

Understanding Elementary Teacher Motivations for Science Fieldtrips

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Received 6 July 2004; revised 16 February 2005; accepted 18 March 2005

DOI 10.1002/sce.20085

Published online 30 June 2005 in Wiley InterScience (www.interscience.wiley.com).

ABSTRACT: This investigation sought to identify the motivations that comprise teachers' agendas when leading student fieldtrips to science museums or similar sites. A survey distributed to upper elementary teachers resulted in a variety of open-ended responses that were analyzed and coded to identify recurring themes. In addition, ten teachers planning to lead a school trip to a natural history museum were interviewed and observed. Interview and observation data were used to triangulate findings and refine descriptions of actual practice. Eight fieldtrip motivations were identified including to connect with the classroom curriculum, to provide a general learning experience, to encourage lifelong learning, to enhance interest and motivation, to provide exposure to new experiences, to provide a change in setting or routine, for enjoyment, and to meet school expectations. Results indicated that 'connecting to the classroom curriculum' was an important consideration, although teachers had different interpretations of what this meant. Further examination of the teachers' agendas suggested the influence of different contexts, including that of the school and the museum site. These findings lead to suggestions for facilitating school visits to informal settings by considering the teachers' fieldtrip perspectives and agendas.

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INTRODUCTION

It seems unlikely that schoolteachers or museum educators would argue with the assertion that a visit to a natural history museum, science center, zoo or other informal science learning institution provides valuable learning opportunities and experiences for schoolchildren. This view is also supported by the *National Science Education Standards* (National Research Council, 1996), which state that museums and science centers "can contribute greatly to the understanding of science and encourage students to further their interests outside of school" (p. 45). Studies have shown that school fieldtrips can have lasting impacts on students, with strong memories of both cognitive and sociocultural contexts (Falk & Dierking, 2000).

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Despite the promising benefits of these out-of-classroom experiences, studies of school group fieldtrips have shown that many students participating in teacher-led school fieldtrips are not aware of any specific goals for these visits and thus may subsequently be unprepared for learning (Griffin, 1994; Griffin & Symington, 1997; Orion & Hofstein, 1994; Storksdiack, 2001). Several researchers have noted that teachers may not have explicit goals for their visit, and are unable to connect the experience to the classroom curriculum (Griffin & Symington, 1997; Ramey-Gassert, Walberg III, & Walberg, 1994; Tuckey, 1992). Storksdiack (2001) also found that teachers were essentially unaware of their role in shaping their students' experiences during the fieldtrip, although posttrip interviews admitted that the experience would have been better if they had completed some sort of preparation, follow-up, or both. In their study of teachers visiting a local science center, Anderson and Zhang (2003) reported that participants had a varied sense of who was responsible for providing at-venue or post-visit experiences—the teacher or the center. Yet 90% of these teachers still recognized the fieldtrip as highly valuable educational experiences. These studies suggest that although the museum fieldtrip may have the potential for providing an important learning experience, many teachers may not be aware of their role in the experience and subsequently may not be taking full advantage of this resource.

Visitor Agendas

Although there is extensive visitor research addressing how individuals and groups use museums, only a small set of studies attempts to understand *why* they come in the first place. Within the field of museum studies, Falk, Moussouri, and Coulson (1998) defined a *visitor agenda* along two dimensions: the motivation for visitation and the strategy for the visit. More recently, Falk and Dierking (2000) refer to a visitor agenda as the individual's expectations for the museum experience, formed from a combination of motivations, interests and prior experiences. Both of these conceptualizations recognize that the visitor's experience within an informal setting is greatly affected by the personal context of the visitor. Given the variety of agenda setters and agendas, there is likely to be conflict and the need for prioritization. To understand the outcomes of a museum visit for an adult, a family, or school group, one must consider examining these agendas more closely.

In their study of adult visitor agendas and learning in a natural history museum, Falk et al. (1998) examined six motivational agendas, including place, life cycle, social event, entertainment, and practical issues (Table 1). In that study, adult visitor knowledge with respect to a particular exhibit was evaluated using a pretest/post-test interview design. Pre- and post-visit responses were then compared according to extent of knowledge, breadth of understanding, and depth of understanding. Comparison of these learning outcomes to self-described agendas revealed that only two of these were significantly related to higher learning scores: *education* and *entertainment*. Falk suggests that these agendas be considered as separate and nonexclusive. When asked, several visitors seemed to see no conflict with plans *to have fun* and *to learn*—they expected to do both. This is not to suggest that learning does not take place when visitors adopt other agendas. However, the fact that visitors with a self-described entertainment agenda showed higher levels of learning compared to other agendas further supports the idea that entertainment and education are important and distinguishable goals within informal settings, and that several motivations may actually define the visitor agenda.

The study by Falk et al. suggests that an understanding the learning that takes place within a museum setting requires an understanding of the visitor's agenda for the visit. In the case of school groups, where the teacher that guides the visit, it seems reasonable to expect that

TABLE 1
Museum Visitor Motivations as Identified by Falk et al. (1998)

Motivation	Description
Place	Visitors see the museum as a leisure/cultural destination in itself
Education	Visitors recognize the informational or cultural content of the museum and wish to learn more about it
Life cycle	Visitors see the museum visit as part of the life cycle; parents bring their child to the museum, just as they were brought when they were young
Social event	Visitors see the museum visit as an enjoyable thing to do with family or friends
Entertainment	Visitors see the museum visit as a leisure-time activity
Practical issues	Visitors are influenced by external factors, such as weather, proximity or cost

the teacher's agenda for the fieldtrip would directly impact the student experience and the prospects for learning within that setting.

PURPOSE OF STUDY

This investigation was one component of a larger study of fieldtrips and teacher perspectives that sought to establish knowledge of the agendas held by teachers for conducting class fieldtrips to science museums or similar institutions of informal learning. For this study, a teacher agenda is defined as the motivation and subsequent strategies used for a fieldtrip experience. The findings reported here focus specifically on identifying the teacher motivation component of agenda. By identifying these motivations, a better understanding of how teachers perceive or value these informal learning environments is revealed. This information benefits both museum educators and teacher educators by helping them to better anticipate and meet the instructional needs of teachers leading a fieldtrip.

