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Planning Effective School Field Trips For Elementary Students

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PLANNING EFFECTIVE SCHOOL FIELD TRIPS

FOR ELEMENTARY STUDENTS

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ABSTRACT

Field trips for elementary school students are valuable contributors towards improved learning, motivation, and student social interactions. Unfortunately, they are often underutilized in the support of student learning due to several factors: often teachers do not know how to use field trips to their best advantage, often planning field trips is time consuming and difficult, teachers are pressured to justify field trips in terms of links to measurable educational standards, and preservice teachers seldom are instructed in their effective use. To address these concerns, a guidebook for preservice and current teachers has been developed. In it, research based teaching strategies for learning in informal learning environments and instruction for planning the logistics of a school field trip are presented.

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Chapter 1

INTRODUCTION

School field trips long have been accepted as a part of public education in the United States. Teachers have used field trips as a method to: (a) reinforce curriculum, (b) reward acceptable classroom behavior, (c) develop positive attitudes toward certain subjects, (d) provide a new learning experience, (e) expose students to a new learning environment, (f) provide opportunity for general learning to occur, (g) encourage lifelong learning, (h) have fun, (i) fulfill expectations of school administrators or other instructors, or (j) simply provide a break from classroom routine (Gottfried, 1980; Hein & Alexander, 1998; Kisiel, 2005; Millan, 1995). However, the maximum benefits of school field trips have not been realized due to either inadequate preparation on the part of teachers or their low expectations of the learning potential of field trips (Anderson & Zhang, 2003; Griffin & Symington, 1997; Kisiel, 2003; Tran, 2006).

Statement of the Problem

While research supports the use of school field trips to improve learning, motivation, and student interaction with one another and the community, teachers have a direct impact on how well these goals are achieved (Carroll, 2007; Falk & Dierking, 1997; Griffin & Symington, 1997; Kisiel, 2003). In the current educational climate, with its emphasis on standards based education, elementary teachers need to understand the value of school field trips more than ever (Schatz, 2004). Furthermore, teachers need to

know how to use field trips to their best advantage (Anderson & Zhang, 2003; Griffin & Symington, 1997; Kisiel, 2005; Tran, 2006).

Background of the Problem

Taking students on school field trips presents special challenges. In fact, Orion and Hofstein (1994) argue, "the field trip is one of the most complex and expensive activities in the educational system" (p. 1117). Expense aside, field trips are complex because schools increasingly require teachers to link the field trip experience to measurable standards instead of using the field trip to accomplish other goals, such as giving students exposure to a different learning environment or helping students develop an interest in a topic (Schatz, 2004). To complicate matters, college teacher education programs seldom instruct preservice teachers in their effective use (Kisiel, 2005), and many teachers "feel greatly intimidated and even fearful when they bring their classes to museums" (Griffin & Symington, 1997, p. 775). In fact, Tran (2004) asserts that on field trips to museums, many teachers are "inexperienced novices" (p. 8).

There are many variables that affect the educational value of a field trip (e.g., how it is linked to the curriculum, how clearly the objectives are communicated to students and chaperones, etc.) (Carroll, 2007; Griffin & Symington, 1997; Schauble et al., 2002; Voris, Sedzielarz, & Blackmon, 1986). Without teachers making proper preparation, school field trips have limited value (Orion & Hofstein, 1994). Therefore, educators need to learn how to attain the most benefit from field trips (Griffin & Symington, 1997; Kisiel, 2003; Tran, 2006).

Purpose of the Project

Despite the possible cognitive, affective and social advantages of field trips, many teachers have not been trained in the use of field trips. Therefore, the purpose of this project is to identify the benefits and challenges involved with planning school field trips and to develop a guidebook to help preservice and current elementary teachers maximize each field trip experience.

Chapter Summary

It is this researcher's position that including frequent, well planned, field trips as part of the elementary student's education can provide many rewards. In Chapter 2, the Review of Literature, the background information that supports the cognitive, affective, and social value of school field trips is presented. Also presented will be factors that can detract from the success of a school field trip. In addition, research that explains the best methods for planning a field trip is offered. In Chapter 3, the methods for the development of this project are presented.

Chapter 2

REVIEW OF LITERATURE

School field trips--defined as an excursion outside the classroom in order to attain exposure to authentic experiences or objects—have been recognized for many years as a positive contributor to learning (Anderson & Zhang, 2003; Hein & Alexander, 1998). Normally, school field trips take students to various types of informal learning environments (e.g., museums). For the purpose of this project, the use of the term museum will refer to aquariums, zoos, nature centers, historical sites, botanic gardens, and other places where students can have firsthand experience with authentic objects or real world environments.

Historical Background

In Europe, school field trips have had a place in education since the Middle Ages (Curtis, 1944). However, in the United States, it was not until the late nineteenth century that school field trips were used to supplement educational goals (Krepell & DuVall, 1981). Since that time, field trips have been accepted as an experience that offers unique learning opportunities. In fact, in their book *Field Trips,* Krepell and DuVall stated, "Although its relative position or importance within the instructional program has varied, the field trip is presently one of the most vibrant teaching-learning experiences available to educators" (p. 9). Museum education researchers Falk and Dierking agree. They explain, "The most compelling learning experiences are all-encompassing with all of an

individual's sensory channels engaged in the experience" (2002, p. 152). They encourage the use of museums to support individual learning styles and to provide a unique learning resource for families and schools.

It is important to note that museum educators have undertaken much of the research on the topic of school field trips. While there is not enough research on school field trips in general, these researchers have conducted studies on how learning occurs in museums that is relevant to school field trips.

Value of School Field Trips

A well planned field trip contributes to a child's education in many ways, providing: (a) cognitive, (b) affective, and (c) social gains (Falk & Dierking, 1997; Gottfried, 1980; Voris, Sedzielarz, & Blackmon, 1986). Also, students benefit from: (a) increased connections with their community (i.e., real world connections), (b) exposure to various types of informal learning environments, and (c) firsthand contact with authentic objects (Falk & Dierking, 2002).

Moreover, participation in well planned field trips can benefit every child, from the English language learner and special needs students to the typical students, regardless of learning style (Voris et al., 1986). The National Science Teachers Association (NSTA), in its Position Statement on Informal Science Education, recognizes that such education "accommodates different learning styles and effectively serves the complete spectrum of learners" (1999, p. 1). Also, Hein (1985, as cited in Price & Hein, 1991) reported that programs at science museums "can provide opportunities for non-academic and non-English-speaking students, who are often poor achievers, to get involved in, and excited

about learning and to experience success" (p. 516). In fact, field trips may be of special benefit to children from low socioeconomic status (SES) backgrounds, who often have limited experiences with informal learning environments (Falk & Dierking, 2000; Gerber, Cavallo, & Marek, 2001). In addition, participation in field trips is advantageous for students who are poorly motivated in the classroom (Gottfried, 1980; Hannon & Randolph, 1999).

However, despite the aforementioned advantages, many teachers do not know how to use field trips to their best advantage (Anderson & Zhang, 2003; Griffin & Symington, 1997; Kisiel, 2005; Tran, 2006). While there is not enough research on field trips in general, researchers (Falk & Dierking, 1997; Griffin, 1999; Kisiel, 2006; and Tran, 2006) have conducted studies on how learning occurs in informal learning environments that is relevant to students on school field trips.

Broader Definitions of Learning

Learning can be defined in many ways. Learning can involve education of the whole person to include "outcomes like an expanded sense of aesthetic appreciation, the development of motivation and interest, the formation and refinement of critical standards, and the growth of personal identity" (Schauble et al., 2002, p. 425). Moreover, learning requires active participation or engagement to occur (Hein, 1998), as well as repetition (Konecki & Schiller, 2003). In the case of informal learning environments, typically learning is unstructured, experiential, exploratory, non-directed, and voluntary (Griffin, 1999). In addition, teachers may observe evidence that learning is taking place, as shown by students sharing learning with others or by initiating their own

learning (Falk, 1983; Gottfried, 1980; Griffin, 1999) that may not show up on some types of assessments. Thus, some aspects of learning that occur on school field trips may not be assessed easily.

Furthermore, time is needed for students to make meaningful connections with their memories and to build upon them (Institute for Learning Innovation [ILI], 2006). In support of this finding, Rennie and Johnston (2004) asserted that

> current learning can be considered as dependent on previous learning or understanding, and as the basis for building further learning at a later time. Thus learning is cumulative and iterative; it is an ongoing process not a single event. The cumulative nature of learning means that the significant impact of a museum visit is likely to occur sometime later. (p. S8)

Thus, the learning that takes place in a field trip setting can become background knowledge from which students may draw for the rest of their life.

In addition, object based learning can foster a deeper understanding. Hooper-Greenhill (1987) stated: "True internalised [sic] understanding that is genuinely felt and incorporated into the existing knowledge and experience of the learner is more likely to occur in concrete situations" (p. 46). Indeed, authentic objects serve to engage students and create memorable connections.

As a result, some researchers recommend taking a larger view of how school field trips profit young people. Falk and Dierking (2002) recommend that, rather than considering an educational event—such as a field trip—as distinct, instead teachers recognize it as a component that individuals use to construct knowledge. They state: "Learning is a continuous, almost seamless process of developing and elaborating our understanding of the world" (p. 42). In this vein, Fairchild (n.d.) stresses that field trips

contribute to students' academic and social growth: "Outstanding teachers use field trips and other types of hands-on, experiential learning to teach and reinforce the knowledge and skills that children and youth need to be successful" (cited in Carroll, 2007, p. 20). Clearly, school field trips provide many benefits to students, and such experiences serve to increase cognitive as well as social development.

The Contextual Model of Learning

Over the past several years, researchers and educators have examined how people learn in museums. In particular, Falk and Dierking studied thousands of museum visitors to better understand the many factors that affect the experiences that people of all ages have in informal learning environments.

As a result of their research, Falk and Dierking developed a model called the Contextual Model of Learning. The model illustrates how learners bring personal context, sociocultural context, and physical context factors to informal learning environments. In the case of participation on a field trip, children bring their own contexts to an informal learning environment. Their personal context is based on their own limited experiences, their expectations, interests and motivations, and their desire for choices and control in such a setting. Their sociocultural context incorporates their cultural background with the social dynamics involving other students, teachers, parent chaperones, and museum staff. Finally, their physical context includes possible familiarity with the setting, the design of their museum visit, along with follow up discussions and experiences that may occur at home or in the classroom. Since teachers have much potential to influence the three contexts students bring to an informal learning environment (Anderson & Zhang, 2003;

Griffin & Symington, 1997; Kisiel, 2005), how these contexts affect student learning on an elementary school field trip will be addressed throughout this chapter.

Teachers' Goals for Field Trips

Generally, teachers think that school field trips to informal learning environments (e.g., museums) can contribute to student learning (Anderson & Zhang, 2003; Gottfried, 1980; Kisiel, 2005). However, teachers have many different goals for their students when they plan a field trip. For example, teachers have used the field trip as a method to: (a) reinforce curriculum, (b) reward acceptable classroom behavior, (c) develop positive attitudes toward certain subjects, (d) provide a new learning experience, (e) expose students to a new learning environment, (f) provide opportunity for general learning to occur, (g) encourage lifelong learning, (h) let students have fun, (i) fulfill expectations of school administrators or other instructors, or (j) simply provide a break from classroom routine (Anderson & Zhang, 2003; Gottfried, 1980; Hein & Alexander, 1998; Kisiel, 2005; Millan, 1995). In addition, some teachers have vague goals for their use of field trips, which leads to less desirable outcomes in terms of learning (Griffin, 1994). Without clear goals, teachers can find it hard to identify and reach their objectives.

