

AN ACTIVITY-CENTERED DESIGN PERSPECTIVE FOR THE CREATION OF  
MUSEUM EXHIBITS

BY

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## **Abstract**

Approaching design as a flexible and goal-directed process with frameworks for understanding human behavior during exhibit development enables a comprehensive plan for achieving exhibit goals. *An Activity-Centered Design Perspective for the Development of Museum Exhibits* outlines theoretical design frameworks that support museum goals and responsibilities for the production of exhibit solutions that facilitate desired visitor experiences. The design community follows iterative processes that incorporate a strategic mix of tools for the creation of valuable and successful products and services. Because information and communication technologies are common for the presentation of exhibit messages, an approach to exhibit development that considers exhibit activities and technology and how they effect visitor experience is necessary. An exhibit development strategy with a design perspective frames critical exhibit activities for analyzing the contextual factors that influence visitor behavior and overall visitor experience. The museum industry has an opportunity to incorporate this design perspective to exhibit development as well as the creation of additional museum programs and events that have goals of increasing attendance and attracting a wider and more diverse audience.

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## Introduction

The role of design in exhibit development is larger than the imaginative and creative production of aesthetically pleasing and functionally sound exhibits. A broader thinking of design during exhibit development enables a flexible and goal-directed process with frameworks for understanding human behavior. Design is a tool box that holds a mix of generative and analytical tools with multiple uses and functions that consistently produce results that lead to opportunity and discovery of successful exhibit solutions. The intent of this thesis is to propose a strategy, from a design point of view, that is relevant and beneficial to museum exhibit development. *An Activity-Centered Design Perspective for the Development of Museum Exhibits* outlines the theoretical frameworks of activity-centered design that support museum goals and responsibilities for the production of exhibit solutions that facilitate desired visitor experiences.

As an exhibit designer at the Kansas Museum of History, identifying and defining target audiences exposed the need for a process that structured the examination and analysis of audience research. The importance of researching current and potential visitors was understood, yet the development team was often unsure how to proceed and apply the findings. As a result, vague and broad target audience definitions shifted throughout development to meet exhibit requirements established by the development team rather than from visitors themselves. A design-based, comprehensive development strategy seeks to ease audience research challenges using an approach that speaks to museum professionals and references museum studies issues.

Exhibits are not the only museum program that can benefit from an expanded role of design. The flexible and goal-directed nature of the design process allows museums to adapt the process and corresponding design tools to meet the needs of public facing museum projects, such as educational programs and events, interpretive tours and audience development projects to cultivate new members while maintaining existing ones. When a balance of internal museum objectives and audience requirements is needed, design is capable of guiding and directing the creation of successful museum projects.

The sections of this thesis include a literature review of design and museum practices, a methodology and strategy for activity-centered exhibit development, and a discussion of the strategy in the form of a case study. The Literature Review section cites relevant museum studies research and approaches to design that establish current practices and trends in the design of products and services as well as the development of museum exhibits. The Methodology section identifies activity-centered design as the appropriate design approach for exhibit development and presents theoretical frameworks and a unique design process with a resourceful exhibit development tool box. An exhibit development strategy is outlined in the “An Activity-Centered Strategy for Exhibit Development” section using the theoretical frameworks, process and tools presented in the methodology. The Discussion section represents a case study illustrating the first phase of the development strategy that specifically addresses the audience research challenges previously mentioned.

## Literature Review

Few museum professionals understand the disciplines and skills needed to integrate concepts into three dimensional exhibit designs that excite and engage visitors (McLean, 1993). The complexity of the development process is compounded because use and understanding of design. On one hand, design is seen as the product of designers who are experts in visual communication and the development and use of objects and space (Lord & Dexter Lord, 2001). This definition leads to the perspective that design occurs late in the development process and if the exhibit agenda is overtaken by design in earlier stages, visitor experience, learning and satisfaction will suffer (Mayrand, 2002). On the other hand, design is a process—stages in exhibition development that effect the outcomes of the final product. The Smithsonian Institution acknowledges design as part of the internal development process that effects the final product and goals of external museum participants which more closely aligns with views of this thesis (2002).

Kathleen McLean, owner and operator of Independent Exhibitions, an exhibition planning firm, asks all exhibit professionals, including educators, evaluators, curators, designers, directors, technicians and administrators to be communicators and audience advocates for the development of engaging exhibitions (1993). Broadly defined, "design is the craft of visualizing concrete solutions that serve human needs and goals with certain constraints" (Goodwin, 2009). Design, as a process, is a natural advocate for museum audiences. How museums adopt design into the exhibit development process can influence the effectiveness of the finished exhibit by facilitating physically, intellectually and emotionally engaging visitor experiences (Smithsonian Institution, 2002).

The literature survey serves two main purposes: to compare the development processes used by design and museum professions and to demonstrate the rich and abundant museum studies literature for the development and planning of exhibits. The literature review begins with the concept of human experience, a recognized area of importance for designers and museum professionals. This is followed by two standards of practice sections that identify and define accepted approaches and processes of the design and museum industries. The design standards of practice section reviews human-centered design, goal-directed design and activity-centered design. The museum standards of practice section reviews museum literature in the areas of exhibition standards, evaluation, development models and planning for visitor experience. The resources cited in this literature review are from recognized institutions and individuals of high standing in their professional communities.

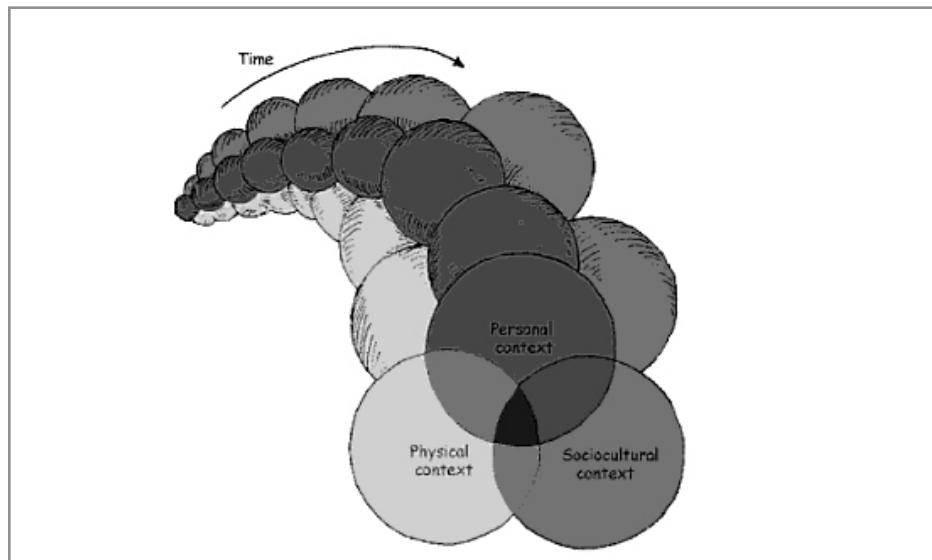
### **Experience**

When a customer engages with a product or service in a memorable and personal way an experience is created (Pine & Gilmore, 1999). Designers and museums have found economic value by intentionally staging their goods and services to create experiential offerings. Successful products and services center the individual's use of the product and therefore, the focus is shifted to the user throughout the development process. Designers and exhibit developers understand the importance of offering experiential products; however, the processes and methodologies of development are influenced by different theories and standards of practice within their respective industries.



### *Visitor Experience in the Museum*

In museum studies, visitor experience is often defined from the perspective of learning that occurs in the museum environment. However, visitor experience is also the collection of events that result from the entirety of the museum visit; from the initial decision to visit to participation with museum activities and exhibits during the visit and continuing into the future in forms of knowledge and memories (Falk & Dierking, 2007). Visitor experience is the process of learning, understanding and making meaning from personal, social and physical interactions during the museum visit (Falk & Dierking, 2000). John Falk and Lynn Dierking developed the *Contextual Model of Learning (Figure 1)* as a framework for understanding the complexity and diversity of learning in museums (2000). This model is conceptualized as three visitor constructed contexts: the personal context, sociocultural context and physical context. Individuals arrive at a museum with a unique personal agenda of expectations that are personally constructed depending on past museum experiences, interests, motivations and concerns. This personal construct is influenced by the social activities that occur between visitors of the same social group and with other museum visitors. The social interactions happen within a physical setting that visitors have chosen to enter. The physical contexts of architecture and ambiance, as well as the objects and artifacts on display can significantly influence behavior, observations and memories. The process of these contexts continually interacting with each other over time creates the visitor experience.



