Family Conversations at an Orangutan Exhibit: The Influence of Zoo Educators

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Abstract
One of the primary audience groups visiting zoos are families; therefore, understanding the conversations that occur within family groups is important. In order to define the importance of visitor/staff interactions, we used sociocultural theory as a lens to explore the conversations that occurred within family groups and between family groups and zoo educators. Using a Zoo Conversation Observation Record, we recorded data from 102 families and compared the data to determine if conversations with staff influenced the conversation topics. Our findings indicate that the conversations with zoo educators increased the mention of threats to biodiversity, palm oil, conservation, and behavior.

Introduction
One of the primary audience groups that visit zoos are families, which by default makes them an important group for evaluation. Understanding how families interact within their group and with staff through conversations at an exhibit can aid informal institutions with the development and delivery of conservation messages (Patrick, 2014; Smith, Broad, & Weiler, 2008; Uizick, 2015). Family groups are an important compass for defining the impact of zoo programs, because parents identify zoos as places for social family interactions and teaching their children about nature (Hallman & Benbow, 2007; Patrick & Tunnicliffe, 2013). More importantly, for zoos, a family’s culture shapes how they experience a zoo visit, driving which activities they do, the order in which they do activities, and who, what, and how they choose to interact while doing the activities. Sanford (2010) found that familial behaviors could be used as indicators of family learning potential. Therefore, the study presented here analyzed conversations among family groups that did not interact with staff and family groups that did interact with staff. The study took place in an orangutan exhibit at the Chester Zoo (England) and collected data from family groups before, during, and after interactions with a zoo staff member to determine in what ways the staff member influenced the conversations.

Theoretical Framework
Based on sociocultural learning theory, learning occurs during the social interactions that an individual has with members of its cultural group (Rogoff, 2003). In the case of family groups who visit a zoo exhibit, the learning that takes place is socially mediated, with an individual’s learning experience being shaped by contributions from their family members and/or an interactions with a zoo staff member (Sanford, 2010). These social interactions then shape the family’s learning experiences (McClain & Zimmerman, 2014; Rogoff, 2003). The family groups in this study interacted culturally and socially within their group and with a member of staff at a zoo exhibit that focused on orangutans, conservation, and sustainable palm oil products.

Methodology
Participants
The participants for this study were two clusters of family groups (N=102), defined as at least one adult with one or more children appearing to be under the age of seventeen, who visited an orangutan exhibit at Chester Zoo in summer 2014. The family groups were chosen through a convenience sample of next available family group. Cluster A included 80 groups that visited the exhibit without staff interaction. Cluster B consisted of 22 groups that interacted with a member of the zoo’s education staff. The staff/visitor interaction took place at a palm oil cart where the education staff presented visitors with biofacts and manipulatives about palm oil products, threats to biodiversity and manipulatives about palm oil products, threats to biodiversity, and conservation.

Data Collection
Data was collected from each family group by following the group through the exhibit and recording their conversations on a Zoo Conversation Observation Record (ZCOR). The ZCOR, developed from similar conversation observation records (Patrick, Matthews, & Tunnicliffe, 2013), was a pen and paper approach to recording conversations. The ZCOR included 14 topics of conversation and was designed to take into account the exhibit interpretation and the topics education staff members discussed when interacting with the participants. The visual and verbal interpretations included threats to biodiversity and palm oil. The conversation recordings began when the family entered the exhibit and ended when the family exited the exhibit (Patrick & Tunnicliffe, 2013). The researcher listened to the group conversations and made a tally mark in the corresponding category each time the group mentioned that topic. This allowed the researcher to
determine the focus of the group’s conversation and how often a certain topic was discussed. Even though the ZCOR collected data on 14 topics of conversation, this article focuses on the five topics covered by the exhibit interpretation and education staff members: Behavior, Conservation, Habitat, Palm oil, and Threats to Biodiversity. See Table 1 for definitions of these topics and examples of discourse that was coded.

Results
Table 1 presents the total number of topic comments for Clusters A and B and separates the data for Cluster B into visitor pre-cart interactions, staff/visitor interactions at the cart, and visitor post-cart interactions. The following sections report the results for each cluster.

Cluster A
Cluster A made 142 comments. Of the five topics covered in this paper, Cluster A mentioned only behavior (100%) and the behavior comments focused on the behaviors that were occurring in the exhibit not those that occur in the wild.

Cluster B
The total number of comments that occurred in Cluster B was 230. This number includes the comments that were mentioned pre-cart, visitor to staff at cart, staff to visitor at cart, and post-cart. When the data were separated by groups, the results showed that 53% of the 230 comments were made from staff to visitor followed by 29% from visitor to staff. Similar to the Cluster A results, Cluster B mentioned behavior most often, but the presence of a staff member increased the percentage of behavior comments. Prior to the cart, behavior comments were at 7% and remained at 7% after the cart. However, during the cart interactions, the number of behavior comments visitor to staff increased to 11% and to 18% staff to visitor. Additionally, comments concerning threats to biodiversity, palm oil, and conservation occurred only during the conversations with staff. The few habitat related comments (3%) were made post-cart.

In summary, our results allow us to categorize the conversations of family groups into no interaction with staff, interactions with staff, and post staff interactions. Cluster A (no staff interactions) and the pre-cart interactions of Cluster B were similar in that they only mentioned behavior topics. The increase in the number of comments including biodiversity, palm oil, and conservation were directly related to the interactions Cluster B had with staff at the palm oil cart. Family groups expressing an interest in these topics appeared to be motivated by the staff. During the cart interactions, the staff did not mention habitat, which was a part of their cart presentation.

Conclusions
In alignment with previous studies (Kopczak, Kisiel, & Rowe’s, 2013; Patrick, 2014), our results indicate that the presence of staff and their introduction of topics related to the orangutan did influence the conversations of groups. However, as the results show the topics of conversation did not continue after the staff interactions. Conversations are a powerful way to elicit interactions among family members and between visitors and staff. Conversations can set the scene for the exhibit and allow visitors to make predictions about the organisms and exhibit, ask questions, declare puzzlement about the organisms, and express their feelings (Patrick, 2013).
However, based on the findings of this study, the conversations among family do not continue to focus on the introduced topic. The purpose of this time with staff is to aid visitors as they make sense of their ideas about the organisms and the intended zoo message. Zoo educators cannot give the visitor understanding, the visitor must come to the understanding through their prior knowledge, comfort with the topic, readiness to explore the topic, and personal interest. Zoo educators can motivate visitors by being interesting, excited about the topic, passionate, and knowledgeable. Conversations can bridge gaps between the visitor and the message the zoo educator and the exhibit intend. The finding that the social interactions between families and zoo educators influenced the science related conversations that occurred is important. As Rogoff’s (2003) sociocultural perspective shows, zoo educators should extend the science related conversations by asking thought provoking questions (Patrick, 2014) and providing the families a chance to share their knowledge and experiences.

References
Patrick, P., Matthews, C., & Tunnicliffe, S. D. (2013). Using a field trip inventory to determine if listening to elementary school students’ conversations, while on a zoo field trip, enhances preservice teachers’ abilities to plan zoo field trips. International Journal of Science Education, 35(15), 2645-2669.

Figure 1 (left). Family Group in Cluster A taking photographs of the orangutans.
Figure 2 (below). Cluster B interacting with a zoo educator at the palm oil cart.