Three questions guided this investigation:

1. What common motivations are expressed by upper elementary teachers for conducting class fieldtrips to a museum or similar institution?
2. What contextual factors may be linked to teacher fieldtrip motivations?
3. How are teacher motivations expressed in an actual fieldtrip setting such as a natural history museum?

METHODOLOGY

This investigation is primarily descriptive in nature in that it attempts to better characterize a phenomenon (the museum fieldtrip) from a teacher perspective. In order to address the research questions, both qualitative and quantitative methodologies were used. A survey (Appendix A), including both closed and open-ended questions, was created to identify teacher motivations for school fieldtrips (Phase 1). Data from each respondent were labeled as necessary (T1 through T115) for identification purposes. Responses to open-ended questions were analyzed through a process of open coding in order to identify important concepts and categories (Strauss & Corbin, 1998). Frequencies were calculated to identify which categories were most common and chi-square analysis was used to identify possible

relationships between categories. Additional contextual data obtained from the surveys were also coded and tabulated to clarify agenda meaning.

A sample of 400 upper elementary teachers in the Los Angeles area was randomly selected from a list of over 1000 teachers compiled from school and district websites. The survey was distributed by mail, with responses returned via a pre-stamped envelope. Modest incentives were offered to those teachers who returned their information in a timely fashion. A total of 86 teachers responded to the mail survey, resulting in a response rate of approximately 22%. An additional 29 surveys were obtained from randomly selected teacher participants in a local science-teaching workshop and the teachers who volunteered to participate in the observational component of the study (Phase 2). A final sample size of 115 was obtained. An additional analysis of the sample selected was conducted in order to see to what extent it was comparable to larger populations of local teachers. Using a statewide on-line database sponsored by the California Department of Education, several variables indicative of schools in this relatively urban setting were obtained (teacher experience, percentage of students classified as English learners, percentage of students eligible for free or reduced lunch programs, and number of students per computer) for each of the schools indicated by the participating teachers. Mean values were calculated for the study sample, which were then compared with data for two large local school districts and the county overall (based on 2001–2002 figures). While it is difficult to say definitively how the teachers in the sample differ from those who chose not to participate, this analysis suggests that the instructional context of the participants is somewhat similar to the teacher (Table 2).

In order to address the third research question and examine what these agendas look like in practice, in-depth studies were conducted for ten teachers as they conducted a fieldtrip to a natural history museum (Phase 2). This population was chosen from schools in the same study area examined for Phase 1, although these teachers were selected based on the fact that they had already made plans to visit the local natural history museum—in this way, the fieldtrip was nothing beyond what the teacher was already planning. Reservation information for these teachers, including contact information, was obtained from museum staff. Participants (upper elementary grade teachers located within the study area) were contacted by phone to determine their willingness to participate in this study; final selection was based on teacher agreement and availability. The 10 teachers selected for these in-depth studies (referred to by pseudonym in this paper) represented a variety of professional experiences within the study area. Most worked in what would be considered urban schools, facing the challenges that accompany those settings. Many of their students came from low-income families, with six of the schools reporting 90% or more of the students participating in free or reduced lunch programs. In addition, more than half of these schools were classified with over 65% of their students as English learners.

TABLE 2
Comparison of Demographics between Study Sample and Local Populations

Demographic Information	Local County	Local District A	Local District B	Teacher Sample from this Study
English learners	33.4%	41.1%	32.5%	47.9%
Free/reduced lunches	59.6%	72.8%	66.4%	67.4%
Teacher experience (mean years)	12	11.1	11.6	12.3

Data obtained from these naturalistic inquiries were used to collectively depict the fieldtrip experience and the translation of the teacher agendas in a real setting—a fieldtrip to a natural history museum. Each of these in-depth studies included three stages: a previsit interview with the teacher, using the same questions from mailed survey; observation of the teacher and students during their fieldtrip; and a follow-up interview with the teacher. Interviews were conducted in person (at the school site) or by phone, based on each teacher’s time and availability. Previsit interviews were typically completed in person, while post-visit interviews were frequently completed by phone. Upon arrival at the museum for their fieldtrip, these teachers and their classes were greeted by the researcher and then unobtrusively observed until the end of the visit. Observations were recorded manually. As this was a descriptive study of a phenomenon that was not particularly well-defined, the observations involved continuous recording, in which a running account of all behaviors was recorded (Gall, Borg, & Gall, 1996).

FINDINGS, PHASE 1—SURVEY ANALYSIS

Identifying Teacher Motivations

Two open-ended questions, one examining fieldtrip motivation in terms of outcome (goals) and one examining fieldtrip motivation from a broader perspective, proved helpful in minimizing short, mundane responses and providing more detailed explanations. The redundancy of these questions for identifying motivation also made it possible to discern the respondent’s meaning in the few cases where one of the questions was misunderstood.

Overall, eight motivations were identified: *connect with curriculum, provide a learning experiences, promote lifelong learning, foster interest and motivation, expose to new experiences, provide a change of setting, provide enjoyment or reward, and satisfy school expectations*. It is important to note that these agenda motivations are not mutually exclusive. Often, teachers expressed several reasons for choosing to lead a museum fieldtrip.

Careful analysis and coding of the teacher responses led to a protocol (Appendix B) used to categorize each of the participants. The percentages of teachers identified with these different fieldtrip motivations are shown in Table 3. Not surprisingly, many teachers could be categorized as having more than one fieldtrip motivation. Based on the data available, however, it was not possible to prioritize these motivations. Note that while this table does provide us some idea of which motivations are more common, it is important to recognize its limitations. The data presented here were derived from a sample of teachers situated within a large, urban center in southern California. For instance, it is possible that the *exposure* motivation, expressed by nearly 40% of the teachers, would be less common in a survey of teachers working in a middle-class suburban area. However, because many museums are located in urban settings, these results may be somewhat indicative of the teachers with whom many museums are likely to interact.