*Figure 1: Contextual Model of Learning. This figure represents the interactive contexts of visitor experience (Falk & Dierking, 2000).*

A common topic of museum studies literature and research is to bridge the gap between visitor experience theory and its application to exhibit practices (Falk & Dierking, 2007). The research of museum audience psychographics—characteristics that describe values, attitudes, perceptions, interests, expectations and satisfactions related to museum participation—is an important topic in understanding how museums can attract a wider public audience and continue to bring them back for future programs (Hood, 2004). This type of research answers questions about what museum visitors and non-visitors value in their leisure experiences and how they make decisions about spending their leisure time and energy (Hood, 2004). Marilyn Hood draws on literature from museum studies, as well as sociology, psychology, leisure science, education, communications, consumer behavior and marketing to understand who visits and does not visit museums, what attracts them and what keeps them away (2004). Recognizing that people make choices about spending and valuing their leisure time, Hood created a

set of leisure criteria to determine how people judge their leisure experiences and preferences (2004).

The Criteria of Leisure Experiences are:

- 1) Being with people or social interaction
- 2) Doing something worthwhile
- 3) Feeling comfortable and at ease in one’s surroundings
- 4) Having a challenge of new experiences
- 5) Having an opportunity to learn
- 6) Participating actively

As a result, three distinct groups within current and potential museum audiences are identified and illustrated in *Figure 2*: frequent participants, occasional participants and non-participants (Hood, 2004).

Frequent Museum Participant	Occasional Museum Participants	Non-participant
<ul style="list-style-type: none"> <li>• Goes to museums at least three times a year (some as often as 40 times a year)</li> <li>• A minority of the community accounts for 45% to 50% of museum visitation (in the research population).</li> <li>• Has a top 3 of valued leisure attributes that are distinct for this group:                             <ol style="list-style-type: none"> <li>1) having an opportunity to learn,</li> <li>2) having a challenge of new experiences and</li> <li>3) doing something worthwhile in leisure time.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• Visit museums once or twice a year.</li> <li>• Makes up 40% of community</li> <li>• Accounts for 50% - 55% of museum visitation (in the research population).</li> <li>• Has a top three of valued leisure activities:                             <ol style="list-style-type: none"> <li>1) being with people,</li> <li>2) participating actively</li> <li>3) and feeling comfortable and at ease in their surroundings</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• Does not visit museums.</li> <li>• Makes up the largest percentage of the community at 46%</li> <li>• Has a top three of valued leisure attributes:                             <ol style="list-style-type: none"> <li>1) being with people,</li> <li>2) participating actively</li> <li>3) and feeling comfortable and at ease in their surroundings</li> </ol> </li> </ul>

Frequent Museum Participant	Occasional Museum Participants	Non-participant
<ul style="list-style-type: none"> <li>• Highly values all 6 leisure attributes and perceives them to be present in museums.</li> <li>• Satisfied with museum experiences because the top 3 leisure attributes are perceived to be regularly available and in substantial quantities during the visit.</li> <li>• Usually those interviewed in the museum and fit the typical demographic profile of upper education, occupation and income. They are active in community leisure activities and are younger than the general population.</li> <li>• Has placed museums on their leisure agenda.</li> <li>• Visits museums wherever they are and whatever is showing.</li> <li>• Identifies with museum values and understands the “museum code” of exhibits and objects because of the relationship with museums that has developed over time.</li> <li>• Perceives the benefits of visiting museums as outweighing the costs (time, money, travel, mental saturation, fatigue, inconvenience).</li> <li>• Will visit a museum alone.</li> <li>• Wants to find the challenge of new experiences on a continuous basis in their leisure activities.</li> <li>• Can be a museum enthusiast with intense involvement in a special interest.</li> </ul>	<ul style="list-style-type: none"> <li>• More closely resembles the socialization patterns and leisure values of non-participants than frequent participants.</li> <li>• Socialized as children into activities of active participation, entertainment and social interaction.</li> <li>• Maintains high levels of participation in outdoor experiences as adults, such as camping, hiking, swimming, skiing, playing an instrument or arts and crafts; amusement parks and movies; sightseeing and attending sporting events.</li> <li>• Value family-centered activities</li> <li>• Attracted to natural centers for family and extended family gatherings such as parks, zoos, picnic areas, outdoor festivals and craft workshops because they offer all three of the most valued leisure attributes.</li> <li>• Value comfortable surroundings and perceive museums to be physically and psychologically uncomfortable.</li> <li>• Equates leisure with relaxation, which aligns more closely to social interaction with friends and family than to the special interests of a museum enthusiast.</li> <li>• Value comfortable surrounds like the presence of a support group of family, friends, club or co-workers to provide social approval and validation during a museum visit.</li> <li>• May experience museum fatigue during a visit</li> <li>• Perceives some valued leisure attributes are available in museums, but not in sufficient quantity to justify regular visits.</li> <li>• Weighs each museum visit against other leisure options.</li> <li>• Visits museums for special occasions and family events because these more likely fulfill leisure expectations and wants.</li> <li>• Shows a pattern of living in the community for a short time. The lack of established networks of friends and family causes exploration of available family activities.</li> </ul>	<ul style="list-style-type: none"> <li>• At opposites with frequent participants in leisure values, preferences, expectations and demographic characteristics.</li> <li>• Generally not socialized into museum going as children. They are more likely to adopt cultural activities as adults rather than as a child.</li> <li>• Are more likely to choose leisure experiences that compete with museum going because they perceive the alternatives fulfill their desired leisure requirements.</li> <li>• Perceives top leisure attributes are not present in all museums and investing themselves in a museum experience brings minimal benefits.</li> <li>• Have a perception of museums as being formal, formidable and inaccessible because of the limited exposure to the “museum code”—places that impose restrictions on group social behavior and active participation.</li> <li>• More likely to participate in leisure activities such as sports, picnicking, visiting, and shopping malls.</li> <li>• Values family-centered activities</li> <li>• Long term community residence. A solid network of family and friends provide less reason to seek outside leisure activities</li> </ul>

Figure 2: Profiles of Museum Participants. Profiles are compiled and adapted from the leisure research of Marilyn Hood (2004).

### *User Experience in Design*

The design industry uses many definitions of user experience to encompass the broad range of design disciplines. Designers apply the definitions of user experience to the design process to create engaging, valuable, and profitable products and services. To a user, experience is continuous and evolving over time (Kuniavsky, 2003). The designed system and the physical, personal and sociocultural components of a user's life all interact and feed back on one another, creating an experience (Kuniavsky, 2003). When the product, service and environment satisfactorily address the qualities of motivation, expectation, perception, ability, and culture the result is a positive user experience (Merholz, 2008).

The Nielsen Norman Group (n.d.), a design consultancy with a human-centered design philosophy for developing products and services, works under their own definition of user experience:

"User experience" encompasses all aspects of the end-user's interaction with the company, its services, and its products. The first requirement for an exemplary user experience is to meet the exact needs of the customer, without fuss or bother. Next comes simplicity and elegance that produce products that are a joy to own, a joy to use. True user experience goes far beyond giving customers what they say they want, or providing checklist features. To achieve high-quality user experience in a company's offerings there must be a seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design.

