Outreach Incentive Grant Funding: End of Year Project Report 2011-2012

Title of Proposal: The Forensic Files Project

Name: Dawnie Wolfe Steadman **Project Date: AY 2011-12**

Additional Project Support from other University or external sources:

Source	Amount	Budgetary Items
Academic Outreach & Engagement	$2000	Casts for experiential learning stations
Office of Communication and Public Engagement	$2000	Promotional items ("leave behinds) with FAC and University of Tennessee logos
Forensic Anthropology Center	$1000	Vehicle rentals, casts and t-shirts
Steadman Start-up	$1007	Promotional items with logos/over expenditures

Partnership and Assessment:

This project was a partnership between the Forensic Anthropology Center, Department of Anthropology, and the Knox County School District. The purpose of the project is to enrich the current forensic science curriculum in the high schools by providing presentation and hands-on exercises to high school forensic science students by a team of UT forensic anthropology graduate and undergraduate students. I initiated the project by contacting Theresa Nixon, the science coordinator for Knox County Schools, who assessed that interest in the project was high among the high school teachers who currently teach forensic science. The teachers shared their curriculum and we were able to tailor presentations to meet the curriculum goals and schedule the presentations when forensic anthropology was being taught. Ten UT students gave a total of four presentations to classes at West and Bearden high schools. The project provided a number of casts of skeletal material that we set up as stations to allow students to do problem solving exercises that simulate real forensic cases. We provided UT/FAC branded items to leave behind for the students as mementos of the day, including a notebook, pens and highlighters.

The level of engagement and learning of the high school students was formally assessed by providing anonymous assessment surveys completed after each presentation by the students that the teachers mailed back to me. Summary frequencies of the responses are provided in the table below. Overall the assessment demonstrates the Forensic Files Project was received well by the high school students. All but two students agreed or strongly agreed that the presentation was well organized and provided pertinent material at an appropriate educational level. The UT student instructors also performed well in the students' opinions. The area that needs the most attention in the future is the exercise stations, in which as much as 8% of students may not have found interesting or informative. This may be due to the small amount of time at each station and/or the station content. Despite this, 99% of the students agreed or strongly agreed that the Forensic Files should be incorporated into future classes. I also

informally solicited feedback from the teachers and the response was uniformly positive about the impact of the Forensic Files in the classroom.

Assessment (all four courses responded, N=91 students)

Question	Agree Strongly	Agree	Neither Agree/Disagree	Disagree	Strongly Disagree
Lecture presentation informative and insightful	67% (61/91)	33% (30/91)			
Amount and depth of presented material appropriate	69% (63/91)	29% (26/91)	2% (2/91)		
Presenter understandable and enthusiastic	74% (67/91)	23% (21/91)	3% (3/91)		
Presenter knowledgeable	85% (77/91)	15% (14/91)			
Exercise stations interesting	50% (46/91)	42% (38/91)	8% (7/91)		
Exercise stations helped understand skeletal analysis	57% (52/91)	36% (33/91)	5% (5/91)	1% (1/91)	
Recommend Forensic Files return next year	75% (68/91)	24% (22/91)	1% (1/91)		

Benefits

The Forensic Files Project attempts to increase the diversity of educational opportunities for high school students, relate how forensic anthropology casework and research is conducted, provide one-on-one encounters with UT students who are enrolled in the anthropology program, and promote the University of Tennessee and Forensic Anthropology Center. Knox County Schools has benefited from this project as they have a team of advanced undergraduate and graduate students who have had coursework and casework in forensic anthropology provide first-hand knowledge and hands-on experience in a specialized area of forensic science. The UT students benefited from this program by seeing first-hand the value of outreach service, learning about the desires and needs of high school students, and enhancing their professionalism in the field. The UT students put together the presentations under my guidance, wrote the scenarios for the exercise stations and presented them in the schools.

Shared Decision Making

It was mutually decided between Knox County Schools and the Forensic Anthropology Center to design and conduct this outreach project. Theresa Nixon and I worked together to locate teachers and assess

their interest in participating in the Forensic Files Project. Each teacher decided whether to participate and when and provided me with the date and time as well as preferred topic they wished us to present.

Scholarship

At this time we do not have any publications planned on this project but there are a number of ideas we have developed that will expand the project and may lead to publications in education.

Conclusions

We feel that the initial Forensic Files Project was a success and we have laid a strong foundation for the future. From the evaluation data we can see that the weakest part of the Forensic Files Project in the classroom was the exercise stations. The high school students may not have had sufficient time to fully examine all of the stations. It may be useful to have two separate sessions – one for a lecture and then a separate lab session. This approach will give the UT students a better feel for each class and would be able to design the follow-up exercise stations based on known interests. In addition, we could have more UT student instructors attend the exercise class to ensure that the students can get adequate access to the instructors to answer their questions. We believe the exercise stations should be improved and continued as a critical best practice for the Project.