“To connect with the curriculum” was by far the most commonly cited motivation for conducting a fieldtrip. In some cases, this motivation was described as a requirement or qualification for the trip; teachers needed to legitimize the trip by ensuring that it somehow connected with formal instructional requirements. This is similar to results reported by Anderson and Zhang (2003) who found that curriculum fit was most commonly mentioned when teachers were asked to prioritize important aspects of fieldtrip planning. Given the climate of accountability within California public school systems at the time of this study, it is not particularly surprising that this rationale would be cited so frequently. While “connect” was the most common term used by teachers describing this curriculum motivation, other verbs were also used, including “reinforce,” “extend,” “relate,” “enhance,” “enrich,”

TABLE 3
Teacher Fieldtrip Motivations Identified in this Study

Motivation	Description	Teachers Identified with Motivation (N = 115)
To connect with the classroom curriculum	Teachers see fieldtrip as an opportunity to reinforce or expand upon the classroom curriculum	90%
To expose students to new experiences	Teachers see the fieldtrip as an opportunity to provide a rich and novel to students who may not have the opportunity otherwise	39%
To provide a general learning experience	Teachers see the fieldtrip as an opportunity to provide a memorable learning experience	30%
To foster student interest and motivation	Teachers see the fieldtrip as an event that fosters student interest, curiosity and motivation	18%
To provide an change of setting or routine	Teachers see the fieldtrip as an opportunity to get out of the classroom and change routine	17%
To promote lifelong learning	Teachers see the fieldtrip as an opportunity to show students that learning can happen beyond school, among friends and family	13%
To provide student enjoyment or reward	Teachers recognize that the fieldtrip should be a positive and enjoyable experience for the students	11%
To satisfy school expectations	Teachers are expected to conduct a fieldtrip, per school policy or peer pressure	3%

“support” and “complement.” Note that each term has the potential for a slightly different meaning of *curriculum connection*. Without further probing of the respondent, though, it would be difficult to distinguish these subtleties.

Examination of these responses did reveal two subcategories of *curriculum connection* that seemed to describe more clearly why museum visits would allow teachers to complement what they are doing in the classroom. The first of these refinements might be termed *curriculum-related experience*, in which the connection would be achieved by providing firsthand experiences with real things. Almost 60% of the teachers suggested this subcategory of curriculum connection. One teacher explained, “I take the children on fieldtrips to museums because I feel that the artifacts and/or activities/presentation make the material that we are studying in the classroom come alive.” (T40) Providing a “hands-on” experience is mentioned many times, but it seems that this term is being used in a very broad sense. For some teachers, it appears that the museum experience itself is hands-on, regardless of the types of interactions that occur there. “Hands-on” may not even refer to a literal handling of the object or phenomena, as the objects in many of these institutions, like a Great White shark at an aquarium, or a *T. Rex* fossil at a science museum, are not touchable. In these instances, it seems that the authenticity or immediacy of the objects or displays is important. Despite the vagueness of the term, it is clear that many teachers are strongly motivated to take fieldtrips because they believe that firsthand experiences will in some way enhance student understanding of the curriculum.

In contrast, the second subcategory related to the *curriculum connection* motivation is based on the assumption that students will acquire content knowledge as a result of their fieldtrip experience. These teachers expressed their assumptions or expectations that “students will come back to the classroom with a better understanding of what we are studying.” (T38) This *curriculum-related content* motivation suggests that these teachers view the museum as a resource for information and that interaction or exposure to that resource would be expected to result in learning. Thirty percent of teachers suggested this content-related motivation.

A chi-square analysis was conducted comparing each of the fieldtrip motivations. (Due to its low frequency, the *expectation* motivation was excluded from the analysis.) By comparing the overlaps and relationships between groups of teachers with different motivations, it was possible to identify possible overlap between these motivations and confirm that the categories are distinct. Analysis identified only one significant relationship—between teachers with a *learning experience* motivation and those with an *exposure* motivation ($\chi^2(1, N = 115), p = 0.028$). This suggests that those who indicated the importance of giving children experiences that broaden their understanding of the world were also more likely to recognize the importance of exposing their students to opportunities they may not have otherwise. Although these two motivations are closely related, for purposes of this study they are left separated, as combining them into one category would be less useful in describing a somewhat broad range of teacher intentions. It is possible that the relationship indicates a progression: teachers hope to expose students to new experiences, and then teachers hope to promote learning through these experiences.

Teacher Choice

A teacher’s rationale for leading (or not leading) a fieldtrip occurs within the context of the school setting, including the procedures, guidelines and traditions that define that setting. To better understand this setting, teachers were also asked to indicate the extent to which four different statements regarding fieldtrip planning were accurate for their school. The statements and the frequency of responses are shown in Table 4. In addition to the multiple-choice questions, teachers were also invited to comment on what sorts of options teachers at their school had regarding fieldtrips.

Interpretation of these results merits some discussion. All of the teachers questioned indicated that they had at least *some* choice in where they would lead their fieldtrip. However, in many cases, teachers indicated that the choice was limited by whether or not the destination was preapproved by principal or district. One teacher explained, “Our school decided what possible trips were most appropriate for which grade level. This also helped so students didn’t repeat any trips.” (T37) Oftentimes, teachers mentioned that fieldtrip

TABLE 4
Teacher Fieldtrip Choices

Statement	Response		
	Yes	Some Input	No
Teachers can choose whether they want to lead a fieldtrip or not ($N = 114$)	63%	28%	9%
Teachers can choose where they want to go ($N = 115$)	63%	37%	0%
Teachers can choose when they want to go ($N = 115$)	54%	40%	6%
Teachers can choose how many times they can go ($N = 114$)	18%	32%	51%

destinations needed to correspond to state standards: "Trips must be curricular and satisfy a California teaching standard. Trips must not interfere with classroom learning or standardized testing." (T79) The previous quote also hints at the pressures faced by many teachers regarding accountability and test scores, as well as a suggestion that the fieldtrip is not related to what happens in the classroom. About half of the teachers surveyed indicated that they had limited or no choice regarding *when* their fieldtrip would take place, which has considerable implications for how the experience is situated within the classroom curriculum. Note that over 30% of the teachers sampled indicated that they had either limited or no choice whether or not to lead a fieldtrip in the first place. Although several teachers mentioned that all fieldtrips had been cancelled for the year, due to testing or lack of funding, it is worth noting that others indicated that they were essentially expected to lead a fieldtrip.