### **Standards of Practice - Design Process**

Industrial designers, graphic designers, interaction designers and user experience designers work in many different industries creating a variety of products, services and environments. As companies seek to find more market value and business opportunities, designers are being asked to generate ideas that meet consumer needs, rather than creating more aesthetically pleasing products (Brown, 2008). The characteristics of design that make it human-centered and business appropriate is the thinking and process that designers follow. The iterative nature of the design process refines and builds on lessons learned from previous iterations to discover the most usable and valuable solution (Nielsen, 1993). Conducting field research and analyzing the data identifies user requirements that lead to prototypes and models that represent concepts for design solutions. The feedback collected from observing the use of prototypes and behaviors of users is problem solving and forward progression toward achieving project goals of a complex design problem (Kelley, 2001). This way of thinking about design uses the designer's sensibility and methods to match people's needs with what is feasible and viable for a business strategy to convert into customer value and market opportunity (Brown, 2008).

Design approaches that share a human centered focus are now accepted and adopted as a standard of practice throughout the design community (Norman, 2005). The iterative nature of the process keeps the solutions human centered and business appropriate. Three relevant design approaches practiced by successful design consult-

ants to reach user and business goals include human-centered design, goal-directed design and activity-centered design.

### *Human Centered Design-IDEO*

Human-centered design, as practiced by IDEO, a design consultancy, is a process and set of techniques that examines the needs, dreams and behaviors of the people who will use the products, services, environments and modes of interaction being designed (2009). Users guide the design based on their needs and goals and designers translate these requirements into products and services (Saffer, 2007). IDEO developed the Human Centered Design Toolkit to help "organizations understand people's needs in new ways, find innovative solutions to meet these needs and deliver solutions with financial sustainability in mind" (2009).

IDEO's process starts with a design problem that undergoes three phases (*Figure 3*):

1. *Hear*: conducting field research
2. *Create*: translating field research into frameworks, opportunities, solutions and prototypes to identify opportunities using concrete and abstract thinking
3. *Deliver*: realizing the solutions through financial modeling, capability assessments and implementation planning for the product launch.

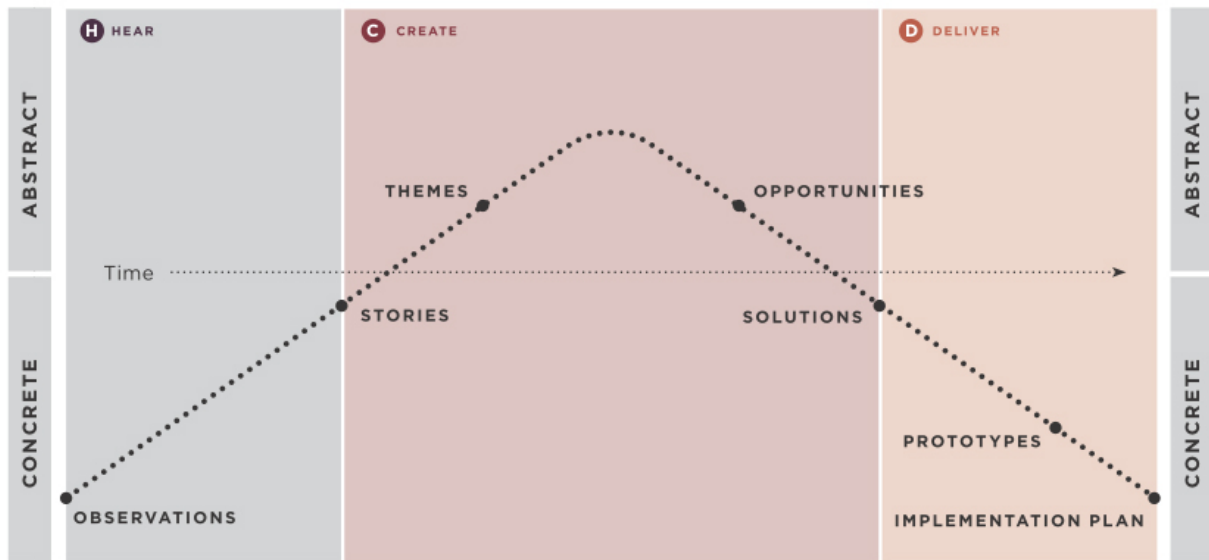


Figure 3: The Human Centered Design process. The design of products and services undergoes three main phases: Hear, Create and Deliver. (<http://www.ideo.com/work/human-centered-design-toolkit/>)

### *Goal-Directed Design - Cooper*

Cooper, a design consultancy founded by Alan Cooper developed the Goal-Directed Design process for the design of product behavior, visual form and physical form (Goodwin, 2009). Kim Goodwin, Vice-President of Cooper, describes the goal-directed process in her book, *Designing for the digital age: How to create human-centered products and services* (2009). The methods used throughout this process focus on achieving user goals, customer goals and business goals of the company creating the product. The Goal-Directed Design process is composed of steps and techniques involved with planning and conducting design research to develop personas, scenarios and user requirements for the development of design solutions.

Personas are audience profiles that describe the goals and behavior patterns of potential users and customers. The descriptions in a persona include a name, a photo,

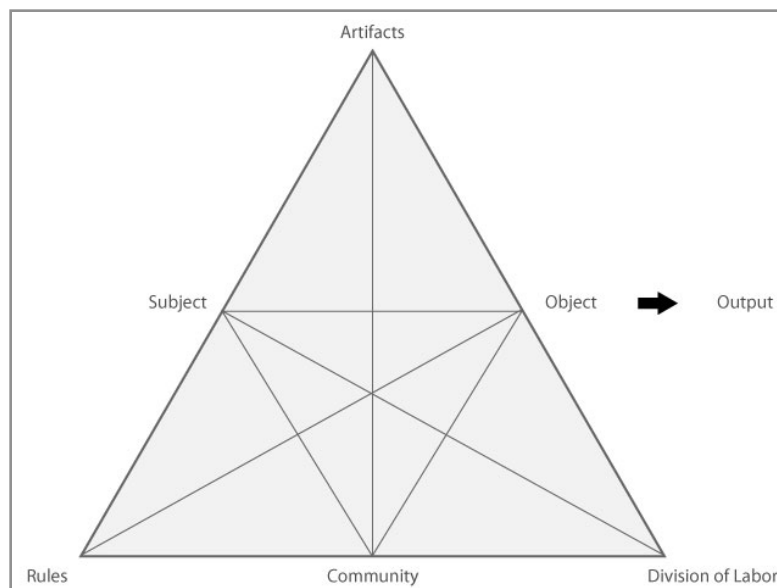


goals, a narrative of their mental model, environment, skills, frustrations, attitudes and any other information that is critical for understanding their behavior. Scenarios are textual narratives of persona interactions with the future product and account for a full range of possible interactions that describe motivations for a particular behavior and state the persona goals the product achieves.

*Activity-Centered Design - Geri Gay and Helene Hembrooke*

Activity-centered design is inspired and informed by activity theory and the research of Yrjo Engestrom and Lev Semenovich Vygotsky (Engestrom, 1999; Vygotsky, 1962). Their work contributes to changing attitudes of the role of technology within the research of Human-Computer Interaction. The design of technology applications, products and services is moving away from human-centered design where the focus is on technology solving specific human needs. In *Activity-Centered Design: An Ecological Approach to Designing Smart Tools and Usable Systems*, Geri Gay and Helene Hembrooke propose a more contextual approach of understanding behaviors during activities and finding technology solutions that compliment these activities (2004). Activity-centered design regards activity as the highest-level objective and views motivations for participating in an activity and the desired outcomes of participating in that activity are the same. The shift to a contextual based design is an approach "where the use, design and evaluation of technology are socially co-constructed and mediated by human communication and interaction" (Gay & Hembrooke, 2004, p.1). Principles of activity theory applied to this approach allow designers to understand and evaluate the dimensions of these social and mediated activities within the motives, community, rules, history and

culture of the participating users. Activity theory becomes an orienting framework, as seen in *Figure 4*, to examine behaviors and relationships between the user, object and tools across time and space.