Cognitive Benefits

Even though field trips (e.g., a trip to the museum) may last only a few hours, students retain a remarkable amount of information. Hein and Alexander (1998) state:

> One of the marvels of museums is that the brief encounters visitors have with exhibitions do appear to lead to learning, do result in some change in the visitor that is often remembered with pleasure, and can influence future behavior. (p. 27)

In other words, a visit to a museum on a school field trip can have a positive, lasting impact on students.

On field trips, students have the chance to experience new settings, to approach a topic from a new perspective, and to practice skills not easily replicated in the classroom. In addition, field trips are especially valuable for students who are visual, tactile or kinesthetic learners (Muse, Chiarelott, & Davidman, 1982). Thus, a school field trip can be an effective strategy for learning.

Long Term Memory of Field Trips

Students often forget what they learn in school. However, research shows that students can recall material taught during a field trip years after the field trip (Falk & Dierking, 1997). In fact, research has shown that students who have participated in museum visits (i.e., one common type of field trip) can demonstrate recall of their learning for weeks and months later through drawings, retelling, and teaching younger children (Gottfried, 1980; Hein, 1998; Wolins, Jensen, & Ulzheimer, 1992). The following studies illustrate some specific examples of the relationship between memory and field trips.

Morrell (2003) conducted a study with third and fourth grade students who participated in an outdoor forestry program; the students were tested immediately following the field trip on information presented during the field trip. When retested 3 months later, these students showed minimal loss of knowledge in comparison to the first posttest.

In another study, Gottfried (1980) reported that elementary students discovered facts about animals, learned how to pick up and handle live animals, and felt less fearful of

animals as a result of the field trip. In addition, the students were actively involved in their learning to the extent that many participated in animal experiments of their own design.

And finally, Falk and Dierking (1997) found that almost all of the participants in their study could recall something they had learned on a field trip taken during their early elementary school years. In fact, many reported that their memories were rekindled when they encountered a similar experience. Confirming those findings, Hein and Alexander (1998) stated that children recall information from a museum visit "after astonishingly long intervals" (p. 18). Thus, it is imperative for teachers to recognize that the field trips they plan may provide background knowledge that contributes to student achievement in later grades (Rennie & Johnston, 2004).

Object Based Learning

Another cognitive benefit of field trips is the opportunity they can provide students to practice observation skills, use all (or most) of their senses for learning, and gain exposure to authentic objects. Cameron (n.d., as quoted in Voris et al., 1986) stated:

> The communication of ideas through real things can be so intense and intimate an experience for a child that the picture image, the word symbol, the model or replica, and the screen image of film and television become pale shadows. (p. 2)

In other words, a student's experience with authentic objects heightens interest, and results in a strong link to memories. Thus, memories linked to physical spaces and objects create emotional and cognitive connections.

Part of the reason for such strong memories is because learning from objects is more concrete and relies on visual, perceptual and inferential skills (Falk, Koran, &

Dierking, 1986; Voris et al., 1986). With less reliance on verbal ability, students with limited English or with special needs can be accommodated more easily for, in the use of objects, "the objects themselves become central to developing the concepts which are essential to your unit of study" (Alvarado & Herr, 2003, pp. 5-6). Thus, students of all ages, from all backgrounds, and with all learning styles can be engaged in object based learning.

Object based learning requires specific skills. To be successful in their use of objects for learning, students must: (a) carefully observe (and possibly handle) objects, (b) formulate questions, (c) make comparisons, and (d) draw conclusions (Griffin, 1994; Hooper-Greenhill, 1987). Indeed, the process of learning from objects is multisensory, participatory and need not be grade specific. In fact, Shuh (1999) states: "Even young children can often be helped to understand quite complex concepts when they can discover them concretely manifested in objects" (p. 82).

Development of Background Knowledge

Another cognitive benefit of a field trip is due to the development of background knowledge that results from exposure to authentic objects and experiences. As previously noted, field trips can give students concrete experiences that will help them in future studies (Rennie & Johnston, 2004). In fact, Wolfe (2001) asserts that the use of symbolic representations

> is effective to the degree that the learner is exposed to the real entity. Without the concrete experience, the representation or symbol may have little meaning, no matter how much someone explains it to you. This is certainly true in schools, where students often are exposed to representational information that has no concrete antecedent. (p. 137)

Indeed, students from low SES backgrounds especially need such exposure to concrete experience, as they might experience on a school field trip. Equally important, field trips can be advantageous for minorities and recent immigrants, as families from these backgrounds typically do not visit museums (Falk & Dierking, 2000).

Museum going historically has been an activity enjoyed by more affluent American families (Falk & Dierking, 2000). In order to attend museums, families must know that "museums exist, that they are readily accessible, and that they have the capacity to satisfy the individual's personal needs and interests" (p. 74). For children from a low SES background, school field trips may introduce them to museums, and subsequently their families (Dierking, Luke, Foat, & Adelman, 2001).

Limited experiences--and therefore limited background knowledge--is one contributor to the achievement gap (Recent Research, 2006). Participation in school field trips (i.e., ones that provide concrete learning experiences) can provide opportunities for these students to develop background knowledge, which, in turn, can remedy their knowledge and experience gaps.

Multisensory Experiences Support Learning

Another cognitive benefit of a field trip is derived when students have the opportunity to participate in multisensory or hands-on experiences in a museum setting: more permanent learning takes place than would occur in a classroom setting (Wright, 1980). Wright investigated the use of a field trip using hands on experiences as a follow up to a classroom unit of study. On the exam, a group of students who visited a museum as a follow up activity had "superior comprehension and application of knowledge and

concepts" (p. 103). Multisensory experiences served to enhance the learning of the students who attended the field trip.

Recent brain based research points to the importance of student engagement in learning tasks. When students are actively involved, they retain more vivid memories and make more meaningful connections (Tuckey, 1992; Willis, 2007; Wolins et al., 1992). Also, students tend to spend more time at interactive exhibits, thus remaining actively engaged when visiting museums (Falk, 1983; Hein & Alexander, 1998).

Results Derived from Contact with Nature

There is an additional benefit, in terms of cognitive gains, when students spend time outdoors in nature. Kellert (2002) argued that contact with nature supports a broad range of cognitive development: "Few areas of life provide young people with as much opportunity as the natural world for critical thinking, creative inquiry, problem solving, and intellectual development" (pp. 124-125). Crain (1997), also, reported that student participation in outdoors studies resulted in improved observation skills and creativity. These skills can be extended into better writing and more advanced scientific reasoning.

Learning as Related to Personal Context

Personal context factors (i.e., from Falk and Dierking's Contextual Model of Learning) contribute to cognitive gains as well. Falk and Dierking identified control and choice to select areas to explore as contributors to learning. Griffin (1998) recommends that teachers give students choices in what they investigate, as choice and ownership enhance learning. McGeehan (2001) concurs; in her research of brain based learning, she reported that personal meaning enhances memory development.

Methods of Presentation Affect Learning

Finally, a factor at a field trip destination that can affect cognitive gains is the method of presentation. More specifically, presentations offered for school groups may include: lectures or guided tours by museum educators or docents (trained volunteers), unguided tours (i.e., undirected time to explore), media presentations, and classes (e.g., instruction and practice in dissection).

Guided tours by museum educators or docents can contribute effectively to learning. For example, in a study of students who visited a museum, Stronck (1983) reported that students who participated in a structured tour led by a museum docent showed a greater increase in knowledge in comparison to students who participated in a less structured tour led by their classroom teacher (although the latter students scored higher in positive attitudes toward the museum). However, it is important to note that docents can vary in their effectiveness, thereby affecting student learning (Melton, Feldman, & Mason, 1936).

Mixed results have been reported when students are required to use worksheets on field trips. Fry (1987) found that the judicial use of worksheets increased learning, although Parsons and Muhs' (1994) study of students on a field trip to the Monterey Bay Aquarium found that the use of worksheets detracted from exploration and observation. In support of Parson and Muhs' findings, Falk and Dierking (2000) reported that student dislike of worksheets is one reason students prefer to visit museums in a family group rather than on a school field trip.

Social Benefits

In addition to cognitive benefits, participation in field trips can lead to increased social development in children, due to the many opportunities for interaction between students and the adults (i.e., chaperones and teachers) who accompany them. In fact, collaborative learning strategies as well as discussions among students and adults on field trips enhance learning (Bowker, 2002; Griffin, 1994; 2004; ILI, 2006; Kisiel, 2003; Ramey-Gassert, Walberg, & Walberg, 1994; Tuckey, 1992).

Other adults, such as museum staff and docents, may contribute to social and cognitive development of students on field trips as well (Cox-Petersen, Marsh, Kisiel, & Melber, 2003). Often, these adults are eager to share their knowledge and enthusiasm with students; ideally, they function as positive role models and facilitators of learning. As a result, students may meet possible mentors or develop an interest that leads to further study or a career (Falk & Dierking, 2002; Perry, 2002).

Collaborative Learning

Falk and Dierking (ILI, 2006), in their Contextual Model of Learning, emphasize the social mediation that occurs in informal learning environments. According to the model, social groups "utilize each other as vehicles for deciphering information, for reinforcing shared beliefs, for making meaning. Such settings create unique milieus for collaborative learning to occur" (p. 3). These discussions among students and adults support students in their creation of meaningful connections.

In fact, field trips to informal learning environments naturally lend themselves to collaborative learning (Falk & Dierking, 2000; Griffin, 1994; Griffin & Symington, 1997;

Kisiel, 2003; Meredith, Fortner, & Mullins, 1997; Ramey-Gassert et al., 1994; Wolins et al., 1992). For example, on a field trip to a museum, groups of students and adults (i.e., teachers and chaperones) often explore together, with frequent questions and comments among themselves; most of these conversations between students relate to how to use an exhibit or their reactions to it. In fact, in multiple studies, students were observed to share their discoveries with one another (Gottfried, 1980; Griffin, 1994; 2004; Griffin & Symington, 1997; Meredith et al., 1997; Tuckey, 1992). Furthermore, Wolins et al. (1992) reported that student interactions increased their memories of field trips. In informal educational settings (e.g., museums), Meredith et al. stated: "Social interactions seem to be crucial" (p. 816).

Parent Chaperones

Normally, at the beginning of a field trip, teachers assign students to small groups led by chaperones—usually parents who accompany the class on the field trip (Sedzielarz, 2003; Parsons & Muhs, 1994). The smaller group size makes possible more social interaction between students and their assigned parent chaperone. Also, this small grouping contributes to parent chaperones and students acting more like a family at a museum, a desirable outcome to be discussed later.

Parent chaperones play an important role in academic and social growth in students on field trips. One noteworthy reason is that the high ratio of adults to students encourages mediation and interaction. In fact, in a study of school groups at an informal learning environment, Bowker (2002) found that the ideal adult to student ratio was 1:2, "or at worst 1:4" (p. 134), so that adults can effectively mediate learning. He reported

that informed adults who are interested in the exhibits and ask students open ended questions play an important part in mediation.

Other researchers have investigated the function of chaperones on field trips. Parsons and Muhs (1994) identified four characteristics of parent chaperones: (a) they are conscientious and help the children to find answers to questions they might have; (b) they interact with their small group more as a family would rather than as teachers and students might; (c) they keep their group on task with discussion and use of exhibits and other resources, such as labels; and (d) small groups led by parent chaperones work better without the use of worksheets, as worksheets tend to interfere with exhibit observation and discussion.

More recently, Sedzielarz (2003) observed and interviewed participants in almost 30 chaperoned school groups. Sedzielarz found that parent chaperones acted as "guide, group facilitator, timekeeper, learning leader, teacher, role model, security guard, learner, and strategizer" (p. 22). Further, parent chaperones acted as social and learning mediators and adjusted discussions with each student in order to scaffold information and to keep student interest high. In addition, some parent chaperones took on the role of teacher and provided direct instruction to students as the group viewed exhibits. As role model, parent chaperones sought to demonstrate appropriate behavior in a museum, and as group facilitator, parent chaperones redirected behavior and gave support to each student in the group. Overall, Sedzielarz found that parent chaperones took their responsibilities seriously and accepted several major roles that contributed to the field trip's success.