The greatest limitation expressed by teachers was related to the number of fieldtrips they could take each year; over 80% of the respondents indicated having little or no choice. The deciding factor in this choice was clearly funding. In fact, nearly 30% of the teachers made explicit comments regarding how funding availability impacted their trip plans and the most commonly cited expense was transportation.

These results indicate that the decision to conduct a fieldtrip is only partially the teacher's. It is likely, then, that this school context plays an important role in determining the teacher's rationale for leading an excursion. Teacher responses to these questions related to choice were compared to the identified motivations to determine if there were any significant relationships. Chi-square analysis revealed that a larger than expected number of teachers who indicated *curriculum connection* as a motivation also noted that they were able to choose *when* they conducted their fieldtrip ($\chi^2(1, N = 115) = 4.51, p = 0.034$). This is not to say those who had limited ability to choose when they led their fieldtrip never adopted a curriculum connection motivation, but that they were less likely to, compared to those who did have a choice. A similar relationship seemed to exist between *curriculum connection* and the teacher's sense that he or she could choose *where* the fieldtrip would be; however, due to small subsample size within the contingency table, a valid chi-square analysis was not possible. A statistically significant relationship was also revealed between teacher *choice of destination* and the *exposure* motivation ($\chi^2(1, N = 115) = 5.94, p = 0.015$), as well as *choice of destination* and *learning experience* ($\chi^2(1, N = 115) = 6.13, p = 0.013$). In both of these instances, teachers with only limited say in where the class would go on its fieldtrip were more likely to exhibit exposure and/or learning experience motivations, compared to those who could choose the site.

Success Indicators

Teachers were also asked to describe how they knew when a fieldtrip was successful. It would seem that the response to this question should depend at least partially on the teacher's motivations and goals for the excursion, thereby providing an additional data source for triangulation. Analysis of this open-ended question revealed seven indicators used by teachers as signs of fieldtrip success. As with the motivations, teachers often described more than one indicator. Table 5 lists these success indicators, along with specific examples. Note that these indicators correspond to several of the fieldtrip motivations identified, such as *curriculum connection*, *learning experience*, *foster interest or motivation*, and *enjoyment*.

To better see relationships between these success indicators and the teacher fieldtrip motivations, a chi-square analysis was conducted. However, no statistically significant relationships were discovered. Thus none of the success indicators were strongly connected to a particular motivation, although several interactions were expected, such as *curriculum*

TABLE 5
Indicators of Fieldtrip Success

Indicators	Examples	Response (N = 115)
Positive experience	Students “had fun,” “were excited,” “couldn’t stop talking about it,” “didn’t want to leave,” etc	61%
Demonstrate new knowledge	“Students learned something new (determined by discussion and written response after the trip)” (T6)	41%
Connect to classroom curriculum	“They [students] reference the experience in class” (T10) “I hear students discussing facts learned from the trip [in class]” (T25)	23%
Increased student motivation or interest	“... Every field [trip] I have taken to a museum showed me that students love the experience and their interest is further fueled to learn more” (T74)	17%
Good student behavior	“If I see children actively engaged and enjoying themselves I know ...” (T60) “Children are engaged the whole time” (T97)	17%
Quality/quantity of student questions	“The discussions ... and questions that are asked during and after also help me to know if it was successful” (T62) “They are better able to generate research questions” (T40)	8%
Trip completed without incident	“Also, if no one gets lost or hurt, it’s successful in another way” (T88)	5%

connection (motivation) and *connected to curriculum* (outcome) or *learning experience* (motivation) and *demonstrate new knowledge* (outcome).

These results also suggest that there may be inconsistencies or a lack of clarity within the teacher perspective of a fieldtrip. Consider the fact that although 90% of the teachers described how connection to the curriculum was an important reason for taking the fieldtrip, only 23% suggested that seeing students make those connections was a sign that the fieldtrip was successful. Other indications of confused motivations can be seen from specific responses. One teacher, categorized as having a *curriculum connection* motivation, explained that her “primary objective is usually for students to explore and relate information back to what they have learned in the classroom.” (T65) However, her perception of fieldtrip success suggested a different indicator: “I feel a trip is successful when students can articulate why a trip was fun.” (T65) Because the interpretation of the data from this study is limited to identifying, not quantifying, motivations, it is possible that these potential contradictions may even be indicating that one fieldtrip motivation, such as enjoyment, is dominant over the others.

FINDINGS, PHASE 2—IN-DEPTH ANALYSES

In order to better understand the teacher motivations and strategies described in the survey portion of the investigation, 10 teachers were interviewed and observed during their fieldtrip to the local natural history museum. The descriptive data were used to help triangulate and refine the data compiled through analysis of the survey responses. Recall that the previsit interview for each of these teachers used the same questions that made up the mailed survey.

This made it possible to identify the motivations of these teachers using the same criteria as the larger survey sample. In this way, aspects of the teacher agenda could be observed within a particular context—a fieldtrip to a natural history museum. However, the in-depth examination of these specific settings also led to the identification of new phenomena that in some instances clarified the results of the survey analysis.

Clarifying Fieldtrip Motivations

Participants in Phase 2 of the study were asked the same questions about fieldtrip motivations that were included on the survey, making it possible to categorize each using the eight motivations established via the questionnaire analysis. This provided additional information regarding what these motivations might look like within the context of an actual fieldtrip—in this case, a fieldtrip to a natural history museum. Natural history museums, like the institution examined for this study, typically consist of displays of natural objects, such as dinosaur fossils, gems and minerals, or taxidermied specimens (often shown within dioramas). There was considerable explanatory text located throughout this museum, a characteristic of many different informal settings (zoos, aquaria, air and space museums, etc.), but only a few truly interactive displays (as would one might anticipate at a science center). Although the motivations identified are likely to result in different experiences in different institutional contexts, the observations reported here serve to refine our definitions and provide examples of how these motivations influence practice.