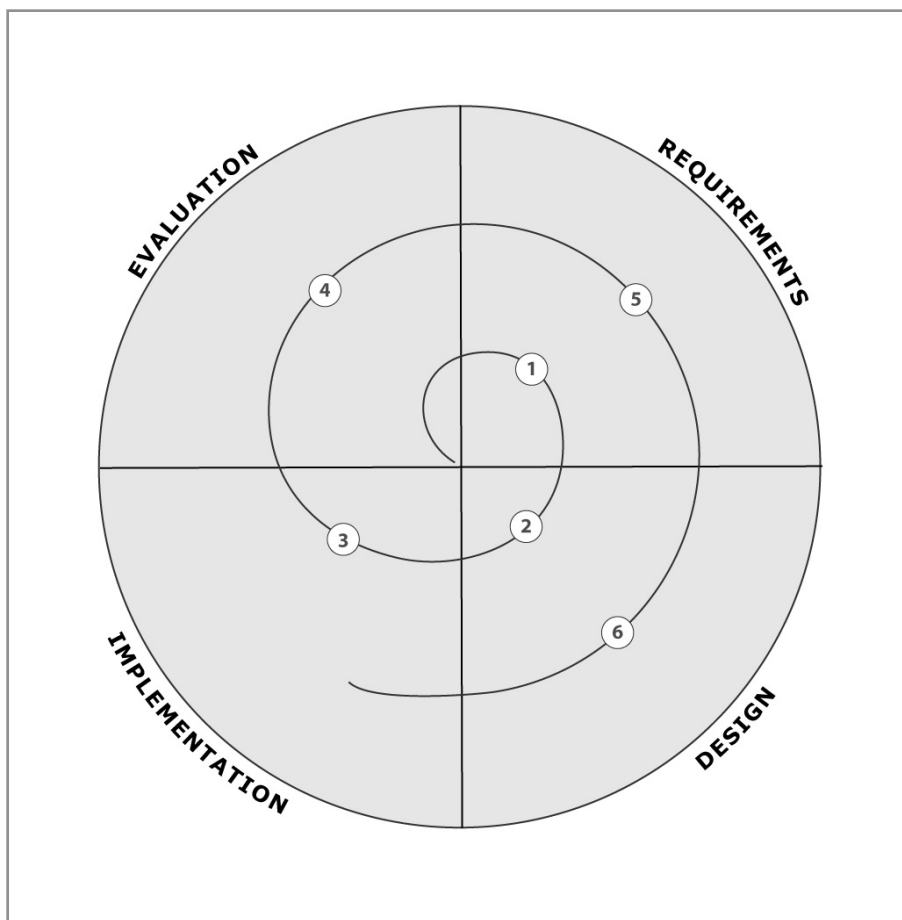
*Figure 4: Activity Analysis.* Engstrom's activity system framework for understanding the relationship between the user, object and tools across time and space (Gay & Hembrooke, 2004, p12).

Activity-centered design process follows an iterative process for solving design problems. The process is organized into four cyclic phases of Evaluation, Requirements, Design and Implementation with benchmarks throughout the process:

1. Examination of current practices and activities
2. Identification of tensions, controversies and conflicts between and within activity systems
3. Consideration of new models, metaphors and design solutions
4. Testing of designs in actual settings
5. Re-conceptualization, revision and redesign of concepts

6. Additional identification of tensions, incongruities and breakdowns between activity systems

The path of an iterative process is not rigid and linear, but rather flexible, with the freedom to move back and forth between phases and benchmarks to find the best possible solutions (*Figure 5*). The process continues until a sense of stability and resolution is achieved.



*Figure 5:* Iterative Design Process. Model adapted from Gay and Hembrooke, 2004.

## **Standards of Practice - Exhibition Planning and Development**

Traditional museum exhibition policies state a need for a mix of temporary and permanent exhibitions, presentation of accurate information and the proper care of artifacts (Smithsonian Institution, 2002). As museums have embraced the concepts of visitor experience, the policies are expanding to include a responsiveness to visitor needs and interests through research, design and communication strategies. Standards, criteria and models are accessible to museum professionals for the development of successful and effective exhibitions.

### *Exhibition Standards*

The American Association of Museums (AAM) published *Standards for Museum Exhibitions and Indicators of Excellence* to measure how effectively exhibit research, interpretation and presentation physically, intellectually and emotionally engages the audience (n.d.). The standards of success are organized into the following categories.

- Audience: *Is public response positive and does the response reflect exhibition goals?*
- Content: *Does the exhibit respect the integrity of the content?*
- Collections: *Are proper conservation and security concerns addressed?*
- Interpretation and Communication: *Is the exhibition message clear and coherent?*
- Design and Production: *Are the physical designs of the exhibit space and information appropriate to the theme, subject, collection, and audience?*

- Ergonomics: *Is the physical exhibit accessible, comfortable, and safe for the public to view?*

### *Evaluation*

The acknowledgement from museum professionals that museums are not solely educational institutions, but rather a leisure activity competing with shopping malls, movie theaters and sporting events has shaped how exhibition success is measured (Dean, 1996). This competition has forced museums to take a comprehensive look at an individual's entire museum experience to discover how effective the exhibits and programs are at meeting visitor expectations. Evaluators use three main types of research studies: front-end analysis, formative evaluation and summative evaluation. Each type has a unique purpose in exhibit planning and development and they all seek to gather data for the comparison of established goals and objectives against the results (Dean, 1996).

- *Front-end Analysis* (Dierking & Pollock, 1998): applied research that informs decisions for the entire exhibit development process. These studies often challenge assumptions about visitors' prior knowledge, interests, attitudes and beliefs of exhibits and other museum services. Strategies for front-end analysis use qualitative research methods for an in depth look at relatively small numbers of people, such as interviews, observation and analysis of written documents.
- *Formative evaluation* (Dean, 1996): occurs during exhibit development while changes can still be made. These check points test exhibit intentions to identify what is actually happening and show what works and what does not. Prototypes

reveal valuable information on the effectiveness of design, content, material durability, communication and conservation standards.

- *Summative evaluation* (Dean, 1996): occurs after the exhibit is completed and open to the public. This evaluation is useful to identify problems and improve the effectiveness of current and future exhibits. Summative evaluation may include follow-up interviews to determine learning outcomes, questionnaires to assess visitor satisfaction and mapping to find patterns of visitor behavior.

Professionals evaluators work to discover relevant criteria and better evidence gathering techniques to best answer research questions. Beverly Serrell, a professional exhibition evaluator, led a team of exhibition professionals in the development of the *Framework for Assessing Exhibitions from a Visitor-Centered Perspective* (2006). The purpose of this evaluation technique is to improve awareness about what is successful in exhibitions and what might have worked better.

The framework addresses four criteria for defining exhibit functions that promote positive learning experiences.

- *Comfortable*: The exhibition helps the visitor feel comfortable—physically and psychologically. Good comfort facilitates positive experiences. Lack of comfort prevents them.
- *Engaging*: The exhibition entices visitors to pay attention. This is the first step toward finding meaning.
- *Reinforcing*: The exhibition allows visitors to feel intellectually competent—beyond the “wow” of engagement. Exhibits also reinforce each other by providing

multiple ways of accessing similar information that are part of the larger exhibition concept.

- *Meaningful*: The exhibition provides personally relevant experiences for visitors. Visitors find themselves changed, cognitively and affectively, in the present and the future.

### *Exhibition Development Models*

In attempts to help museum professionals manage the exhibition development process, project models are created to visually represent the exhibition development process. A business management inspired project model developed by David Dean and the visitor experience inspired model developed by Dirk Houtgraaf and Vanda Vitali are two approaches to exhibit development (Dean, 1996 and Houtgraaf & Vitali, 2008).

David Dean adopts a business management approach with a business oriented methodology for product development (Dean, 1996). The systemized process is a linear series of phases and stages with three tasking areas within each phase (*Figure 6*).

1. *Product oriented*: activities that focus on objects and their interpretation
2. *Management oriented*: tasks that focus on providing resources and personnel for project completion
3. *Coordination*: keeps product and management oriented activities focused on the same goals.