Another study of chaperoned school groups at a museum revealed that teachers and chaperones viewed chaperone responsibilities quite differently. Burtnyk (2004) found that teachers were reluctant to share the role of teaching facilitator with chaperones, even though "nearly 50 percent of chaperones stated that 'facilitating learning' was one of their primary duties" (p. 13). One reason for this misunderstanding may be that teachers rarely meet with chaperones prior to the field trip to share expectations and learning materials. However, Burtnyk found that when chaperones were encouraged to facilitate learning, they urged closer observation, spent more time at exhibits, and engaged students in relevant discussions.

Family Visits to Museums

One topic of museum research has focused on how families use museums. In one study, Jensen (1994) conducted interviews of elementary school children to identify the role of museums in their lives. She reported that children prefer family visits to museums over field trips with their school. Several factors were mentioned: (a) parents make the children's physical comfort a priority; (b) parents allow children to set the agenda for exhibits visited, length of time spent at exhibits, and duration of time spent at the museum; (c) often, children can approach an exhibit more closely when in a small family group; and (d) much positive social interaction occurs between family members during a museum visit. Furthermore, conversations between parents and children seem to enhance the children's interactions with exhibits (Diamond, 1986).

Based on the knowledge of children's preferences, museum educators continue to study family visits (Dierking et al., 2001). As a result, they are working to provide

research based support to school groups in order to facilitate more effective learning (Griffin & Symington, 1997).

Affective Benefits

School field trips bring about affective benefits for students; however, they are harder to quantify (Falk, 1983; Griffin, 1999). In this project, the definition of affect includes the "development of interest, enthusiasm, motivation, eagerness to learn, awareness and general openness and alertness" (Wellington, 1990, p. 250). Positive affective change enhances learning, in that students may develop positive attitudes toward a subject that leads to further interest, independent study or future career goals (Falk & Dierking, 2002; Perry, 2002). Moreover, development of motivation is tied to how much effort an individual is willing to exert to explore and stay with a topic.

Emotions and Learning

Brain based research emphasizes the importance of emotions as they relate to experience. In that regard, researcher McGeehan (2001) selected three findings most applicable to classroom teachers: "1) emotion is the gatekeeper to learning; 2) intelligence is a function of experience; and 3) the brain stores most effectively what is meaningful from the learner's perspective" (p. 8). These findings explain how critical it is that meaningful, firsthand experiences are provided for students in order to increase their learning and interest.

In a study of affective learning in informal science settings, Meredith et al. (1997) concluded, "short-term affect experienced in nonformal science learning may serve to influence cognitive learning and may initiate or reinforce long-term affective dispositions

such as sentiments, attitudes, interests, values, and commitment" (p. 813). Indeed, these positive emotions may result in students carrying an increased interest back to the classroom where they become more attentive to instruction in that subject.

Stimulation of Interest and Motivation on Field Trips

Krepel and DuVall (1981) argued that the development of interest in a subject is more important than actual knowledge gained on a field trip. Roberts (1990) also claimed that stimulating interest may be "the most important aspect of affective learning" (p. 21). In fact, interest, exploration, and absorption can cause individuals to linger and persist in order to master concepts or activities (Csikszentmihalyi & Hermanson, 1995).

Besides, the enthusiasm engendered by a field trip can, of itself, be important. As a result of observing visitors at an interactive museum, Wellington (1990) asserted that

> hands-on science centres [sic] generate such activity, enthusiasm, adrenalin, excitement and interest that their failure to contribute immediately and directly to deeper understanding of science is insignificant…. [Furthermore] the generation of interest and eagerness to learn, should not be underestimated. Close encounters of this kind surely develop abilities [in cognitive areas]. (p. 250)

In other words, although excitement may be one noteworthy result of a field trip, it should not be dismissed. Students may bring back their enthusiasm to the classroom, where they seek further understanding of a concept they investigated on a field trip.

Finally, these positive emotional reactions may be the most valuable for the stimulation of interest (Roberts, 1990). After observing children on a school field trip, Gottfried (1980) reported "an important outcome of the field trip for many children was their association of science with fun and playful activity rather than drudgery or a catalogue of facts as it is sometimes presented in school classrooms" (p. 173).

Furthermore, Hooper-Greenhill (1991) stressed that "the true learning potential of the museum is the opportunity for the imagination and emotions to engage in an enjoyable way with knowledge-related concepts through active learning" (p. 116). Truly, positive links between facts and emotions enhance student engagement and learning.

Effects on Special Needs Students

As noted earlier, all students derive benefits from participation in field trips (NSTA, 1999; O'Toole, 1981; Voris et al., 1986). Although special needs students may require extra accommodations on field trips (Maxwell & Killeen, 2002), these students profit in many ways. For gifted students, experiential learning in an informal setting provides an opportunity to use varied learning strategies, especially important for underachieving gifted students, who frequently are global processors and/or tactile/kinesthetic learners (Rayneri, Gerber, & Wiley, 2003).

Students with learning disabilities gain from field trips as well. Students with severe learning disabilities (SLD), reported Brooke and Solomon (2001), displayed more motivation and curiosity on a field trip to a museum than they normally did in the classroom. Conditions that contributed to learning and higher levels of engagement for these SLD students included: (a) nonverbal scaffolding, (b) freedom of choice for exhibits visited, and (c) removal of time restrictions. Voris et al. (1986) reported positive effects on "slow learners" as a result of museum visits: "Often children who are 'slow learners' in the classroom display hidden talents in museum learning situations. They gain a new confidence in themselves as a result, and often take this self-confidence back into their classrooms" (p. 7).

Accommodations on a field trip can enhance learning for special needs students (Maxwell & Killeen, 2002). In two studies, which involved typical and special needs students at a museum, they found that physical setting had a noteworthy effect on learning for students with cognitive disabilities. These researchers found that when these students were taken to smaller, "less complex" areas, they became less anxious and were able to focus on learning objectives (p. 19).

Children's museums—designed for children under the age of 12 so they can more closely access museum collections—provide visitors opportunity for personal involvement and hands on learning (Hooper-Greenhill, 1991). In terms of emotional comfort, these museums may provide increased accessibility for students with learning disabilities due to their focus on developmental appropriateness and emotional connections (Edeiken, 1992). In fact, Edeiken related that, in a children's museum, a more comfortable setting is established than in typical museums, especially important for individuals with physical or learning disabilities, as well as for those with limited English.

To summarize, well planned school field trips have the potential to support teachers' educational objectives in many ways. As a result, teachers can anticipate students will achieve cognitive, social and affective gains on field trips, if teachers: (a) incorporate the field trip into classroom studies, (b) set and communicate clear objectives to students and chaperones, and (c) orient students for the trip. Furthermore, common student perceptions of field trips as enjoyable can provide meaningful connections between emotions and memories.

Limitations of Field Trips

School field trips are not a panacea. In fact, field trips often suffer from: (a) lack of clear objectives, (b) inadequate planning, (c) poor or no links to curriculum, (d) mismatch of learning strategies with the chosen learning environment, (e) distractions due to the novelty of a new setting, (f) inadequate number of chaperones, or (g) disparate teacher expectations for the field trip (Bowker, 2002; Carroll, 2007; Falk, Martin, & Balling, 1978; Griffin, 1994; Griffin & Symington, 1997; Kisiel, 2003). Even with these limitations, participation in field trips may still accomplish some cognitive benefits (e.g., developing background knowledge), social benefits (e.g., providing students with an opportunity to interact with knowledgeable adults who act as learning mediators), or affective benefits (e.g., introducing students to an unfamiliar setting, for which they develop positive memories) (Bowker, 2002).

Nevertheless, inadequate planning on the part of teachers can reduce the effectiveness of the field trip, in terms of its learning potential. This can result from teachers who have little training or experience in organizing school field trips, their unawareness of the value of field trips for achieving educational objectives, or from teachers' limited time to prepare for field trips due to the many pressures teachers face with their classroom responsibilities (Griffin, 2004; Hannon & Randolph, 1999; Kisiel, 2006; Schatz, 2004; Tran, 2004). Indeed, the time involved for teachers to adequately prepare for a field trip can prove daunting. As a result, teachers often only focus on the logistics and organization.

Teachers face additional challenges when they take students on a field trip. According to Griffin and Symington (1997), teachers on a museum field trip "appeared to abandon what would generally be considered basic class management practice" (p. 773). For instance, in a study they conducted, Griffin and Symington observed a lack of variety of learning strategies (e.g., only using worksheets), a disregard for student comfort (e.g., requiring students to remain on their feet for lengthy periods), and limited teacher facilitation with students to link exhibits to prior knowledge.

Another challenge that teachers face with field trips is the commonly held belief that learning and fun are distinct. Griffin noted that students thought no learning took place unless they completed worksheets: "They seem to identify learning almost exclusively with the type of activities which go on at school, especially pen and paper activities" (1994, p. 124). Both students and teachers appear to have misperceptions of the proper use of informal environments for learning.

Learning in an Informal Environment

As mentioned, teachers, who expect to transfer school based learning scenarios to museums and other informal environments, may be frustrated that formal learning strategies are less effective in those settings. In that regard, in one study, Griffin and Symington (1997) found that few teachers had linked the field trip to classroom studies or introduced the material prior to the visit. In fact, the teachers in this study brought the students to the museums with either little learning orientation or with poorly planned objectives. The researchers concluded: "The outcomes of this study suggested that the majority of the teachers had no clear idea of how to use the museum as an informal

learning resource" (p. 775). It seems that these teachers were unaware of the different learning strategies that are best utilized in settings, such as museums, so that they could adjust their field trip objectives accordingly.

Griffin and Symington's findings support the work of Kisiel (2003). Kisiel found that teachers required students to complete worksheets, most of which were poorly designed and detracted from the observations and interactions during the visit. Furthermore, Kisiel (2003) noted that few teachers linked the field trip with classroom studies.

In line with Kisiel's observations, Knapp (2000) found, in a study of long term memories associated with a science field trip, that "memories were nonspecific and disassociated from specific information given by the field teacher" (p. 70). It is noteworthy that Knapp's study involved students who had no classroom preparation or follow up of the topic studied.

A final challenge that can present itself on field trips results from students who reach wrong conclusions from their observations and experiences. Jensen (1999), as well as Falk and Dierking (2000), reported that children's limited experience and own misconceptions could lead to erroneous conclusions. In addition, Anderson, Lucas, Ginns, and Dierking (2000), in their study of students who constructed knowledge at a science museum, found that students drew conclusions that were different from what the exhibit was designed to teach. As a result, they advise teachers to plan previsit and postvisit activities "to detect and respond to alternative conceptions that may be produced or strengthened" (p. 678). To minimize student misunderstandings, teachers

can identify and correct student misconceptions that may have developed during their field trip in a follow up lesson.

Adapted Teaching Strategies for Field Trips

There are ways to adapt teaching strategies to informal learning environments. One example is with varied means of assessment. Bitgood (1994) recommends that teachers create evaluations that not only reveal declarative knowledge (such as a written test of facts), but additionally demonstrate procedural knowledge (such as how to use a tool), and reflect changes in attitude (such as increased interest in a topic). Similarly, Carroll (2007) advises the use of formative assessment strategies, such as observation checklists, journaling, and self-assessments. These different forms of assessment are important because, as Chermayeff, Blandford, and Losos (2002) reported, children observed at museum playgrounds "revealed more about their understanding of the physical environment than they were able to verbalize or represent abstractly" (p. 50). Consequently, a variety of assessment tools may measure more accurately what students learned on a field trip.