Curriculum Connection. As mentioned, the survey data identified “to connect with the curriculum” as one of the most commonly reported motivations for fieldtrips. Although this was clarified somewhat by further categorizing some as *curriculum-related experiences* or *curriculum-related content*, it was difficult to understand from the survey responses just what the curriculum connection would look like in practice. However, observation of the cases in the museum setting helped shed some light on the complexities of this particular motivation. Probably the most apparent curriculum connection was achieved by Elizabeth with her fourth-grade class. In her classroom, the students were in the midst of a science unit dealing with ecosystems and food webs. She was able to call upon her students’ experiences in the mammal diorama halls to help complete an assignment dealing with animal diet and habitat following the museum visit. As part of the assignment, students were asked to choose an animal and then determine its food and habitat—many of the students chose animals they had observed during the fieldtrip. During the fieldtrip, the small group of students that Elizabeth chaperoned herself visited the African Mammal hall, where she reinforced usage of the word ‘diet’ as it came up in label copy for one of the dioramas. Based on how this connection was contextualized, a more specific description of this motivation might be *integration with a curriculum unit*. This integration of museum experience and curriculum is the form of connection typically recommended by museum researchers (Griffin, 1994; Price & Hein, 1991; Ramey-Gassert et al., 1994).

Another kind of connection was made when Elizabeth led her students to the museum’s Gem and Mineral hall. Here, the teacher spent almost one half of their visit time touring the hall with her students, facilitating discussion, and asking questions. She considered this experience as an important, albeit late, follow-up to the geology unit they had completed several months earlier. In this case, a more precise description of this motivation then might be *to review a curriculum unit*. Related to this refinement, although not exemplified by this particular teacher, would be *to introduce a curriculum unit*.

Other Variations on Curriculum Connection. Closer examination of these different fieldtrip experiences suggested that curriculum connections could mean something other than an experience integrated into a curriculum unit, or a topic review or preview. For instance, several of the teachers explained that they used the experience as a way to reinforce vocabulary and language use. *Label-reading* strategies were employed by each of these teachers. This language arts connection is not particularly surprising, given that at each of the corresponding schools, two-thirds or more of the students were classified as English Learners. For these cases, the museum provided a different context—a real life context—where students were able to apply their developing English skills.

For some teachers, connecting with the curriculum was expressed broadly, potentially involving all parts of the curriculum. A few of these teachers made *point-by-point connections* to classroom discussions or readings; the comments and connections made by these teachers were typically not planned, but rather resulted from active teacher participation in the fieldtrip experience. For instance, Richard, a 4th/5th-grade teacher, was able to make numerous connections with topics introduced in his classroom, despite the fact that he had not visited the museum for years. Oftentimes these links seemed to serve as a scaffold for his students as they placed the items they were seeing at the museum in a more relevant context. In many cases, references were made to stories they had read as part of the language arts curriculum.

For a few teachers, connecting with the curriculum was seen as a natural outgrowth of the fieldtrip experience. Making explicit connections before, during, or after the fieldtrip was not seen as critical for their students to be able to relate their museum experiences to the discussions and readings in the classroom. For instance, when asked about follow-up after the visit, Sue, a veteran third-grade teacher, explained that other than a class discussion held upon their return from the museum, there was simply too much for them to do within the curriculum to devote any more time to the museum trip. However, she did say that she expected that her students' experiences at the museum would enrich their future projects, including an upcoming animal report. In this way, she felt that the fieldtrip was connected to the curriculum. Luis reported a similar viewpoint, explaining that although he had not had an opportunity to follow-up with his fourth graders on their recent fieldtrip, he expected that connections to the trip would come up during normal class sessions. He explained that he had seen this on other occasions, when kids would remark "Oh yeah, we saw that in the museum."

Other Motivation Categories. In-depth interviews with teachers provided additional information that helped verify and further refine other motivations identified through the survey data. For instance, several teachers in this group expressed what would be characterized as *exposure* motivations. These teachers suggested that the parents of many of these students are unable to take their children to museums or similar places, due to time or monetary constraints. Furthermore, these teachers referred to a general paucity of experiences for these students beyond the school campus and their immediate neighborhood. For Monica and Alice, two Latina teachers participating in Phase 2 of the study, this motivation emerged from their prior experiences as students. Both teachers felt that their cultural background resembled that of their students. Monica remarked that she had strong memories of her school fieldtrips, and although she was able to recall specific places, she remembered being surprised by the diversity of people she saw—a considerable difference to what she would see in her own neighborhood. This exposure to diversity became one of Monica's objectives for her fourth-graders' fieldtrip. Alice similarly reported that the experience of getting out onto the freeway, and seeing the world beyond her neighborhood was an important memory that influenced her decision to lead the fieldtrip. For both of these teachers, helping their students experience the world as they once did was an important fieldtrip motivation.

Art, a third-grade teacher, expressed a *lifelong learning* motivation in that one of his goals was to encourage kids to visit the museum with their families, especially since many of his students lived very close to the park where it was located. He hoped that kids would go home and tell their parents about the trip and what they saw. He made little reference to this intention to his students until the end of his fieldtrip, when he announced that they were going to take a stroll around the park after they finished lunch, so they could see what other places were in the area (such as a science center, a cultural museum, a rose garden). He suggested that they might want to come back with their parents.

The *expectation* motivation was expressed by several teachers. Fifth-grade teacher John explained that for his school, the school's parent group provided funds for each class for the intention of paying for the traditional fieldtrip, and that it would be inappropriate to turn down this opportunity. Andrea, an experienced third-grade teacher, spoke of the situation at her school, where certain trips were predetermined and prescheduled as part of special programs, without teacher input. Another participant's partner teacher expressed outright dislike for fieldtrips, but explained how she felt compelled to take her students, as parents had complained in previous years when other classes had taken trips and hers had not. Teacher comments such as these helped confirm the motivation categories previously identified.

Teacher Motivations and Potential Conflicts

The teacher motivations described in this study reflect a range of attitudes toward fieldtrips and their purpose. Information obtained from the questionnaires revealed evidence of conflict between teacher motivations and their conception of a successful fieldtrip. Data from these in-depth studies clarified additional conflicts that may arise when teacher motivations (agendas) differ from those of others, including administrators, other teachers within the school, museum volunteers, or the museum itself.