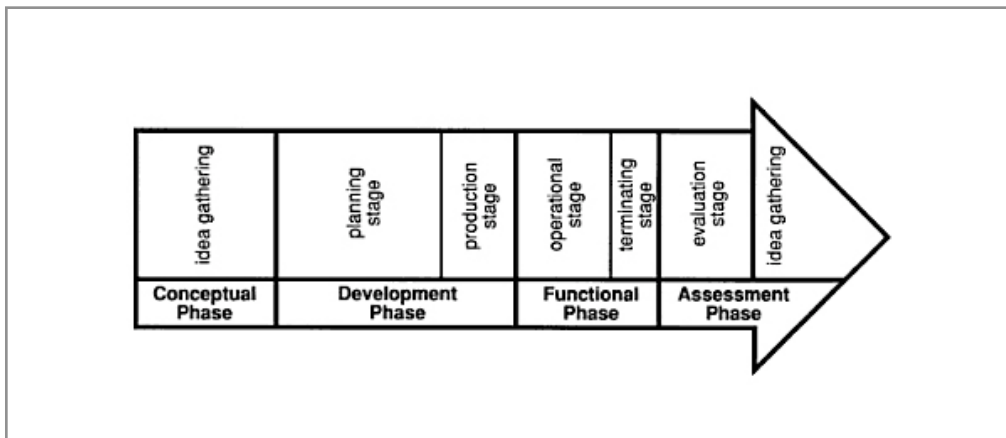


Figure 6: Exhibition Project Model. A business management approach to exhibit development (Dean, 1996).

Each phase produces actionable results. The *Conceptual Phase* identifies resources and an exhibit schedule. The *Development Phase* is for the planning and production of exhibit interpretation and promotional programs. The *Functional Phase* includes operational and terminating stages for exhibit maintenance and eventual closure to the public. The *Assessment Phase* is for evaluation and suggestions for improvement to the product and the process.

Where Dean's project model grounds the exhibit development process in business strategy, Dirk Houtgraaf and Vanda Vitali use a process that incorporates the body of research on learning and experience, therefore centralizing the role of the museum visitor (2008). Houtgraaf and Vitali, museum master planners, recognize the partnership between collections and storytelling as an effective communication strategy for facilitating meaningful visitor experiences. The development process organizes intellectual and material resources to facilitate the translation of their three-dimensional stories in a museum environment.



The four main stages of the Houtgraaf and Vitali process moves an exhibit from the establishment of the *concept*, the creation of the *story line*, the development of the *design* and the realization of the exhibit production. Along with the four main stages, are six crucial components of an integrated system for the realization of an exhibit.

1. *Content*: the knowledge and information the exhibition is trying to communicate to visitors
2. *Designs*: the translation of two-dimensional concepts into three-dimensional components
3. *Team*: participating members of the exhibition development process
4. *Stakeholders*: non-team members with financial, intellectual, managerial and or other ownership responsibilities.
5. *Budget*: the monetary resources available to accomplish the project

### *Planning for Visitor Experience*

Nina Simon is the creator of Museum 2.0, a design consultancy specializing in participatory and audience-centered museum spaces (2006). Simon combines professional design skills with lessons from social web applications to transform museums into leading participatory venues (2010). Understanding social media behaviors, stages of social participation and the facilitation of a visitor's self-expression are key factors for the development of participatory exhibits (Simon, 2010).

Simon uses *social technographics* to understand how different audiences interact with social media (2009). These characteristics describe and group how visitors prefer to interact and contribute to exhibition content:

- *Creators*: people who produce content
- *Critics*: people who review, rate and comment on social web media
- *Collectors*: people who collect links and organize content for personal or social use
- *Joiners*: people who join social networking sites
- *Spectators*: people who read and watch web content and visit social media site
- *Inactives*: people who do not visit social media sites

Incorporating participatory principles and techniques into the exhibition development process invites visitor participation while promoting institutional goals of the museum (Simon, 2010). Simon identifies principles for creating participatory spaces.

- *"Me to We" design (Figure 7)*: the design of experiences that encourage people to participate socially with each other to build on individual experiences and support collective engagement.

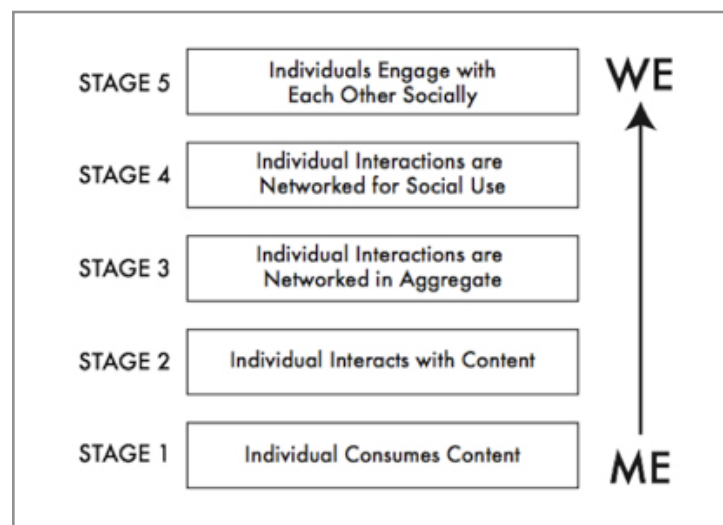


Figure 7: Five Stages of Social Participation. "Me to We" visualizes the process of visitor experience from personal to communal interaction

- Staging participation: the identification of concrete participatory goals and design constraints for visitors to comfortably express themselves within a participatory museum environment.
- Models of Participation: a variety of museum programs for visitor participation opportunities.
  1. *Contributory projects*: institutionally controlled process that solicits visitors for limited and specific content.
  2. *Collaborative projects*: institutionally controlled process that actively involves visitors in the creation and design of projects.
  3. *Co-creative projects*: involves community members in the institutional process of defining project goals for the development of an exhibit based on community interests.
  4. *Hosted projects*: developed and implemented by the public with facility or resource assistance provided by an institution.

The Division of Interpretive Planning at Harpers Ferry Center, National Park Service created *Planning for Interpretation and Visitor Experience* to describe perspectives and approaches to interpretive planning for a goal-driven plan outline (1998). Interpretive planning is the process that identifies significant visitor experiences and recommends how to provide, encourage, facilitate and sustain positive visitor experiences. The benefits of interpretive planning:

- Build consensus on long term institutional visions for interpretation and visitor experience
- Provide key visitor experiences while protecting institutional resources and maintaining stewardship
- Develop cost effective and sustainable interpretive solutions
- Use education and interpretation to meet institutional goals
- Fulfill public service missions while protecting collections and resources

Interpretive plans identify visitor experience and institutional goals to fulfill the service responsibilities of public museums similar to Nina Simon's concepts for participatory museum spaces. However, the Harpers Ferry plan specifically addresses educational requirements and the balancing act of providing positive visitor experiences while protecting museum resources, such as collection objects and historic sites.

As presented in this literature survey, museum and design professionals understand the importance of considering human experience during development. However, the design community has embraced development processes and tools that use frameworks to implement theories into the products and services being created. Museum professionals have access to an overwhelming quantity of exhibit resources in a variety of specialized fields. Learning theory, audience research, exhibition standards, evaluation, development models and planning are crucial aspects of exhibit development that effect the success of the exhibit. The specialization of these areas within museum studies require a process that allows each to contribute knowledge and expertise to exhibit development. There is an opportunity within the museum industry to incorporate the process

and tools of design for a unique exhibit development strategy. Design provides a comprehensive and inclusive process that incorporates the specialized expertise of museum professionals to fulfill museum goals and responsibilities while meeting the needs and desires of their audiences. Building on this opportunity, the remaining chapters of this thesis will; 1) produce an exhibit development strategy rooted in design and complimentary to the research and museum studies discussed in the literature review; 2) illustrate the application of the strategy to an exhibit case study; and 3) as a result, introduce design into future discussions of exhibit development.