It is important to recognize that the schedule of activities can affect learning. In one study, Linn (1980) found that the combination of 15 minutes of direct instruction followed by free time for experimentation provided the most cognitive gains for students. Linn's findings would indicate that teachers should start their field trip with a 15 minute lecture by a museum educator on the topic of their field trip studies, followed by free time in the related exhibit hall. (If this were the first visit for many students, prior to the lecture, allow a few minutes for students to familiarize themselves with the setting.) This

arrangement of structured and unstructured activities will prepare students to focus on learning objectives once they are given free time to explore.

As part of an educational program, storytelling is a powerful method for developing long term memory, emotional connections and social interaction (Dierking et al., 2001; Falk & Dierking, 2002). In fact, some field trip programs offer storytelling by an actor impersonating an historical figure. Another option is for teachers to use stories as a method to link curriculum with the field trip; Olcott (1987) recommends the use of stories and primary sources on visits to historical sites. Millan (1985) encourages the use of stories on field trips "to add meaning to experience" (p. 19).

Another strategy teachers can utilize on a field trip is to use museum staff as a resource for learning. Olcott (1987) recommends that students who are well prepared for a field trip can utilize guides as a "great resource for problem-solving," noting, however, "guides with expertise are invaluable but are frequently underused because too much groundwork has to be done with unprepared students" (p. 490). When teachers have laid a framework of knowledge prior to the field trip, students can engage with museum guides on a deeper level to further their learning.

In an effort to support teachers and chaperones on school group visits, many museums have developed on their Web sites specific support for teachers who are planning a field trip. These online resources often provide background information, worksheets and suggested classroom activities, with the intent that teachers download relevant material prior to the field trip (Bellan & Schuerman, 1998; Burtnyk, 2004).

As mentioned previously, field trips can cause anxiety for special needs students. Maxwell and Killeen (2002) found "recall for special education students appears to be especially sensitive to personal involvement and familiarity with the space where the action is taking place" (p. 21). They caution that the numerous exhibits, noise, and unfamiliar setting can overwhelm these students. They report: "These students had trouble retaining facts about exhibits in large gallery spaces" (p. 21). In order to minimize anxiety, Maxwell and Killeen recommend that teachers take these students to a smaller, "less complex physical environment" within the museum "to give special education students the opportunity to concentrate on the educational components of the visit" (p. 19). To help these students feel safe and comfortable in a museum, teachers may need to monitor the field trip setting and activities to ensure that these children do not become over stimulated. In addition, these students may need direct instruction prior to free time to explore (Konecki & Schiller, 2003).

Summing up, when teachers do not adapt their teaching strategies on a field trip, a reduction of learning and inadequate usage of the museum can result (Tran, 2006). For this reason, teachers need to identify the different learning strategies that are more effective in informal learning environments to achieve the best outcomes.

Novelty Factor

Frequently, students need time to explore a new environment before they can focus on the learning objectives. Falk, Martin and Balling (1978) termed this the novelty factor. In their study of the effects of the physical environment on student learning, they observed that students in an unfamiliar setting chose to interact with peers and explore

their environment, rather than attend to the task learning required by their teachers (1981). Therefore, at the outset teachers need to allow students to familiarize themselves with the setting. Further, Falk and Balling (1980) advised that teachers should "design field trip activities that allow structured exploration" (p. 7). However, ideally, students would visit an informal learning environment repeatedly; repeated visits to the same museum can improve student recall (Wolins et al., 1992).

Orion and Hofstein (1994) further identified novelty to consist of three factors: (1) cognitive novelty, or familiarity with concepts presented and skills needed on the field trip; (2) geographical novelty, or familiarity with the field trip environment; and (3) psychological novelty, or ability to connect the field trip to prior experience. As a result, they suggested that the field trip be scheduled to occur within a unit of study to ensure students become familiar with concepts prior to the field trip in order to make connections to the curriculum.

To summarize, the benefits of field trips can be limited if teachers do not prepare students in advance, fail to design the learning objectives to suit the learning environment, or do not address the novelty factor. Conversely, teachers who invest instructional time to field trip related topics—both before and after the field trip—will find students create meaningful connections between their field trip memories and the curriculum.

Effective Planning of School Field Trips

Many factors contribute to the success of a school field trip; however, careful planning is perhaps the most important. When planning a field trip, a teacher should: (a) select a field trip that aligns to standards, (b) choose at what point in a unit of study the

field trip should occur, (c) decide how to assess learning before and after the field trip, (d) set clear learning objectives, (e) determine appropriate methods for students to achieve those objectives, and (f) plan the logistical aspects of the field trip with much attention to detail (Carroll, 2007). Further, a teacher should consider five factors: "local politics, logistics, linkage to the curriculum, timing, and accessibility" (Millan, 1995, p. 125). Local politics involves consultation between teachers, parents and affected school staff to ensure all are supportive of the field trip. Also, local politics includes relations between the school and the community, such as the impressions student conduct may make on the public and staff at the field trip site. Accessibility includes financial, physical and intellectual accessibility for all students. Accessibility especially may be important for children from low SES backgrounds, minorities, and recent immigrants, who may have had limited exposure to informal learning environments (Falk & Dierking, 2000; Tran, 2004).

Legal Issues

Before a field trip is taken, teachers need to consider possible legal issues. Mawdsley (1999) identified the following legal issues when taking a field trip: (a) student safety, (b) liability exposure, (c) attention to the needs of special education students, and (d) preparation in case of emergencies. Equally important, though, teachers must obtain parental consent well in advance of the field trip.

To obtain parental consent, Carroll (2007) and Mawdsley (1999) recommend that a detailed field trip letter and form be sent home to parents three weeks prior to the proposed field trip. The letter should include the field trip destination, the purpose of the trip, its educational value, cost for the student, school departure and return times,

mode of transportation, and any possible requirements for the venue (such as sturdy shoes, a water bottle, lunch, hat or sunscreen for sun protection, or money). The form should include a section for the parents to: (a) sign as permission for the student to attend; (b) note any medications, allergies or other special needs; and (c) release the teacher, principal, school and school district from liability. In addition, the teacher may wish to request parent chaperones to sign up at this time.

Mawdsley (1999) advised that, in the event that transportation will be provided in private cars, volunteer parents should be advised to check their personal auto insurance for liability coverage. However, the use of a school bus is preferable.

Student Safety

Student safety is the paramount concern when school field trips are planned (Carroll, 2007). Ideally, the teacher can visit the field trip site to evaluate it in terms of safety. In addition, Bitgood (1994) and Millan (1995) recommend that the teacher decide in advance of the field trip how to handle students with challenging behaviors. (It is important to note that if the student in question has special needs and the behavior is related to his disability, an extra chaperone may be needed to accompany that student.) Then, in advance of the field trip, teachers can lead classroom discussions of behavior expectations (Bitgood; Carroll). In addition, prior to the field trip, the teacher should designate an adult to handle any possible emergencies (Mawdsley, 1999).

Cost

In order to prepare properly, the cost of a field trip (both for the student and the school) needs to be factored into the teacher's field trip plans (Carroll, 2007; Millan,

1995). For those families unable to contribute money to cover the cost of their students' entry fees or transportation, several options may be available: (a) school fundraisers may be planned to cover field trip costs, (b) teachers might request a grant specifically designed for school field trips, and (c) teachers may be able to locate other sources of financial support for schools with disadvantaged students, such as the Web site DonorsChoose (www.donorschoose.org) (Carroll).

In some cases, the field trip site may offer grants or scholarships, especially for Title I schools (schools with a significant population of low income students). For example, school field trip destinations may offer reduced or no entrance fees for school groups (Hannon & Randolph, 1999). In addition, some venues provide scholarships for bus transportation.

Logistics of Planning and Organization

With a plethora of field trip destinations and programs available, teachers may need to investigate carefully what field trip best aligns to standards (Carroll, 2007). In addition, teachers may need to evaluate what can be taught more effectively on a field trip than in the classroom (Muse, Chiarelott, & Davidman, 1982). This evaluation can help with setting clear learning objectives.

Next, the teacher should visit the field trip site in advance (Carroll, 2007; Connolly, Groome, Sheppard, & Stroud, 2006; Millan, 1995; Voris et al., 1986). At that time, the teacher can evaluate the venue for: (a) its suitability for the teacher's learning objectives, (b) if it offers engaging activities, (c) how developmentally appropriate the

learning environment is, and (d) student safety. Also, the teacher can evaluate how the field trip may connect to student prior knowledge (Bitgood, 1994).

The previsit trip can be used to become familiar with the layout or floor plan, such as to locate: (a) the school group entrance, (b) the check in desk, (c) restrooms, (d) lunchroom, (e) area(s) or exhibit(s) to be visited, and (f) any stairs, elevators or paths your students may need to use (especially if students with physical disabilities will attend) (Carroll, 2007; Millan, 1995). In addition, the teacher can: (a) pick up brochures or maps to bring back to the classroom or to share with parents, (b) investigate ways to connect the field trip to the curriculum, (c) take photographs, and (d) meet with a tour guide or museum educator. All of this information may be useful to prepare students beforehand; special needs students especially may need the reassurance of what to expect (Maxwell & Killeen, 2002).

Reservations for a school group visit normally are required to be made several weeks in advance. Carroll (2007) suggests that teachers request support materials, such as lesson plans and behavior expectations, from the site's field trip coordinator at this time. It is important that teachers know the rules and procedures for school groups that visit the site.

Timing the Field Trip

In some school districts, teachers are unable to decide when a field trip will be taken (Kisiel, 2005). However, if teachers can schedule the field trip's timing according to their needs, there is some debate as to its placement in relation to the curriculum. Orion and Hofstein (1994) argue that the field trip should be placed early in the unit of study to

"serve as a concrete bridge toward more abstract learning levels" (p. 1117). Connolly et al. (2006), on the other hand, advise that a field trip takes place in the middle of a unit of study, so teachers can develop background knowledge prior to the trip, and then follow up with lessons that build upon the experience. And finally, Olcott (1987) takes the position that higher thinking can occur on a field trip offered near the end of a unit of study. In view of these differences of opinion, teachers may want to evaluate the learning activities offered at each field trip destination in terms of how they might be embedded most effectively within a unit of study.

Another aspect of timing involves how to schedule the activities while on the field trip. For example, teachers will need to decide if they will schedule a guided tour or specific program offered at the field trip destination. In addition, teachers will need to consider the use of varied learning strategies (e.g., viewing demonstrations, visiting hands on exhibits, listening to a lecture, or completing a worksheet), "alternating physical activity with periods of sitting and/or listening" (Price & Hein, 1991, p. 515). Moreover, Price and Hein advise that teachers keep in mind that students should focus on experiences at the field trip, and then follow up with vocabulary and discussion of concepts in the classroom.

Finally, teachers need to allow for the physical needs of the students (e.g., limiting the length of time they are required to walk, stand or sit in one period; and planning short breaks). Pacing the activities to permit student/parent chaperone groups to move about in a similar fashion to how family groups at a museum explore will create a more positive experience (Griffin & Symington, 1997; Jensen, 1994). In addition, if many of the

students have not visited the field trip site before, the teacher should allow a few minutes upon arrival for supervised exploration (Falk et al., 1978).

Student Preparation for a Field Trip

As mentioned earlier, teachers must prepare themselves and their students in order to reap the rewards of student learning (Anderson et al., 2000; Connolly et al., 2006; Griffin, 1994; 2004; Kisiel, 2006). To achieve the most benefit, teachers need to: (a) link the excursion to classroom studies before and after the field trip; (b) set clear, appropriate objectives for learning in an informal learning environment (Griffin, 1994; Griffin & Symington, 1997); and (c) prepare students to visit an unfamiliar setting, in order to reduce the novelty factor (Falk et al., 1978; Martin et al., 1981).

