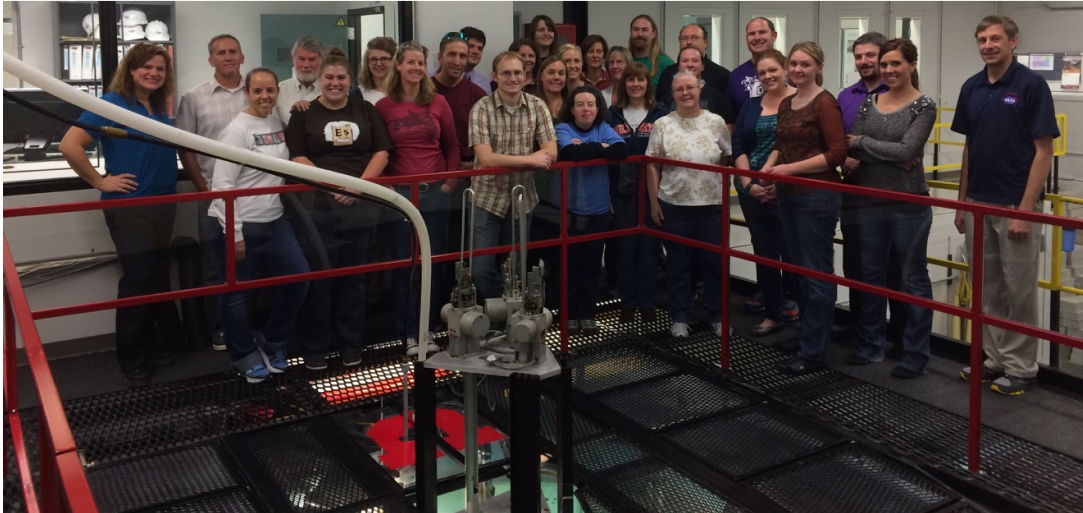


Figure 6: High School and Jr. High School Science Teacher Nuclear Workshop



Figure 7: Boy Scouts of America Merit Badge Workshop

UNEP's efforts of working with the young upcoming generation in educating them on nuclear energy has been effective and multiplied by teaching youth leaders in Boy Scouts and local science teachers.

#### 4. Tours and Training at UNEP

UNEP has established and continues to build a strong nuclear engineering safety culture by developing class and laboratory soft skills training and activities and by developing new collaborative networks [10], [11]. UNEP utilizes a corrective action program (CAP) tracking software, DevonWay, that is utilized at a majority of nuclear power plants in the U.S. [12]. UNEP has begun to share its lessons learned and forward thinking ideas regarding nuclear safety culture through symposiums and workshops. The 1<sup>st</sup> Symposium on Engineering Safety Culture and Innovations was hosted by UNEP in March of 2015. Lessons learned have also been shared with other countries and cultures including Okayama University in Japan [13].

Tours are also given to approximately 800 individuals every year demonstrating the safe and efficient use of nuclear energy for research and training. Sharing the new and innovative work on safety culture with many different professionals and countries has allowed UNEP to continue to educate and communicate the positive impacts of nuclear energy.

#### 5. Conclusion and Future Work

The fact that familiarity increases public support for nuclear energy is apparent as seen in the

recent polls conducted in the U.S. UNEP has used its facilities and personnel to help continue to raise public knowledge and understanding of nuclear energy through its use of social media, workshops, training and symposiums. As technology and social media tools evolve and change, UNEP will continue to re-evaluate its use of different social media formats and how effective the various forms are in communicating awareness of nuclear energy. This is a never-ending process of finding continuous improvement in sharing and educating the public about such an important energy source for the world.

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