## Methodology

In a service-oriented economy, exhibitions are evolving into a service space—a *mediated experience where the relationship between user and his or her action possibilities is based on an interactive system* (Maffei & Sangiori, 2006). As information and communication technologies become more fundamental for the presentation of exhibit messages, an exhibit development process that considers the activities and use of technology and how it effects a visitor's museum experience is necessary. Theoretical concepts of situated action and activity theory help define activity-centered design and demonstrate the relevancy of this approach as a worthwhile framework for exhibit development. These theoretical underpinnings, applied to an iterative design process with strategic design tools, guides research and development of exhibit solutions that successfully integrates collections, interpretation, technology and activities that satisfy the museum and their audiences. With a design framework established an exhibition strategy can be developed.

## Activity-Centered Design

The human-centered design approach adopted by IDEO and Cooper's goal-directed design are influential and successful in creating products and services that satisfy user needs and desires while creating market value and business opportunities. However, the underlying theories and principles of contextual based design better compliment and align with the literature and research of museum studies. A contextual approach to understanding human activity produces results that are both human-centered and goal-directed by emphasizing the inspection of the humanistic and physical factors

that influence human behavior. Activity-centered design solutions compliment human behavior and find comfort and agreement between the needs and desires of visitors and the goals and responsibilities of the museum.

### ***Situated Action***

Lucy Suchman derived situated action as a way to explain how people plan their actions according to the social and material circumstances of their environment (Suchman, 1987). Situated action proposes cognition and planned activities, such as learning while actively participating in an interactive exhibit, are linked and respond to changes in an individual's social and physical interactions through and with an environment (Gay & Hembrooke, 2004). The process of learning, as seen in the Contextual Model of Learning and developed through the research of John Falk and Lynn Dierking posits that learning happens over time and is situated within a series of contexts—the personal, the sociocultural and the physical (Falk & Dierking, 2000). Visitors make sense of their exhibition experience through the series of interactions with the physical and material world in the social and communicative setting of the exhibition. In terms of exhibit development, the ideas of situated action and the link between cognitive processes and action suggest exhibit activities as critical moments during an exhibition experience. As a unit of analysis, activity is important for understanding exhibit characteristics and their effects on visitor behavior and the overall museum experience.

Consider a hypothetical example of a mother and father with two young children entering an exhibit space in a local history museum. They must make a decision on where to begin. As a family, they discuss their options, look around the exhibit space for

clues, such as signs, lighting and exhibit features. Ultimately, they end up walking towards a large projection wall of colorful and dynamic images where other visitors have gathered as well. A situated action occurred as the family conversed and processed the material objects within the museum environment to make the decision to approach the interactive exhibit. The family's interaction with the exhibit is another situated action and unit of analysis. The family talks to each other, processes the exhibit information and observes other visitors' behaviors to understand how to participate in the exhibit activity. The merging personal, sociocultural and physical context of learning allow each family member to have a unique and meaningful exhibit experience because each has a unique set of memories, prior knowledge and life experiences, as well as personal preferences and interests to communicate and bring to the activity.

Situated actions, such as those identified in the scenario above, allow exhibit developers to identify critical exhibit activities and understand the relationships between visitor behavior and museum exhibits. An examination of visitor behavior during an exhibit activity and the evaluation of how effectively the exhibit facilitates a positive experience provides information about the characteristics of museum exhibits that visitors value and expect.

### **Activity Theory**

Where situated action suggests a unit of analysis for the research and development of exhibits, activity theory offers a framework for the analysis of the activity as seen in *Figure 4*, p. 14 of the Literature Review. Activity analysis frames a situated action and shows the relationships of the contextual factors of activity that influence hu-



man behavior; the relationships and interactions between people, artifacts, objectives, sociocultural rules and roles while interacting with an exhibit (Gay & Hembrooke, 2004).

Activity theory emphasizes meaning through human activity; the connection between the individual and their social contexts and the role of mediating tools, such as language, symbols or other communicative artifacts (Gay & Hembrooke, 2004). Context emerges as a result of the activities within a situated environment, but the environment encourages different activities, and as these activities change so does context (Gay & Hembrooke, 2004). Although activity theory is academic and complex, the resulting activity analysis framework grounds a context-based design approach for the development of activity-centered exhibits.

A more descriptive scenario of the family visiting their local history museum illustrates the dynamic relationship between context and activity. As the family walks up to the wall, the context is an interactive exhibit. As each member begins to participate in the exhibit activity the context begins to change. The interactive exhibit provides props for visitors to select. As props are selected, a family member moves in front of the screen and the context transforms into a famous historical setting. Participants also have freedom of movement and these movements are incorporated into the scene as well, creating a relationship between exhibit activities and the exhibit topic. The transformation from exhibit to a participatory historical setting connects the visitor to the past through a communicative process using mediating tools.

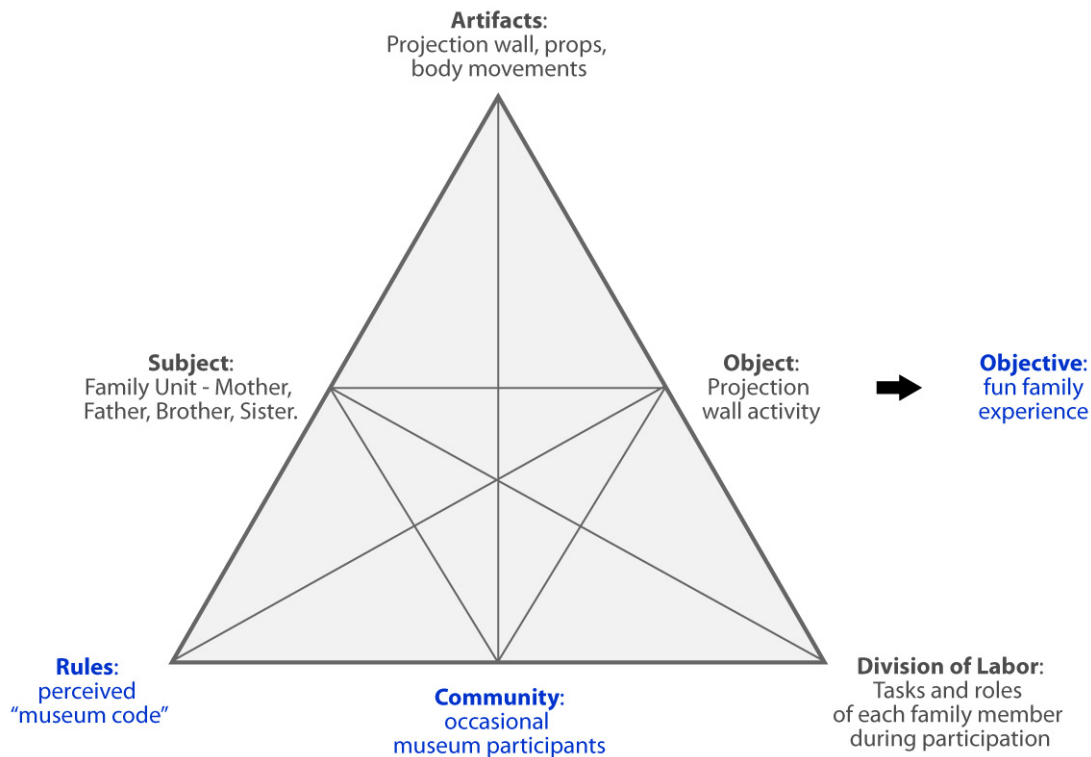


Figure 8: Family Activity Analysis. The activity analysis framework represents the situated action of the family participating in the interactive history exhibit. Marilyn Hood's occasional museum participant profile is used to identify the Community, Rules and Objective of the activity system.