A classroom discussion of the practical aspects of the field trip puts students at ease so that they can attend to learning objectives, according to Balling, Falk and Aronson (1980, as cited in Falk and Dierking, 2000). In their study of a field trip to a zoo, they found that students who were oriented with a discussion of logistics demonstrated the most cognitive gains and observational skills, in comparison with students who had no orientation or with students who were oriented with a discussion of factual material related to the learning objectives. They concluded: "The child-centered orientation set the children's mind at ease so that they could concentrate on the experience once they were at the zoo" (p. 77). This attention to student comfort actually facilitates interest and learning, especially for students with special needs.

In agreement with Balling et al., Leary (1996) recommends that the best method to prepare students for a field trip is child centered: "Before the trip, discuss with your

students the issues that concern them" (p. 28). These issues might include the day's schedule, transportation details, to what chaperone and group students are assigned, lunch arrangements, appropriate attire, and what constitutes acceptable behavior at the field trip site. Another viewpoint is voiced by Carroll (2007), who suggests teachers orient students with visualization, in which the teacher might describe what the students might see and do on the field trip, along with expected behavior.

Besides classroom discussion, another method for preparation for a field trip involves the use of the Internet. Bellan and Scheurman (1998) suggest that the use of a Web site, if the field trip venue has one, along with the actual field trip "can serve as complementary components in a powerful instructional approach" (p. 35). If the Web site offers a virtual tour or information that would help orient students, a teacher can direct students to it, with the intent that they become familiar with the field trip location and develop questions to enhance their eventual visit. However, the researchers warn that teachers should preview the Web site in order to determine its usefulness and to anticipate possible student frustration or safety concerns.

Yet another way to prepare for a field trip involves the use of a classroom bulletin board to integrate previsit and postvisit discussions (Paris, 1994). Before the field trip, students can draw pictures or write their predictions related to the field trip topic. Afterwards, "students returned [sic] to the bulletin board to make changes in their drawings or predictions based on their new knowledge gained from the field trip" (p. 30). The use of such displays can incorporate nonverbal learning strategies as well as engage students in field trip preparation.

Connolly et al. (2006) advise teachers to direct students to collect open ended questions several days before the field trip. In this way, students can identify specific aspects of the topic they want to investigate. In addition, teachers can designate student groups or teams to find answers to questions they have developed once at the field trip; thus different groups will examine differing subtopics. Teachers who involve students in the design of the field trip will find their learning is enhanced by their sense of ownership (Griffin, 1998).

With regard to the introduction of pertinent vocabulary related to a field trip topic, Price and Hein (1991) advise that students in elementary grades are introduced to these words afterwards. However, there is research that shows that students may learn words that were introduced during the field trip. Coll, Vyle, Bolstad, and Tofield (2003) noted that primary students, on a field trip to the zoo, used appropriate terminology when discussing the animals and their enclosures. These students had begun their field trip with a guided tour led by a zoo educator, who introduced them to a variety of animals and their enclosures with the use of "quite sophisticated terms" (p. 89). After their tour, the students were given time to visit other areas of the zoo. It is noteworthy that the vocabulary the students subsequently adopted was introduced on site. Although in this case students were presented with new terms during the field trip, teachers are advised to reinforce vocabulary and other key concepts after the field trip to help transfer them into permanent memory (Anderson et al., 2003; Konecki & Schiller, 2003).

Object Based Learning Strategies

Field trips often involve experiential, object based learning. Since students often do not have much experience with observation skills, Carroll (2007) advises that teachers provide opportunities for students to "use their five senses and develop the vocabulary to describe what they perceive" (p. 183). Students who have experience with the use of objects for learning in the classroom may make the transition more easily to the different type of learning often required on field trips. Ideally, the teacher would provide students a chance to practice how to handle, measure, compare, and describe objects before they take a field trip.

For object based lesson plans, teachers may wish to consult the book, *Inquiry-Based Learning Using Everyday Objects* by Alvarado and Herr (2003). In it, the authors encourage the use of object based learning in the classroom. They explain:

> In object-based learning, objects themselves become central to developing the concepts which are essential to your unit of study. The objects are not merely an add-on component. They are not just used for display. Instead the teacher asks her students to utilize the natural objects to discover information through posing and investigating their own questions. (pp. 5-6)

In other words, in object based learning, students are invited to handle objects, develop questions to investigate further, and problem solve. Caston (1989, as quoted in Hannon & Randolph, 1999), explains that the "more an object involves our senses and perceptions, the more deeply we understand it" (p. 20). This process oriented, student directed strategy can result in increased motivation, deeper understanding of concepts, and higher level thinking. Shuh (1999) maintains that one valuable benefit for using

objects to learn is that students "develop their capacity for careful, critical observation of their world" (p. 85).

In preparation for a field trip, Voris et al. (1986) recommend teachers lead students in perceptual skills exercises, with the explanation that "using objects that relate directly to the theme of your field trip, whenever possible, will reinforce the connection between what students are studying in the classroom and what they will see and do at the museum" (p. 26). Often, the museum education department will loan small collections of specimens and hands on materials to teachers for use in the classroom.

Setting and Communicating Clear Objectives

To be effective in their use of a school field trip, teachers must identify learning objectives that tie to the curriculum. Then, before and after the field trip, a teacher must relate the classroom learning to those learning objectives (Carroll, 2007; Griffin & Symington, 1997; Kisiel, 2006). In addition, Griffin and Symington (1997) recommend that teachers design the objectives to be favorable for group learning.

Learning objectives that target observation and perceptual skills will help students identify what they should notice and experience, as Youngpeter (1973) advises: "Having something in particular to look for greatly enhances one's powers of observation" (p. 268). In addition, Youngpeter states that these objectives provide a focus or theme for the learning experience, so that students can make meaningful connections between classroom and field trip experiences.

Another method teachers might consider to help students identify learning goals is to give students a pretest prior to the field trip. In a study of fourth grade students who

attended a field trip at an arboretum, Farmer and Wott (1995) noted that a "pretest undoubtedly focused students' attention during the field trip" (p. 35). (In that study, the pretest and posttest given two weeks later were identical.) The use of a pretest can serve as a means to direct students to the concepts they are to learn when they are on the field trip.

As mentioned earlier, teachers who encourage students to select their own area of investigation and develop open ended questions to study enhance learning by giving students ownership of their learning (Connolly et al., 2006; Griffin, 1998; ILI, 2006; Krishnaswami, 2002). Later, at the field trip, students and parent chaperone groups can work together on their areas of investigation, with each group researching its own questions. Ideally, students would report back to their class with a report, display, newsletter article, or multimedia presentation (Krishnaswami, 2002).

Use of Advance Organizers

Advance organizers can be used as a tool to "improve people's ability to construct meaning from experiences" (ILI, 2006, p. 3). Advance organizers could include maps, conceptual organizers, or overviews that introduce the exhibits. In fact, the use of an advance organizer combined with an orientation is recommended to prepare students for a field trip: "Children, learn better when they feel secure in their surroundings and know what is expected of them" (p. 3). In support of that view, Hein and Alexander (1998) explained that advance organizers not only improve people's comfort, but also help museum visitors to focus.

In addition, teachers who can communicate with parent chaperones prior to the field trip can enhance learning. Ideally, teachers would meet with chaperones or send home advance organizers or other teaching resources to help chaperones be more informed facilitators of learning (Burtnyk, 2004).

Use of Worksheets

As mentioned earlier, the use of worksheets to support learning on field trips is controversial. If a worksheet will be used, the teacher needs to be sure it does not detract from student interaction with exhibits and others on the field trip. Most likely, worksheets that are created by the teacher will be more relevant for students than those provided by a museum (Fry, 1987), although ideally the worksheet would be created in collaboration with museum educators (Gennaro, 1984).

In designing worksheets, Durbin (1999) recommends that questions "direct attention towards the object not the label. The main emphasis of the work should be on observation not reading" (p. 95). In addition, Durbin recommended that the worksheet be designed with variety in mind:

> Call on as many different skills as possible, not just verbal ones. Drawing should be an important part at all ages. Since observation is at the root of work in museums an activity that slows a child up and keeps the eye engaged will be valuable. It is also important to learn that there are other ways of conveying information than through the written word and that drawing for recording is a different sort of activity from drawing as art. (p. 96)

Connolly et al. (2006) recommend that worksheets or question books pose open ended questions in order to encourage inquiry and meaningful exploration. Jones and Ott (1983) suggest that worksheets offer three levels of questions: first level questions use

observation and deductive reasoning skills, while second level questions "allow students to use previously known information to construct a general notion or new idea concerning a subject in the museum" (p. 220). The third level of questions requires students to synthesize or evaluate concepts. Fry (1987) reports that, with the use of these teacher prepared, grade appropriate worksheets, links between the classroom and the field trip can be made more easily.

The Contextual Model of Learning may also help teachers design worksheets for use on a field trip (ILI, 2006). Based on that model, Kisiel (2003) identified several characteristics to incorporate into a worksheet: (a) ask fewer questions so that exhibits can be explored in more depth; (b) embed orientation cues into the worksheet, such as exhibit location; (c) focus worksheet responses on observations of displays and objects, rather than on exhibit labels; (d) allow students to choose what information they gather; (e) elicit varied responses, such as verbal and nonverbal; (f) connect the exhibits with classroom studies; and (g) design it to lead to additional discussions or study in the classroom. In addition, Kisiel recommends that worksheets encourage social interaction between students.

In a study of school groups that visited a museum using a worksheet designed according to Kisiel's recommendations, Mortensen and Smart (2007) found that the worksheet effectively created a bridge between state curriculum objectives and the museum. The worksheet functioned as a prompt for discussions, as an advance organizer, and to direct school groups to exhibits that related to curriculum. As a result, more curriculum related conversations among teachers and students took place at the museum.

Overall, worksheets easily can detract from observation, interaction with exhibits, and social connections that informal learning environments offer. However, teachers who use carefully designed worksheets with the aforementioned considerations in mind can ensure that this tool contributes to the field trip's success.

Planning Outdoors Field Trips

Field trips that take place outdoors (e.g., a visit to a nature center) require additional planning. First of all, before embarking on such a field trip, teachers should be sure the students in their class follow directions well (Fischer, 1984). Students who are out of the confines of the classroom may become excited and wander, or pose an extra challenge in listening to instructions. Also, if the field trip destination has safety hazards (e.g., a lake), teachers will need to have control of the students at all times and may need to enlist extra chaperones to attend. Teachers' plans may be affected by the weather as well.

Next, teachers will need to consider that voices may not carry as well outdoors (McCutcheon & Swanson, 2001). Plan to have a signal for meeting back together. Also, discuss with students any potential hazards and how to keep safe. The greater distances and wind or noise may make it harder for everyone to hear; try to cluster together when sharing information. Students may need to notice if other students are able to see and hear; they may need to help out. A good technique, if on a hike, is to rotate students so that everyone has a chance to be close to the front of the line (Siers, 2002).

In addition, students who have clear learning objectives and assignments may be more focused outdoors (McCutcheon & Swanson, 2001). An outdoors field trip could be

a good time to use perceptual and inferential skills (Siers, 2002). If the goal is to observe wildlife, instruct students to keep a safe distance from animals and to keep quiet. Also, students need to be taught how to move so they do not destroy animal footprints or delicate plants. Encourage them to be aware of themselves, other students and their surroundings.

A nature journal or small notebook is a good tool for students to carry (Siers, 2002). Students can list what they have seen, sketch an unusual plant, or record their observations or predictions. Upon return to the classroom, students can look up what they have seen in reference books or use their journals as a springboard for writing.