Within-School Conflicts. One of the more prevalent agenda conflicts cited by teachers from both parts of the study involves the impact of testing on the fieldtrip experience. Interviews with several teachers reiterated the fact that the district or state mandated testing program prevented them from employing both pre- and post-visit strategies that would further their agenda. A similar conflict between administration and teacher occurred when the teacher was simply assigned a date for the fieldtrip with little input. For instance, Art, who worked at a school with a year-round calendar, was scheduled for his class fieldtrip to the natural history museum less than 1 week after returning "on track" with his students in the spring. Although he had been aware that a fieldtrip had been scheduled several months earlier before break, he still felt he had limited time to prepare students and coordinate chaperones in addition to other duties related to his return to school. Another teacher, Alice, indicated that she had little choice beyond providing a list of preferred fieldtrip sites (created in collaboration with other third-grade teachers) to her administration at the beginning of the school year. Their trip was eventually scheduled on a date roughly 3 weeks before the end of their school year. Alice felt limited in what she could do to make the visit a part of her classroom curriculum. She explained:

The timing of the fieldtrip determines how we can use it. I would prefer to do it earlier in the year. You could find a way to incorporate it into the curriculum. There could be more follow-up activities, more connections to the classroom. We will be ending the school year in three weeks. So now, we are just trying to look throughout the museum, since we don't necessarily have immediate connections.

Although comments from Alice indicated both *curriculum-related experience* and *exposure* as motivations, it is likely that the strength of her curricular experience agenda was diminished as a result of fieldtrip timing.

Another sort of agenda conflict resulted from the teacher collaboration often required for fieldtrip planning. In some cases, the collaboration grows out of financial need (the cost of one bus for two classes instead of two separate buses), in others, out of equity (all fourth-grade classes will do the same thing). Whatever the reason, these partnerships do not always reflect a shared agenda. Several of the teachers expressed concerns about increased group size and management issues that resulted from these collaborations. Observation and interview data suggested that the partnered teachers in several of these situations often had conflicting agendas, lending to increased confusion about the itinerary for the day, and sometime increased tension between teachers.

Teacher-Museum Conflicts. Sometimes the museum itself did not seem particularly supportive of the teacher's agenda for the fieldtrip. One example of this can be seen in the docent/staff and student interactions. These experiences observed throughout the study varied widely, and it was clear that both volunteers and staff members were well informed and willing to help. However, the extent to which these different presentations supported the teacher's agenda for the trip also varied. For example, during an observation for Phase 2 of the study, Mary and her fourth graders entered an exhibit area just as a docent volunteer was preparing to begin a brief presentation. He asked that the group enter quietly and have seat on the floor, as if this class was coming to the hall specifically for the presentation. She later explained that she had not planned on the presentation, but decided that it might be a good learning experience, even though she was not sure what the subject of the presentation was. The docent began with very little introduction and proceeded to deliver his presentation, filled with many facts and limited interaction with students. Questions were used in an attempt to improve engagement, but students were not sure how to answer. Because the teacher did not know what to expect, and the volunteer did not attempt to learn about his audience, the experience was not a particularly memorable one. In this case, the docent's desire to convey factual information in a static lecture format, on a particular timetable, was not particularly congruent with the teacher's agenda.

DISCUSSION

Understanding Fieldtrip Motivations

The initial research question sought to identify why teachers conduct visits to museums or similar informal science-learning environments. Comparison of the eight fieldtrip motivations derived from teacher survey and interview data with the set of museum visitor motivations proposed by Falk et al. (1998) reveals several similarities. Both sets of motivations recognize entertainment (or enjoyment) and learning as possible motivations. Falk et al. emphasize the idea that visitors often come to museums both to learn and have fun; many teachers indicated a similar combination of motivations. Note that neither model assumes that individuals have only one motivation when planning a visit to a museum. Subsequently, both lists also recognize that learning is not a singular motivation for these visits, and that sociocultural contexts may influence a visitor's or teacher's motivation for visiting a museum.

One way in which these two sets of motivations differ has to do with the relationship between the visitor and the visit decision maker. For general visitors, there is usually no

dichotomy—the visitor makes the decision to go. A few of the motivations, however, do involve a decision maker whose rationale affects others, such as a father deciding to take his son to see a dinosaur exhibit at the local natural history museum (*life cycle*) or a woman showing her out-of-town friend the new archaeology exhibit (*place*). Examination of the categories derived from this investigation indicates that most of the motivations involve the *teacher's* justification as to why others (the students) should go to the museum. The teacher may feel that students need a change in routine after weeks of standardized testing (*setting*), or that students would benefit from seeing a dinosaur exhibit following completion of a classroom unit on predators and prey (*curriculum connection*). In a sense, the student visitors become a secondary audience. The one exception, *expectation*, finds the teacher making a decision based not on what the needs of the students are, but on the requirements of the school setting. Nevertheless, each of these teacher fieldtrip motivations results in decisions that direct the experience of another—the student. In this sense, the student's experience on a museum fieldtrip typically lacks many aspects of “free choice” enjoyed by a general visitor in a museum.

Although the fieldtrip may not be a real free-choice learning experience, it seems that there are opportunities for a learning experience unlike what students experience in the classroom. The agenda motivations reported here would indicate that many teachers believe this as well. This teacher perspective, based on the findings of this investigation, is summarized in the statements below:

- Teachers believe that students can gain new knowledge, curriculum related or not, as a consequence of the visit.
- Teachers believe that firsthand experiences from the visit are an important contribution to student learning.
- Teachers believe that the museum visit can provide an additional perspective, or more meaningful connection, that can help students with some part of the school curriculum.
- Teachers believe that the fieldtrip can provide an entirely new experience for students, and that this experience can have a positive impact on student development and future learning.
- Teachers believe that the visit can spark interest in some topic or concept, and that students will be motivated to discover more.
- Teacher conceptions of a successful fieldtrip vary and may be inconsistent with goals or motivations for the visit.