This scenario illustrates a successful experience where exhibit objects in a museum environment dynamically alter the setting through active participation for a positive visitor experience. What this scenario does not articulate is the diversity of the museum audience and their differing, and often contradictory museum experience related needs and desires. The factors of activity analysis that influence behavior and effect the outcomes of museum experiences, such as familiarity with museums, comfort with museum settings, attitudes towards active participation and expectations of learning are explored through the leisure research of Marilyn Hood (2004). Her research supplies

additional information about the communities within museum visitors and their corresponding psychographics—characteristics that describe values, attitudes, perceptions, interests, expectations and satisfactions associated with museum visits and exhibit interactions (*Figure 8*). Hood determined visiting museums to be a leisure activity and the decision to visit to be based on how well people think the visit will meet their preferred leisure criteria (2004). According to how people rated museum experiences, Hood organized characteristics of museum visitors into three groups: frequent participants, occasional participants and non-participants. The psychographic profiles of these three groups influence their behaviors and activities while visiting a museum. The profiles can be review in *Figure 2*, p 8 of the Literature Review. Understanding visitors' psychographic profiles supports activity analysis and is especially useful for guiding audience research to determine exhibit requirements that compliment visitors desired activities (*Figure 9*).

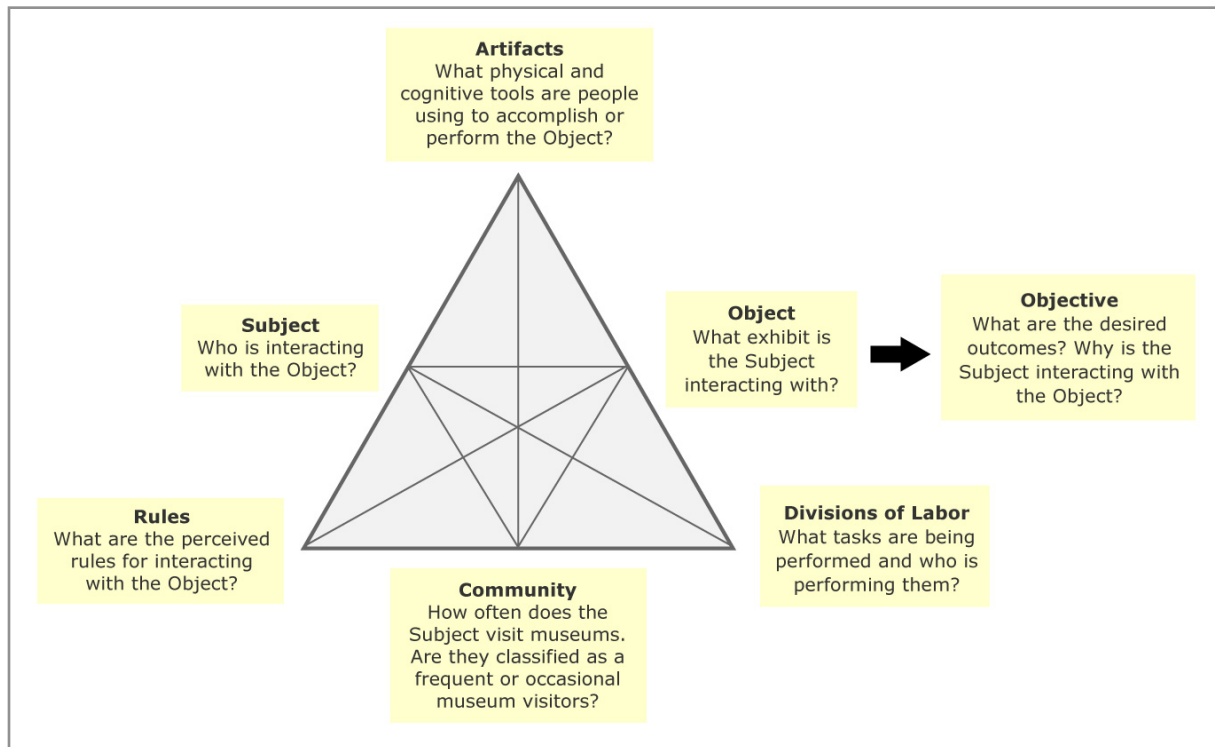


Figure 9: Family Activity Analysis. The activity analysis framework is a useful tool for guiding audience research for the identification of latent factors that compliment desired visitor experiences.

### *The Service Encounter*

The activity analysis framework is also a useful tool for evaluating how effectively existing exhibits facilitate desired activities. The relationship of interactions between visitors and exhibits have two converging perspectives; the visitor (use context) and the exhibit (supply context) (Maffei & Sangiori, 2006). During exhibit evaluation, the service encounter model is used to visualize and represent the point of contact between two activity systems during an exhibit interaction (Figure 10). This allows designers to describe and analyze the communication process between the use context and the supply context to identify tensions and conflicts that act as barriers toward achieving their corresponding objectives (Maffei & Sangiori, 2006; Gay & Hembrooke, 2004). Evaluating

these encounters provides evidence to support design ideas and concepts that are further tested and explored for the development of a solution that satisfies each system.

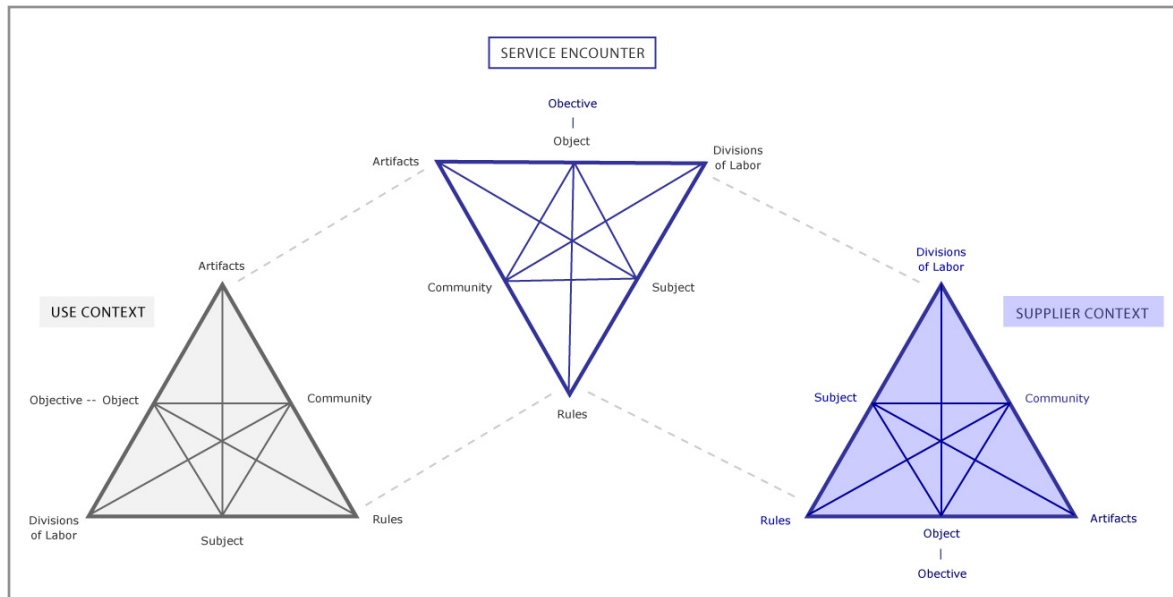


Figure 10: Service Encounter Model adapted from Maffei & Sangiori. This figure shows an exhibit service encounter represented by the interaction of the use context and supplier context.

At this point, the methodology describes why and how situated action and activity theory support an activity-centered design approach to exhibit development. The establishment of activity as a unit of analysis for exhibit development allows developers to consider how a proposed interpretive plan, including designed activities and use of technology, effect human behavior and ultimately, visitor experience. The following discussion of the iterative design process and the design tool box relates how the ideas of situated action and activity theory influence an exhibit development process.