Chapter Summary

Some teachers do not recognize the important contributions field trips can make towards learning. In addition, many teachers do not know how to conduct field trips to informal learning environments. Furthermore, support for school field trips has waned as pressures mount on school staff to link field trips to measurable educational standards and to reduce costs. As a result, field trips for elementary students, in particular, are underutilized or inadequately designed to promote student learning.

A school field trip for elementary students to an informal learning environment can be an effective strategy for: (a) experiential learning, (b) development of emotional connections between students and their memories of the subject studied, and (c) practice with collaborative learning. Also, students who experience learning with authentic objects may have a better understanding of concepts (Hannon & Alverado, 1999; Hooper-Greenhill, 1987; Voris et al., 1986; Wright, 1980). To achieve the most benefit from a

field trip, teachers must prepare themselves, their students, and the chaperones (Burtnyk, 2004; Carroll, 2007; Falk, 1978; Griffin, 1994; Griffin & Symington, 1997; Kisiel, 2005; Martin et al., 1981). In Chapter 3, details of the project will be provided. In Chapter 4, the guidebook is presented in a concise format for ease of use.

Chapter 3

METHOD

The purpose of this project was to develop a guidebook for preservice and current elementary teachers to serve two purposes: (a) to present research that demonstrates the value of school field trips to achieve educational goals, and (b) to provide instruction for effective planning of field trips. More specifically, the author presents teachers with best practices for informal learning environments as well as warns of possible challenges that can impede the accomplishment of teacher objectives on school field trips. Also, research based instruction for effective planning of school field trips is provided in the guidebook.

Target Audience

The field trip guidebook was designed to provide support for preservice and current elementary teachers. In addition, detailed instructions on how to organize a school field trip may be beneficial for both preservice teachers and teachers in the early years of their careers.

Goals and Procedures

The field trip guidebook was written to provide background of recent research into the importance of school field trips, as well as strategies that elementary teachers can employ to make the best use of informal learning environments. In addition, detailed instruction for how to plan a school field trip is included.

Assessment

The electronic version of the guidebook was made available to three colleagues to assess through feedback, recommended edits, and suggestions. These peers were asked to evaluate the guidebook for usefulness and relevancy.

Chapter Summary

Increasingly, school field trips must be justified for their educational value as they relate to district standards. In addition, teachers need to be made aware of research based instruction for effective field trip planning and in the use of informal learning environments. This project was designed to provide this support to preservice and current elementary teachers. In Chapter 4, the researcher provides a field trip guidebook to help preservice and current elementary teachers understand the research in support of school field trips. In addition, the guidebook will give research based instructions for planning field trips to informal learning environments. In Chapter 5, colleague reviews, discussion, and suggestions for further research will be presented.

Chapter 4

RESULTS

The school field trip—defined as an excursion outside the classroom in order to gain exposure to authentic experiences or objects—has been accepted as a part of public education in the United States for many years. In addition, teachers recognize that students' participation in field trips has the potential to provide academic, emotional, and social advantages. These include increased connections with their community, exposure to various types of informal learning environments (e.g., museums, zoos, historical sites), and opportunity to experience authentic environments and objects firsthand (Falk & Dierking, 2002).

However, teachers must provide the optimal conditions for school field trips to be effective (Carroll, 2007; Falk & Dierking, 1997; Griffin & Symington, 1997; Kisiel, 2003). Therefore, in order to maximize each field trip experience, teachers need to:

- Understand how field trips contribute to learning
- Become better acquainted with research based strategies for teaching in informal learning environments
- Have access to resources that make planning field trips easier and less time consuming

In addition, teachers face challenges when planning school field trips (Carroll, 2007; Griffin & Symington, 1997; Kisiel, 2005; Schatz, 2004; Tran, 2006). These challenges include selecting a field trip that aligns with educational standards, ensuring

the safety of students, adjusting learning objectives to account for how learning takes place outside the classroom, and managing the logistics of taking a group of students on a field trip.

With these needs and challenges in mind, the author has developed the following guidebook to inform elementary teachers of research related to field trips as well as recommendations for successful field trips planning.

GUIDEBOOK FOR PLANNING

EFFECTIVE ELEMENTARY

SCHOOL FIELD TRIPS

TABLE OF CONTENTS

Teachers' Goals for Field Trips

Why do teachers take their students on field trips? Generally, teachers recognize the value of field trips, but their goals vary greatly. The following reasons have been collected from articles written by the following researchers: Anderson & Zhang, 2003; Gottfried, 1980; Hein & Alexander, 1998; Kisiel, 2005; Millan, 1995.

Reasons to offer a school field trip:

- Reinforce curriculum
- Reward acceptable classroom behavior
- Develop positive attitudes toward a subject
- Provide a new learning experience
- Expose students to a new learning environment
- Provide opportunity for general learning to occur
- Encourage lifelong learning
- Have fun
- Fulfill expectations of school administrators or other instructors
- Provide a break from classroom routine

Factors that Affect Student Learning on Field Trips

There are many variables that affect how much learning takes place on a school field trip. Teachers influence these variables—before, during and after the field trip. When teachers are aware of them, they can plan a field trip more thoughtfully. These factors have been gathered from articles and books written by the following researchers: Bowker, 2002; Carroll, 2007; Griffin & Symington, 1997; Schauble et al., 2002; Voris, Sedzielarz, & Blackmon, 1986.

Factors that affect student learning on field trips:

- The appropriateness of the setting and the learning activities offered at the field trip destination, in relation to the students' ages and interests
- Teacher expectations and goals
- The ratio of adults to students
- How clearly the learning objectives are communicated to students and chaperones
- How the field trip is linked to the curriculum (before and after the trip)
- How students are prepared for the field trip
- How learning in an informal environment (e.g., museums) is best accomplished

Expanded Definitions of Learning

It is important that teachers recognize that field trips contribute to emotional, cognitive, and social development in their students. Field trips are such a rich experience that they provide a kaleidoscope of educational rewards. Moreover, because learning builds upon previous knowledge, field trips support current learning and may provide background knowledge that contributes to student achievement in later grades. Therefore, a larger view of how students profit from school field trips is needed, based on an expanded definition of learning. This broader definition was compiled from articles written by the following researchers: Falk and Dierking, 2002; Hein, 1998; Rennie & Johnston, 2004; Schauble et al., 2002.

Learning involves education of the whole person to include the development of:

- Personal meaning
- Background knowledge
- Interest and motivation
- An appreciation of the arts
- An understanding of how to use tools or resources
- Growth in social skills

The Contextual Model of Learning

Museum educators have undertaken much of the research on the topic of learning at informal learning environments (e.g., museums, zoos, etc.). Although research on field trips is limited, they have conducted studies in general on how learning occurs in these settings that is relevant to school field trips.

The learning environment or setting exerts much influence on learning, as does the varied backgrounds of people. With these factors in mind, museum researchers Falk and Dierking, developed a model called the Contextual Model of Learning. The model is based on the many factors that affect the experiences that people of all ages have in a museum or informal learning environment (which they term, a free choice learning environment). They found that people bring to museums their own contexts (i.e., backgrounds), resulting in each person coming away from the experience with a unique outcome. In addition, these contexts change over time. What follows is taken from Falk and Dierking's Contextual Model of Learning (Institute for Learning Innovation [ILI], 2006).

The Contextual Model of Learning consists of the following three overlapping contexts that individuals bring to a free choice learning environment:

1. Personal context factors: (a) motivation and expectations, (b) interest, (c) prior knowledge and experience, and (d) choice and control.

2. Sociocultural context: (a) within group sociocultural mediation, (b) facilitated mediation by others, and (c) culture.

3. Physical context: (a) advance preparation, (b) setting, (c) design, and (d) subsequent reinforcing events and experiences. (ILI, 2006, pp. 2-3)

Teachers can influence the three contexts students bring to an informal learning environment. For example, teachers can introduce the field trip topic to students to activate prior knowledge, plan who will interact together in social groups on the field trip, and structure some aspects of the physical context (e.g., where the field trip occurs or what activities are planned). Without a doubt, teachers' enhancement of student contexts will support student learning on field trips. An adapted version of the Contextual Model of Learning—as it relates to students on field trips—appears below.

On a field trip, students bring their own contexts:

- Their personal context is based upon their own limited experiences, their expectations, interests and motivations, and their desire for choice and control in such a setting.
- Their sociocultural context incorporates their cultural background with the social dynamics involving other students, teachers, parent chaperones, and staff at the field trip destination.
- Their physical context includes possible familiarity with the setting, the design of the field trip, along with follow up discussions and experiences that may occur at home or in the classroom.

Cognitive Benefits of Field Trips

Participation in school field trips contributes to long term cognitive gains in students, especially if the teacher links the field trip topic with the curriculum. In fact, students may reflect upon their field trip memories when they encounter a similar experience. Also, participation in school field trips can help develop background knowledge and meaningful connections. The following summary was compiled from articles written by the following researchers: Falk & Dierking, 1997; Gottfried, 1980; Hein & Alexander, 1998; Rennie & Johnston, 2004; Tuckey, 1992; Wright, 1980.

In terms of cognitive gains, students derive benefit from field trips in several ways:

- Development of vivid, long term memories
- Improvement in observation skills
- Practice with object based learning
- Stronger memories derived from multisensory experiences
- Increases in background knowledge
- Development of meaningful connections
- Increases in conceptual understanding

On field trips, students have the chance to:

- Experience new settings
- Practice skills not easily replicated in the classroom
- Participate in activities that involve the use of multiple intelligences
- Develop and answer questions of their own devising

Social Benefits of Field Trips

Participation in field trips can lead to social development in children, as a result of interaction in which students typically engage on school field trips. Specifically, students derive social benefit from time spent with other students, teachers, parent chaperones, staff at the field trip destination, and docents (i.e., trained volunteers). These interactions actually enhance learning, especially when there is a high adult to child ratio. In addition, field trips naturally lend themselves to collaborative learning. These findings were collected from articles written by the following researchers: Bowker, 2002; Falk & Dierking, 2000; Gottfried, 1980; Griffin, 1994; 2004; Griffin & Symington, 1997; Kisiel, 2003; Meredith, Fortner & Mullins, 1997; Ramey-Gassert, Walberg, & Walberg, 1994; Tuckey, 1992; Wolins, Jensen, & Ulzheimer, 1992.

On field trips:

- Teacher and chaperone mediation with students contributes to learning
- Students may meet adults (e.g., docents) who share their knowledge and enthusiasm
- Students engage in collaborative learning strategies
- Most conversations between students relate to how to use an exhibit or their reactions to it
- Student dyads (i.e., pairs) are better than larger groups, in terms of learning
- Student interactions increase their memories of field trips
- Students gain exposure to new environments in which to practice social skills

Role of Parent Chaperones in Learning

At the beginning of a field trip, teachers normally assign students to small groups led by parent chaperones. Parent chaperones should take their responsibilities seriously. In fact, their interaction with students aids learning, especially when the adult to student ratio is high (ideally one adult for every two students). For example, they help students find answers to questions and keep students on task. Therefore, parent chaperones are crucial to the success of most field trips. The following list of roles assumed by parent chaperones was compiled from articles written by the following researchers: Bowker, 2002; Burtnyk, 2004; Parsons & Muhs, 1994; Sedzielarz, 2003.

On field trips, parent chaperones act as

- Guide—to locate exhibits and facilitate their use
- Group facilitator—to monitor behavior and help students socially
- Timekeeper—to keep track of the schedule
- Learning leader—to scaffold learning in discussions
- Teacher—to provide direct instruction
- Role model—to show appropriate attitudes and behavior
- Security guard—to keep students safe
- Learner—to participate in learning
- Strategic planner—to organize students and facilitate use of exhibits
- Label/sign reader—to read and interpret text
- Mediator—to direct students to observe and interpret exhibits

Imitating Family Groups to Enhance Learning

On field trips, chaperones and students tend to act more like family groups at a museum. This is desirable, as researchers have found that much learning takes place during family visits. In fact, often children prefer family visits to museums over school field trips. One result of this research into family behavior at museums is to apply the findings to school field trips to bolster learning. The following observations were gathered from personal experience and from the writings of the following researchers: Diamond, 1986; Dierking et al., 2001; Falk and Dierking, 2000; Griffin, 1994; Jensen, 1994.