This list is not meant to suggest that all teachers feel the same way about all fieldtrips; rather, it demonstrates that teachers express a variety of perspectives regarding these visits, and most suggest that the museum experience benefits the students in ways that the classroom experience cannot. Furthermore, the incongruence suggested by the last point again suggests that teacher agendas may be weak or somewhat unrefined, suggesting fieldtrip conceptions that focus on quality of experience rather than outcomes.

The Importance of Curriculum and the School Context

It is difficult to fully understand teacher decision making and their accompanying rationales without considering the world in which they function. For many of these teachers, the current pedagogical and political climate places them within a system that may or may not allow them to make decisions about their curriculum, including the decision to conduct a class fieldtrip in the first place. If a fieldtrip does occur, it seems that decision making for

TABLE 6
Different Conceptions of Curriculum Connection

Approach	Description
	<i>Derived from Surveys</i>
Curriculum-related experience	Students gain "hands-on" experience related to curriculum
Curriculum-related learning	Students gain content knowledge related to the curriculum
	<i>Derived from Cases</i>
Connection to language skills	Students utilize language skills in an interesting real-world setting
Point-by-point connections	Students are directed to see how different aspects of the museum relate to different parts of the curriculum
Curriculum unit integration	Museum experience is an integral part of a particular topic currently being studied in class. The experience is directly related to current activities or projects
Curriculum unit introduction/review	Students are introduced to a curriculum topic they have not yet begun in class; students are reminded of a curriculum topic they have already finished
Implicit/opportunistic connections	Students naturally relate their museum experience to their classroom experience

school fieldtrip is often removed from the teacher's hands. Furthermore, this study provides evidence that a teacher's justification for conducting a fieldtrip is potentially influenced by his or her ability, or perceived inability, to make choices about the visit.

Of all the fieldtrip motivations presented, *curriculum connection* was mentioned most often. However, data from both phases of the study showed that connecting with the curriculum meant different things to different teachers, and that many of these conceptions differed from those described in the literature. Table 6 describes the variety of conceptions of curriculum connection found in both parts of the investigation. *Curriculum-related experience* and *curriculum-related learning* were derived from the survey in Phase 1; observations and interviews from Phase 2 provided alternate interpretations of what it means to connect with the curriculum, identified by specific strategies or outcomes that define how the fieldtrip relates to the classroom. In some cases, the connection is specific and deliberate, as with the *curriculum unit integration*. This perspective is most like the conception of curriculum connection espoused by researchers (Ramey-Gassert et al., 1994; Rennie & McClafferty, 1995). At the other end of the spectrum, we find an *implicit or opportunistic connection*, with the fieldtrip providing points of comparison naturally, throughout the curriculum, throughout the year. While it is conceivable that teachers at highly interactive venues (such as many science centers) might express a curriculum connection motivation in additional ways, it seems that each of the conceptions below would be just as likely as well. The variety of conceptions of *curriculum connection* may be a consequence of the climate of accountability within schools, forcing many teachers to provide explicit justification how the fieldtrip will benefit the students and support the mandated curriculum. These varied conceptions also suggest that teachers may not recognize strategies that might be used to support this motivation in a meaningful way.

Implications for Practice

Identifying different fieldtrip agendas helps us gain a better understanding of different teacher intentions and strategies used during these visits to informal sites. The personal experiences and school contexts of each teacher play a role in this kind of agenda that the teacher adopts. Yet who decides which agenda is best? Can a teacher be faulted for having an agenda of breaking up the classroom routine (*setting*) with a fun experience (*enjoyment*), when the class has just completed 2 weeks of standardized testing? Is it reasonable to insist that a teacher maintains a *curriculum connection* agenda when the date the teacher is given for the visit by her administrator is only a few weeks before the end of the school year? Every teacher comes from a different set of circumstances that shape the school fieldtrip, just as museum visitors bring their personal experiences, expectations and other contexts that shape their museum experiences. As Falk and Dierking (2000) have described, one of the unique characteristics of these informal institutions is the ability of the learner to choose. In the case of teacher fieldtrips, it is the teacher making the choice for a group of potential learners.

It seems reasonable to assume that different teacher agendas would be more or less likely to promote student learning, just as Falk et al. (1998) found that different visitor agendas were more likely to promote learning. Recall that in that study, however, both education and entertainment agendas were found to facilitate learning more than the other agendas. Thus, judging the appropriateness of teacher agendas in terms of which is more educational may be a bit premature, given the lack of research in this area.

Rather than promoting a particular way to use the facilities, museums might consider how best they might support the teacher's agenda to make for a successful fieldtrip. For instance, in urban institutions, a special program might be designed to compliment an *exposure or interest and motivation* agenda where teachers are given a pathway through the institution that highlights connections with the urban environment. As part of this visit, students might also have an opportunity to ask questions of a scientist, historian, or other professional to learn more about their career or their role within the community. To support teachers with a *lifelong learning* agenda, the museum might provide materials, including multilingual directions and admission passes or discounts that would encourage students to revisit the museum with their parents and share what they discovered on their school trip. Both examples described here attempt to provide the teacher with a perception of the museum as a resource that can support their agenda.

Additional information provided by museum educators, such as lists of themes or content areas exhibited or specific standards that might be addressed at the site may help strengthen teacher motivations or help them to develop motivations that promote science learning. Although schools or districts may have mandates, it is the teacher, not the district representative or the school coordinator, who is ultimately responsible for the student experience during a fieldtrip. Therefore, any suggestions for the teacher regarding how the museum might be able to support the science curriculum must *get* to the teacher, and not just the school or district administrator. Certainly, once the teacher receives information, there is no guarantee that he or she will make time to read or incorporate this into their plans. Yet lack of information greatly limits any opportunity for support.

Griffin (2004) suggests that the border that seems to exist between school groups and museums be crossed from both sides, however. Within the context of this study, it is important that science teachers, and science teacher educators, be aware that the fieldtrip experience is greatly shaped by the teacher's agenda. Therefore reflection and identification of those motivations for leading the fieldtrip become an important part of fieldtrip planning. If one of the purposes of the excursion is truly to support the classroom curriculum, teachers must

take time to consider how that particular informal setting can be used to enhance their instruction.