Future Plans

Outreach in the high schools is extremely important to help stimulate student interest in the STEM fields. The teachers we worked with this year are very keen on providing their students with additional experiential learning that can motivate students to learn more. We look forward to continuing to work with the students and teachers in Knox Schools and hope to expand to neighboring communities. In-person meetings with the teachers and science coordinator will be very important to better establish our content and best practices.

Appendices

Attached are a copy of the evaluation form that was completed by the high school students and a list of the forensic scenarios for each exercise station and the solutions provided to the teachers.

Forensic Files Outreach Project
Forensic Anthropology Center
University of Tennessee
2012

Evaluation Form

Your Class Teacher_____ Presentation Date _____

The Forensic Files Project was designed to give high school students access to forensic anthropologists and skeletal casts of real cases in both a lecture and hands-on format. Please provide an evaluation of the Project and presentation based on the following questions.

1. The lecture presentation was informative and provided greater insight into forensic anthropology.

Agree Strongly *Agree* *Neither Agree/Disagree* *Disagree* *Strongly Disagree*

2. The amount and depth of material provided in the presentation was appropriate for this class.

Agree Strongly *Agree* *Neither Agree/Disagree* *Disagree* *Strongly Disagree*

3. The presenter was easy to understand and enthusiastic.

Agree Strongly *Agree* *Neither Agree/Disagree* *Disagree* *Strongly Disagree*

4. The presenter was knowledgeable about the material.

Agree Strongly *Agree* *Neither Agree/Disagree* *Disagree* *Strongly Disagree*

5. The exercise stations were interesting.

Agree Strongly *Agree* *Neither Agree/Disagree* *Disagree* *Strongly Disagree*

6. The exercise stations helped me gain a better understanding of how forensic anthropologists analyze skeletons.

Agree Strongly *Agree* *Neither Agree/Disagree* *Disagree* *Strongly Disagree*

7. I would recommend to my teacher to have the Forensic Files return next year.

Agree Strongly *Agree* *Neither Agree/Disagree* *Disagree* *Strongly Disagree*

Forensic Files Outreach Project

Forensic Anthropology Center

University of Tennessee

2012

Station 1 (Femur and os coxa)

These bones were found on the side of a highway. The medical examiner has asked you to determine how the bones may have gotten broken. Is this due to gunshot trauma or blunt trauma? How do you tell the difference?

Station 2 (skull, femur and os coxa)

These bones were found in the woods by a man walking his dog. What parts of the biological profile can you estimate based on the bones available? What can you say about who this individual was?

Station 3 (skull and mandible)

A family was renovating their basement when the contractors found this skull and mandible in a wall. The coroner has asked you to determine the age, sex and stature and assess if there is any trauma. Can you answer all of the coroner's questions with only a skull? State what you can say about this individual.

Station 4 (juvenile dentition)

Using the dental development chart, estimate the age of this individual.

Station 5 (os coxa and humerus)

These two bones were found by some railroad tracks in eastern Tennessee. What methods would you use to determine the age of these individuals?

Station 6 (two skulls)

These two individuals were found in a landfill. The medical examiner thinks the two murders may be related and wants to know what can you say about the type of trauma (gunshot, blunt or sharp) each skull exhibit. Do both skulls exhibit the same type of trauma? What is similar and different?

Station 7. (skeleton)

This partial skeleton was found on the edge of the woods after a snowfall. The medical examiner is initially concerned with the sex of the individual. Is the skeleton male or female? What techniques did you use to come to your conclusion? Given the amount of the skeleton present, what other things can you learn about this individual?

Solutions:

Station 1

Explain the butterfly fracture pattern and how it occurs. In reality, this individual was hit by an 18 wheel truck. The direction of the force was from the back (behind).

Station 2

Sex can be estimated from the skull, mandible and os coxa.

Age can be estimated from the skull and os coxa.

Stature can be estimated from the femur.

Station 3

You can tell age and sex (female), not stature. This individual also has a gunshot wound.

Station 4

7-10 years old

Station 5

The humerus is a juvenile as evidenced by the unfused epiphysis. The os coxa is an adult as all parts of the bone are fused. To estimate adult age look at the auricular surface and pubic symphysis.

Station 6

BCM 806 has gunshot trauma; BCM 805 has blunt force trauma so the types of trauma are different.

Station 7

Female based on the pelvis and skull. Also can estimate age, stature, etc.