How families behave at museums:

- Parents make the children's physical comfort a priority
- Parents allow children to set the agenda for exhibits visited, length of time spent at exhibits, and duration of time spent at the museum
- Children can approach an exhibit more closely when in a small family group
- Parents read and interpret labels and signs
- Parents are more likely than children to read the labels; children are more likely to try interactive exhibits
- Much positive social interaction occurs between family members during a museum visit
- Conversations between parents and children enhance the children's interactions with exhibit

Affective Benefits of Field Trips

The importance of field trips to further emotional development cannot be minimized. As a result of participation on a field trip, students may: develop a deeper interest in a topic—returning to the classroom more motivated to learn; develop vivid memories based on their personal involvement on a field trip—producing better recall of knowledge gained; and create lasting positive emotional connections based on their experiences—developing a critical component in learning. In fact, more intense emotions correlate with stronger memories. Overall, students' field trip experiences contribute to powerful emotional and cognitive connections. The following findings are collected from articles and books written by the following researchers: Csikszentmihalyi & Hermanson, 1995; Gottfried, 1980; Hooper-Greenhill, 1991; Krepel & DuVall, 1981; McGeehan, 2001; Meredith et al., 1997; Roberts, 1990; Wellington, 1990; Willis, 2007; Wolfe, 2001.

Positive emotions support learning through:

- Development of interest in a topic, giving students a reason to invest themselves in further studies, both inside and outside of the classroom
- Increased personal meaning
- Enjoyment of discovery, leading to engagement and learning
- Motivation to persist in task completion, as a result of active involvement
- Associations of learning as fun
- Connections between imagination and concepts

Impact of Field Trips on Special Needs Students

Field trips support learning for special needs students, although some students may require additional accommodations. For example, teachers may find children's museums more suitable for special needs students. Beyond the positive emotional links that they may acquire from participation in a field trip, cognitive growth may occur as well. These findings are taken from the writings of the following researchers: Edeiken, 1992; Konecki & Schiller, 2003; Maxwell & Killeen, 2002; Rayneri, Gerber, & Wiley, 2003; Voris et al., 1986.

How field trips impact special needs students:

- Gifted students, especially underachievers who are kinesthetic or global learners, are enriched by participation in experiential learning
- Students with learning disabilities may become more receptive to learning as a result of direct experiences with authentic objects
- Students with learning disabilities may develop self confidence
- Students with learning disabilities may display more curiosity and engagement
- Students with learning disabilities may need direct instruction to help them focus
- Students with learning disabilities may need teachers to monitor the setting to ensure they are not overwhelmed by the numerous displays, noise and lack of familiarity; teachers may need to take them to smaller, less complex areas to decrease anxiety and increase learning

Limitations of Field Trips

Although school field trips offer much potential for learning, several factors can reduce their success. Teachers can maximize the field trip experience—and learning—if they address limitations. The following factors were gathered from personal experience and from the writings of these researchers: Bowker, 2002; Carroll, 2007; Falk et al., 1978; Griffin, 1994; Griffin & Symington, 1997; Hein, 1998; Kisiel, 2003; Tran, 2004.

Factors that may limit the success of field trips:

- Lack of clear objectives set or communicated by the teacher
- Inadequate planning
- Teacher inexperience in organizing field trips
- Inadequate number of chaperones
- Limited variety of learning strategies
- Poor or no links between the field trip and curriculum
- Mismatch of learning strategies to the learning environment
- Use of poorly designed worksheets
- Disparate teacher expectations for field trip outcomes
- Limited time for activities at the field trip destination
- Distractions resulting from the novelty of a new setting
- Student safety considerations, including possible medical needs
- Inattention to the physical comfort of students

Learning in an Informal Environment

To be effective, teachers must plan learning objectives and tasks that suit the unique environment offered at field trip destinations. Teachers, who are trained in formal education, may be frustrated that formal learning strategies are less effective in informal learning environments. In addition, participation in field trips presents special challenges. Therefore, teachers who are aware of these weaknesses will be better prepared to develop more appropriate objectives. What follows was collected from the writings of the following researchers: Falk & Dierking, 2000; Griffin & Symington, 1997; Kisiel, 2003.

Poor learning strategies for informal learning environments:

- Limited or no orientation for students prior to the field trip—students are unclear about learning objectives and may feel anxious in the new setting
- The use of worksheets (unless they are well designed)—they detract from student social interactions, with observation of exhibits, and with active participation
- The requirement for individual task completion—it conflicts with collaborative learning strategies that suit informal learning environments
- A focus on label reading—labels detract from student observations of displays
- An overly structured schedule that excludes free time to explore—students learn more when they can choose what they see and do

Adapted Teaching Strategies for Field Trips

Many options are available for teachers who plan to modify their teaching strategies or a school field trip. These strategies still can support and assess cognitive growth; nevertheless they harmonize more smoothly with the unique learning opportunities available in such settings. These strategies were collected from the writings of these researchers: Anderson et al., 2000; Bitgood, 1994; Carroll, 2007; Falk & Dierking, 2000; Griffin & Symington, 1997; Jensen, 1999; Kisiel, 2003; Krishnaswami, 2002; Millan, 1995; Voris et al., 1986.

Effective teaching strategies for informal learning environments:

- Introduce the topic of study prior to the field trip
- Set and communicate clear learning objectives to students and chaperones
- Set as one objective the development of a final product or presentation to focus students during the field trip
- Include collaborative learning strategies to encourage student interaction
- Encourage active participation
- Pay attention to student misperceptions so the teacher can correct them
- Create evaluations that assess different types of knowledge (e.g., proficiency with a new device or tool, changes in interest or motivation, or demonstration of a new skill), in addition to factual knowledge
- Use formative assessments (e.g., journaling, observation checklists, self-assessments, drawings)

Object Based Learning

On field trips, students have the opportunity to practice observation skills, use all (or most) of their senses for learning, and gain exposure to authentic objects and environments. Learning centered around objects is a rich personal experience that helps students develop personal meaning. The following summary of research was compiled from articles and books by the following researchers: Alvarado & Herr, 2003; Griffin, 1994; Hannon & Randolph, 1999; Hooper-Greenhill, 1987; Shuh, 1999.

The process of learning from objects:

- Is concrete
- Relies on perceptual and inferential skills
- May be multisensory
- Is participatory
- Need not be grade specific

To be successful in their use of objects for learning, students must:

- Observe (and possibly handle) objects
- Formulate questions
- Make comparisons
- Draw conclusions

Effect of Novelty on Students

Students who participate in a field trip to a new environment may be inattentive to learning objectives. This has been termed the novelty factor by museum researchers Falk, Martin and Balling. Teachers can minimize this effect on students. One caveat: A moderate amount of novelty is beneficial from the perspective of brain based learning; however, too much can cause anxiety. The following findings were gathered from the writings of the following researchers: Bellan & Scheurman, 1998; Falk & Balling, 1980; Martin, Falk, & Balling, 1981; Orion & Hofstein, 1994.

Novelty and its effect on students on field trips:

- Cognitive novelty refers to familiarity with concepts presented and skills needed on the field trip
- Psychological novelty refers to the ability to connect the field trip to prior experience
- Geographical novelty refers to familiarity with the field trip environment
- Students in an unfamiliar setting tend to interact with peers and explore, rather than attend to their teacher's learning objectives
- To assist students in adjusting to a new environment, allow time for familiarization through structured exploration at the start of a field trip
- Familiarize students with concepts and activate prior knowledge through classroom discussions or Web site access prior to the field trip
- If possible, plan to visit the same field trip destination more than once

Preliminary Preparations for a School Field Trip

To plan for a field trip, teachers must invest a substantial amount of time—beginning several weeks prior to the field trip date. In addition, probably the best placement of a field trip is within a unit of study, so that students have a knowledge framework, but still have time afterwards for follow up studies and presentations. What follows has been compiled from personal experience and the writings of the following researchers: Carroll, 2007; Connolly, Groome, Sheppard, & Stroud, 2006; Cox-Petersen & Melber, 2001; Millan, 1995; Orion & Hofstein, 1994.

Preliminary preparations for a school field trip:

- Select a field trip destination, program or tour that aligns with standards
- Choose at what point in the unit of study the field trip should occur
- Set clear learning objectives
- Determine appropriate learning strategies to match the objectives
- Decide how to assess learning before and after the field trip
- Visit the Web site of the field trip destination to check for online learning resources for students and for downloadable teacher resources
- Design or acquire an advance organizer, question book or worksheet
- Consult with other teachers and staff who may be affected by the field trip
- Determine how many chaperones will be needed
- Plan for student accessibility in terms of appropriate developmental level, physical access, and financial ability to cover costs of entrance or other fees

- Determine the total cost of the field trip and how it will be paid
- Consider what accommodations might be required for special needs students
- Make reservations for the field trip destination (including any programs or tours)
- Inquire about the cancellation policy and when payment is due
- Arrange for transportation (e.g., reserve a school bus)

Logistical Planning for a Field Trip

Teachers need to ensure that they include in their field trip plans considerations of student safety, possible legal issues and costs. To do so, teachers may need to access outside resources. In addition, they will need to involve the parents of the students who will attend the field trip. Teachers who can visit the field trip destination in advance can evaluate it to ensure it meets their needs. The following recommendations are collected from personal experience and from the writings of the following researchers: Carroll, 2007; Hannon & Randolph, 1999; Mawdsley, 1999; Millan, 1995.

Logistical planning for a field trip:

- Compose a detailed parent letter to include: field trip destination, purpose of the trip, cost for the student, school departure and return times, mode of transportation, and what students might need (e.g., sturdy shoes, water bottle)
- Create a form for parents that includes a section for parents to note any special needs, medications or allergies; sign up to accompany the class as a chaperone; and a signature that gives the student permission to attend
- Request translation of the letter and form, if needed, to communicate with non English speaking parents
- Send the parent letter home three weeks prior to the field trip date
- Solicit chaperones from parents, school staff and school volunteers (check to see if your school requires a background check of chaperones)

- Inquire about sources of funding for students who cannot pay field trip fees:
    - The school PTA/PTO may have funds
    - The field trip destination may have grant money to cover entrance fees or bus transportation (i.e., for individuals or for the entire class)
    - Teachers may apply for grant money from sources set up for that purpose (e.g., a Web site DonorsChoose.org)
    - Teachers may plan to raise funds
- Arrange for accommodations for special needs students
- Prepare chaperones (e.g., learning objectives, behavior expectations, schedule)
- Designate an adult to handle accidents and medical emergencies
- Determine what supplies will be needed (e.g., maps, first aid kit, trash bags to clean up after lunch, camera)
- Print a class list (which includes student names and parent contact information) to carry on the field trip
- Make student name tags (first name only, school name and school phone number)
- Exchange cell phone numbers with chaperones and other teachers who will attend
- Leave cell phone numbers of teachers who will attend with school office
- Request student lunches from the school cafeteria (ask students to notify you if they prefer to bring a lunch from home)
- If any students cannot attend, ask a teacher to take them in for the day

Teacher Preview Visit to Field Trip Destination

In order to make the best use of a school field trip, teachers need to visit the site in advance. Teachers can become familiar with its layout, collect maps or educational brochures, and possibly borrow specimens for use in the classroom. Also, they may want to take photographs. All of this information may be useful to prepare students for the field trip; special needs students especially need the reassurance of what to expect. The following recommendations are collected from personal experience and from the writings of the following researchers: Bitgood, 1994; Carroll, 2007; Millan, 1995; Voris et al., 1986.