In addition to reflection on their own agenda for the fieldtrip, teachers might also consider the fact that their students are likely to have individual agendas as well (Griffin, 2004). A negotiation of the fieldtrip experience, as observed in studies of family groups in museums (Crowley & Callanan, 1998; Dierking, 1989), may increase the likelihood that students will share, or accept, the teacher's agenda for the trip.

Clearly, supporting teacher agendas requires an understanding of teacher and school contexts. As teacher choices and subsequent fieldtrip agendas are being limited by other circumstances, especially circumstances within the school context, it is necessary for museums to be aware of these factors. Similarly, teachers must recognize how their agenda fits with the institution they are visiting. This increased awareness on both sides of the fieldtrip may help reduce some of the conflicts inherent in this juxtaposition of formal and informal settings.

APPENDIX A

Fieldtrip Survey Questions

For this survey, the term "museum" is used to represent many different public institutions that promote learning, including *zoos*, *science centers*, *nature centers*, and *historic sites*, to name a few.

1. To which of the following "museum-like" institutions have you *ever* taken a class on a field trip? CHECK ALL THAT APPLY.
 - a. Natural history museum
 - b. Science center
 - c. Nature center
 - d. Zoo or wildlife park
 - e. Aquarium
 - f. Observatory
 - g. Cultural/history museum
 - h. Art museum
 - i. Children's museum
 - j. City, state or national park
 - k. Other (*describe*)-----
 - l. I have **never** taken my students on a field trip of any kind.

2. Have you ever led a field trip to somewhere *other than* a museum or similar institution?
 - a. No
 - b. Yes (please describe-----)

3. *Altogether*, approximately how many class field trips to museums or similar places have you led during your teaching career? CHECK ONE.
 - a. 1–2
 - b. 3–5
 - c. 6–10
 - d. 11–20
 - e. Over 20

4. On average, how often do you take your class on a field trip to a museum or similar place? CHECK ONE.
- Once every 2–3 years
 - Once per school year
 - 2–3 times per school year
 - More than three times per year
 - Other-----
5. Please consider the following statements and indicate whether they are accurate for your school/district.
- Teachers can choose whether they want to lead a field trip or not.
 Yes teachers have *some* input no
 - Teachers can choose where they wish to go.
 Yes teachers have *some* input no
 - Teachers can choose when (date) they wish to go.
 Yes teachers have *some* input no
 - Teachers can choose how many times they go.
 Yes teachers have *some* input no
 - Are there any other options teachers have (or do not have) at your school regarding field trips? (Describe below.)
6. *What grade* do you currently teach?
7. For how many years have you been *teaching this grade level*?
8. For how many years have you been *teaching altogether*?

Teachers conduct museum field trips for *many* different reasons. These questions ask about your rationale, goals, and strategies for school field trips to museums. Please provide as much information as you can and use specific examples when appropriate

- Why do you take your class on field trips to museums or similar places? Think about what prompts you to lead these excursions in the first place.
- What are your primary goals for a field trip experience? Consider what outcomes you hope to achieve.
- Describe what strategies you use to make your museum field trip successful. (Consider what you do during the field trip, as well as anything you might do before or after the visit.)
- How do you know if a field trip is successful? Please explain.
- Think back to when you were in school (K-12). Do you recall going on a school field trip to a museum or similar place? CHECK ONE.
 - Yes
 - No, I never went on a school field trip to a museum or similar place
 - I don't remember

If you responded “no” or “don’t remember” for question 13, skip to question 15. →

- What do you remember about the school fieldtrip(s) you went on when you were in school? Provide as much detail as you can.
- What is the *name of the school* OR the *school zip code* where you currently teach?
- What is the name of the school district (and subdistrict, if applicable) where you teach?

APPENDIX B

Protocol for Coding Motivations Based on Teacher Responses to Survey

Curriculum connection	Code if any mention of relating the museum learning to what is done in class. Note that an action may be coded as curriculum connection without coding <i>curriculum-related experience</i> or <i>curriculum-related content learning</i>
Curriculum-related experience	Code if any mention of firsthand experience related to the classroom (e.g., “brings text alive,” “makes the curriculum real,” “provides realia,” “an opportunity for hands-on . . .”). If this is coded, curriculum connection must be coded as well
Curriculum-related content learning	Code if any explicit mention of the trip assisting with adding to student understanding of curriculum topics (e.g., “students will learn more,” “new knowledge” etc.). If this is coded, curriculum connection must be coded as well
Learning experience	Code if any mention of any learning experiences (“hands-on,” “firsthand,” “gaining new knowledge,” “learning about the world”) in a broader sense, not connected to the curriculum. Learning is seen as a goal, whether it connects to classroom topics or not. It is <i>possible</i> for Learning experience and curriculum connection to both be coded; but coding curriculum connection does not automatically mean coding the other
Lifelong learning	Code if any mention of the trip promoting interest in learning beyond the classroom. (e.g., “so they can see learning doesn’t just happen in a school room”). May involve appreciation museums or similar institutions, as well as museum going as a shared experience, as with family
Interest and motivation	Code if any mention of increasing student interest in a topic or motivating them to learn more, explore a topic etc. The interest may or may not be related to the curriculum or learning. This is typically accompanied by other rational
Exposure	Code if any mention of students lacking opportunities for experiences such as going to museums (“sheltered students,” “students don’t have opportunities” etc.). May also include exposure to other ideas, such as career awareness. Exposure differs from Lifelong Learning in that the emphasis is on gaining experience. Lifelong Learning suggests gaining a series of experiences over time, or looking at the long term. Exposure might be seen as the “first step” toward Lifelong Learning
Setting	Code if any mention of providing a break from the classroom, or the need for a different learning setting (“getting out of the classroom”). In some cases, this is one of several motives
Expectation	Code if any mention of the fieldtrip as being required or expected of teachers (e.g., “fieldtrips are traditional at our school” or “PTA pays, so we better go”)
Enjoyment	Code for any mention of student enjoyment as being an important reason for the fieldtrip experience. This may also be described as a reward for students

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