On a preview visit to a field trip destination, teachers can evaluate:

- Its suitability for their learning objectives
- If it offers engaging activities
- How it may connect to student prior knowledge
- How developmentally appropriate the environment is
- It in terms of student safety

Teachers may want to familiarize themselves with the layout or floor plan to locate:

- the school group entrance and check in desk
- stairs, elevators or paths students may use
- restrooms and lunch area
- areas or exhibits to be visited

Scheduling the Field Trip

Another aspect of planning involves how to schedule the activities while on the field trip. If an introductory lecture is offered and is suitable in terms of learning objectives, teachers may want to schedule it as students will be more focused and task oriented during their free time. The following recommendations are collected from personal experience and from the writings of the following researchers: Bitgood, 1994; Carroll, 2007; Jensen, 1994; Linn, 1980; Millan, 1995; Price & Hein, 1991; Voris et al., 1986.

Factors for teachers to consider when scheduling a field trip:

- If they will schedule a guided tour or specific program
- How they will use varied learning strategies (e.g., viewing demonstrations, visiting hands on exhibits, listening to a lecture, or completing a worksheet)
- How they will plan the day's schedule to alternate between listening and active involvement, structured and unstructured activities, sitting and standing
- How they will allow for the physical needs of the students (e.g., length of time they are required to walk, stand or sit in one period; planning for short breaks)
- How they will pace the activities to allow student/parent chaperone groups to move about in a similar fashion to how family groups at a museum explore
- If students can attend a short lecture (i.e., 15 minutes) by a museum educator related to the field trip topic, plan free time for hands on activities afterwards

Preparing Students for a Field Trip

Teachers can anticipate that students will learn on a field trip if they take time to orient students in advance. Teachers will want to involve students in classroom discussions to introduce them to the field trip destination and show how the field trip ties into a unit of study. Also, a guest speaker could be invited into the classroom. The following suggestions are collected from the writings of the following researchers: Carroll, 2007; Connolly et al., 2006; Millan, 1995; Paris, 1994; Voris et al., 1986.

To prepare students for a field trip, teachers:

- Should discuss the day's plans, including the schedule, what they will see and do, what can be touched, how they will travel, expected behavior, chaperones, lunch plans, suitable attire, and any concerns students may have
- Could use visualization to describe what the students might see and do
- Could use an advance organizer (e.g., overviews, maps, conceptual organizers)
- Could use a bulletin board to display students' field trip predictions (drawings or written), and then have students make changes to their predictions afterwards
- Could use the field trip destination's Web site, if appropriate for students, to orient students and help them develop questions for their field trip
- Could use media (e.g., a video or photos) to activate prior knowledge
- Could contact the education department at the field trip destination to borrow collections of specimens (for students to practice object based learning in class)

Behavior Considerations

Field trips take place outside of the classroom, so students need to be aware of appropriate behavior for the new environment. For example, field trips often take place in public areas (e.g., zoos or museums) where considerations of student safety and concern for other visitors need to be addressed. In addition, students may have questions about how they may move about, what they can touch, and how much noise is acceptable. The following list was developed from personal experience and from the writings of the following researchers: Bitgood, 1994; Carroll, 2007; Voris et al., 1986.

Behavior considerations for students on field trips:

- Involve students in deciding what rules of behavior the class should have
- Consider if the expected behavior is similar to what is expected in a setting the students know, such as the library
- Prior to the field trip, model acceptable behavior
- During the teacher's orientation with students before the field trip, discuss expectations and consequences for misbehavior
- Make sure students know what they can bring along on the field trip (e.g., will cameras, electronic games, snacks, backpacks, or toys be allowed?)
- Make sure the day's schedule allows for varying levels of activity; try to minimize waiting in line and slack time when students may misbehave
- Reward good behavior

Use of Worksheets

Probably the most controversial topic of research involving learning at informal learning environments relates to the use of worksheets for students on field trips. Some researchers advise that teachers do not require students to complete worksheets, citing studies that show they detract from social interaction and active participation. Others give specific guidelines for their design. The following recommendations were compiled from the writings of the following researchers: Bortnyk, 2004; Connolly et al., 2006; Durbin, 1999; Falk & Dierking, 1997; Fry, 1987; Griffin & Symington, 1997; Kisiel, 2003; Parsons & Muhs, 1994.

If teachers plan to use a worksheet for students on a field trip, design it:

- For their students so it is relevant to them, links to classroom studies, and is written at their reading level (or collaborate with a museum educator to design it)
- So students are directed to observe and notice details (i.e., not to read labels)
- To elicit a variety of responses (e.g., verbal and nonverbal, such as drawing)
- To encourage students to linger at exhibits
- To allow students to choose what information they gather
- To encourage social interaction between students
- With Falk and Dierking's Contextual Model of Learning as a guide
- To offer open ended questions to encourage inquiry and exploration (e.g., ask students to infer from their observations or to synthesize and evaluate concepts)
- To help chaperones facilitate learning

Challenges of Outdoor Field Trips

Field trips that take place outdoors require additional planning, but they also provide students with a memorable chance to observe nature. For safety, it is very important for teachers to be sure their students are attentive and follow directions before taking them outdoors. The following suggestions were collected from personal experience and articles written by Fischer, 1984; McCutcheon & Swanson, 2001; and Siers, 2002.

Suggestions for a field trip taken outdoors:

- Discuss with students any potential hazards and how to keep safe
- Give students clear learning objectives and assignments to help them stay focused
- Voices may not carry as well outdoors; have a signal for meeting back together
- The greater distances and wind or noise may make it harder for everyone to hear; try to cluster together when sharing information
- If on a hike, rotate students so that everyone can be close to the front of the line
- If the goal is to observe wildlife, instruct students about keeping a safe distance from animals and for the need for silence
- Teach students how to move so they do not destroy animal footprints or plants
- Have students carry a nature journal or small notebook to list what they have seen, sketch an animal or plant, or record their observations or predictions
- Afterwards, use student journals as a springboard for writing; also students may want to look up what they have seen in reference books

Field Trip Follow Up

When teachers design field trips as a part of a unit of study and decide what methods to use to assess learning and growth, the continuation of learning after the field trip should flow smoothly. In addition, teachers that assign students to create a final product as a result of their field trip will help students be more focused. The following suggestions were collected from personal experience and from the writings of the following researchers: Bellan & Scheurman, 1998; Carroll, 2007; Cox-Petersen & Melber, 2001; Griffin & Symington, 1997; Kisiel, 2006; Krishnaswami, 2002.

Follow up and evaluation of a field trip:

- Discuss with students what they remember from the field trip to uncover possible misperceptions that can be corrected in follow up lessons
- Review teachers' notes of key words and concepts encountered (and plan to incorporate them into follow up lessons)
- Complete student projects based on the field trip
- Encourage students to journal about their field trip experiences
- Complete assessments, keeping in mind students may not always be able to express verbally what they learned
- Collect and display visual materials (e.g., maps, brochures, photographs)
- Use technology to create a finished product (e.g., multimedia presentation, class newsletter or book with student created photos, drawings and text)
- Write thank you notes as a class to chaperones and museum staff

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Chapter Summary

Teachers who utilize research based teaching strategies for planning a school field trip will find that their students develop vivid memories that link to content, have the opportunity to have adults (e.g., museum staff or parent chaperones) mediate learning, and create strong emotional connections linked to their memories. In fact, teachers have an important role to play in determining how effective the field trip is, in terms of learning.

The informal learning environment presents challenges to teachers who are unfamiliar with teaching strategies that suit such a setting. Therefore, teachers need to adapt their teaching methods in order to make the best use of the unique resources available there.

Planning a field trip is a time consuming endeavor. Teachers who can use the information presented in the guidebook for thoughtful planning will find that their students derive many benefits from participation in a field trip.

Chapter 5

DISCUSSION

The purpose of this project was to create a guidebook to present research in support of field trips for elementary school students, as well as strategies for field trip planning. With pressures on teachers to link field trips to education standards, tight school budgets, and increasing demands for teacher accountability, school field trip usage has diminished over the past few years. In addition, many teachers do not know how to plan field trips or how to adapt learning strategies for the unique environment presented on field trips.

Over the past nearly two decades, this researcher has planned and attended dozens of field trips. Responses from students led her to conclude that field trips could contribute a great deal toward learning in unique ways. During school observations and student teaching, she inquired into how field trips were used to support classroom learning. She observed that, generally, teachers tended to plan field trips less deliberately than the way they employed other teaching strategies.

In addition, this researcher, in collaboration with other teachers, was able to plan and attend three field trips for third grade classes (during her time as student teacher and while developing this project). This experience gave more insight into the amount of preparation involved to take students to an informal learning environment. Also, this experience provided opportunities to observe student reactions on field trips and to link the field trips with classroom studies.

Finally, research based instruction for teachers who wish to plan school field trips is hard to find. Based on these factors, this researcher concluded that a field trip planning

guidebook would contribute to improved practices for teachers who wish to use the field trip as a learning resource.

Limitations of the Project

The project was designed for use for elementary school teachers to help plan a field trip. Due to the dearth of research on field trips in general, research from the museum education community was investigated. Consequently, much of the literature for the project came from museum education. This gave insight into the challenges that museum educators face when they seek to partner with teachers in order to foster learning for students on field trips to informal environments.

Also, since museum education research was the main source of literature, the project focused on field trips to informal learning environments (e.g., museums, zoos, nature centers, historical sites, etc.) to the detriment of other field trips (e.g., theatres, tours of businesses, community service projects, concerts, etc.). However, in most cases, field trips to the former destinations present more challenges in terms of planning than do other field trips.

Colleague evaluations, overall, were positive. One evaluator, an elementary teacher who formerly taught third grade and now teaches technology, found the project to be thorough. To improve the guidebook, she recommended that inclusion of more strategies for incorporating technology into the creation of a field trip final product (e.g., a book with field trip photos and student written text) would encourage teachers to make use of that resource.

Colleague evaluations would have been more helpful if the guidebook could have been used to plan a field trip. If that had happened, any gaps or limitations of the guidebook would have been more obvious.

Recommendations for Future Development

There is a great gulf between the goals of teachers, who are pressured to link field trips to curriculum, and goals of educators in informal learning environments (e.g., museum educators). In addition, teachers who bring formal teaching strategies to informal learning environments may find such strategies reduce the effectiveness of those environments for learning. As a result, museum educators continue to investigate teaching strategies that can bridge teacher requirements with the unique offerings that informal environments contribute to learning. As this research continues, more collaboration between teachers and museum educators may occur.

Overall, teachers need more support from administrators and museum educators to develop easier methods to plan and implement field trips. In addition, current and preservice teachers need to be informed about effective teaching strategies for use in informal learning environments. Furthermore, more research into the value of informal learning environments as resources to support curriculum goals is needed.

Chapter Summary

The project, the development of a field trip planning guidebook for elementary teachers, was successful, based on the responses from colleagues who reviewed it. The strengths of the guidebook are its thorough presentation of research based strategies for planning field trips, its readability, and its inclusion of challenges teachers may face. Limitations involve the focus on field trips to informal learning environments, such as

museums, to the exclusion of field trips to experience concerts, plays, tours of businesses or community service projects. However, many of the principles of field trip planning can be utilized for these field trips. The other limitation is that the guidebook has not been tested by anyone planning a school field trip.

Research into methods to better support teachers in their use of informal learning environments will result in the school field trip becoming a more effective tool for teachers to use in achieving curriculum goals. In addition, dissemination to teachers of research based teaching strategies for informal learning environments will result in the field trip taking its rightful place as an important teaching resource.

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