### **Iterative Design Process for Activity-Centered Exhibits**

The iterative and activity-centered design process model proposed by Hembrooke and Gay (2004, p.12) is a solid and informative representation of how activity

theory influences the design process. However changes have been made to reflect the objectives of this thesis. The original model divided the process into four phases; Requirements, Design, Implementation and Evaluation. However, classifying design as a primary phase reinforces the narrow definition of design as the creation of physical and aesthetic elements. The model shown in *Figure 11* removes Design as a primary phase and instead, situates design as a strategic mix of methods, tools and techniques to achieve the benchmarks within the phases. The repositioning of design incorporates the broader definition of design and demonstrates its place through the life cycle of exhibition development. Design is a tool box that holds a mix of generative and analytical tools with a variety of uses and functions that consistently produce results that lead to opportunity and discovery of new exhibit activities and solutions. This definition introduces design language into exhibit development and starts a dialogue to facilitate communication between museum professionals and exhibit designers.

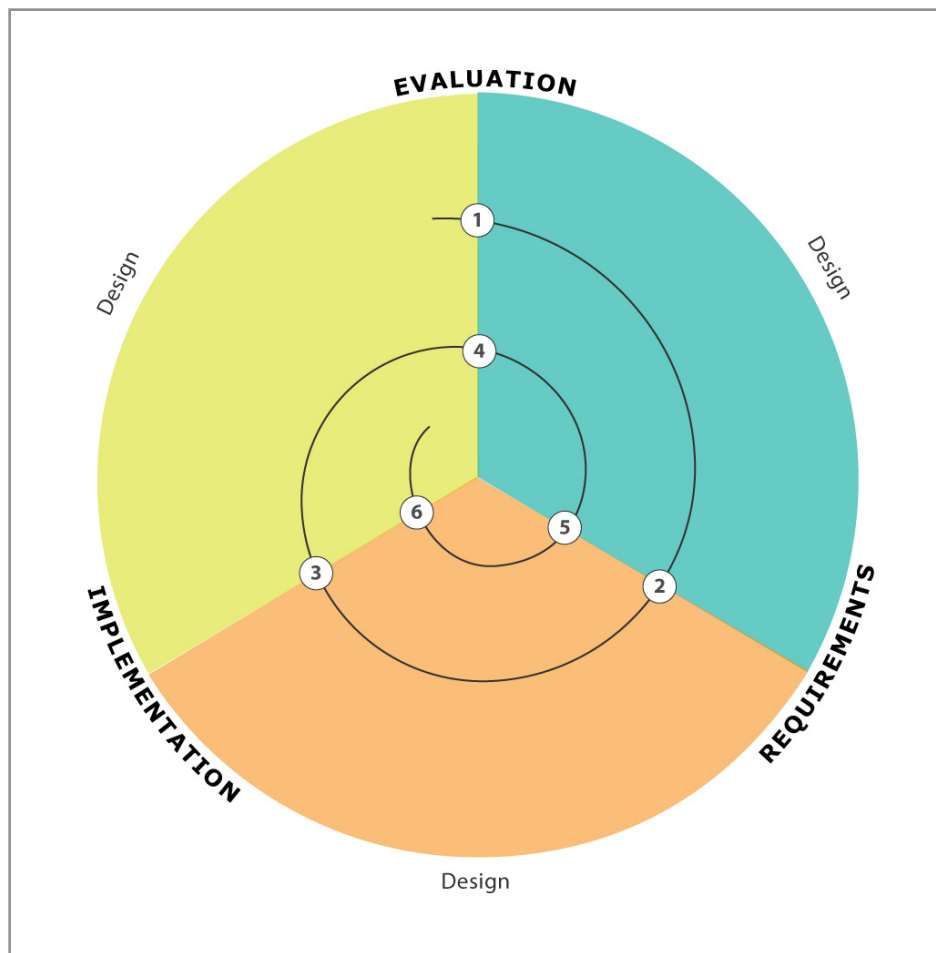


Figure 11: Exhibit Design Process model adapted from Gay and Hembrooke. Design is using a mix of methods, tools, and techniques between the main phases of the iterative process.

### The Process Model

The new model is now composed of three phases—Evaluation, Requirements and Implementation with six benchmarks throughout the process. The benchmarks are:

1. Examine and evaluate current practices and activities in their actual settings;
2. Identify tensions, controversies and conflicts within and between activity systems;
3. Consider new models and metaphors and develop new solutions and designs;

4. Test and evaluate designs in their actual settings;
5. Identify tensions, incongruities and breakdowns within and between activity systems;
6. re-conceptualize, revise and redesign models and metaphors for new solutions and designs (Gay & Hembrooke, 2004).

As development progresses toward finalization the phases begin to blend and merge and the tool set produces more concrete solutions until tensions between activity systems are resolved and closure is achieved. The adapted model shows this progress by beginning development on the outer end of the spiraling development path where the original model started the development on the inner most end of the path.

### **The Design Toolbox**

Selecting which tools to use is influenced by a number of factors including time, budget, staff and other resource constraints. In addition to operational factors, the goals and objectives for each exhibit project influences which tools to use and how to use them. Using a strategic mix of tools assists in the identification, communication and visualization of information that is necessary for the project to progress towards an agreeable solution. The following design tools are common to the design industry and are recognized for their positive contributions to the development of products and services.









When design tools are paired together and adapted according to the needs of the project, more descriptive and accurate results are produced and increase the likelihood of creative and innovative solutions. The mixing and matching of design tools across stages of the process demonstrates the flexibility and iterative nature of design. Although the iterative process model separates a project into phases, designers are constantly designing—evaluating, identifying requirements, and implementing ideas—until a stable and agreeable solution is found.

This methodology identifies a contextual approach to design for the development of activity-centered exhibit solutions that meet the museum requirements and compliments the desired experiences of their audiences. Activity-centered design uses theoretical concepts from situated action and activity theory to frame critical exhibit activities and analyze the contextual factors that influence visitor behavior and their overall museum experience. Activity analysis creates a shared understanding among the development team of the diverse needs and desires of the museum audience for the development of exhibits that advance museum objectives while targeting the characteristics of specific visitors. An iterative process is suggested as a way to integrate activity-centered design into the development process by strategically selecting design tools for the creation of stable and successful service encounters. This methodology provides the framework for an activity-centered exhibit development strategy and a discussion of its application possible.

## **An Activity-Centered Strategy for Exhibit Development**

The theories and principles of situated action and activity theory provide frameworks, the iterative design process supplies checks and balances during development and the design tool box equips exhibit developers with tools for creating successful exhibits. This combination gives structure to an exhibit development strategy that directs actions for each stage of the development process.

### **The Activity-Centered Strategy**

A strategy provides a plan that keeps the project team aligned and focused on achieving exhibit goals. Factors, such as stakeholder requirements and predetermined exhibit elements, influence how the strategy is applied to a specific exhibit problem. Other factors that make a strategy unique include staff and funding resources, the size and scope of the exhibit, the target audience(s), exhibit goals and the corresponding interpretive objectives, such as audience participation, educational requirements, the use of collection objects and the role of technology. The following is a generalized plan for exhibit development that is adaptable to a wide range of exhibit related projects as well as other public programs and events. Benchmarks of the activity-centered design process seen in *Figure 11*, p. 34, become phases, and the design tool box, a resource for achieving the objectives of each phase.

## **PHASE 1: Examine and evaluate current practices and activities in their actual settings.**

### ***Objective***

To identify museum-based exhibit requirements, document these requirements and conduct field research to learn about the museum audience.

Stakeholders, external influences and individuals on the development team with diverse museum expertise, each have unique requirements that influence progress and overall satisfaction of the completed exhibit. External influences may include financial contributors, museum administrators, marketing professionals and contractors. The development team may consist of educators, curators and designers. The museum audience, both current and potential visitors, also have unique needs for their visits and exhibit activities. Their psychographic characteristics, such as behavior, preferences, expectations, prior knowledge, attitudes and interests directly influence exhibit success. If the exhibit already exists, an examination of the current activity is needed as well. This evaluation measures the success at which current objectives are being met through the perspectives of the museum and the exhibit participants.

### ***Activities***

1. Collect feedback from stakeholders and members of the development team for the identification of their goals, objectives and overall expectations of content. Feedback may include answers to these questions:
  - *What exhibit is being built or redesigned?*
  - *What story will be told?*
  - *What technology will be used?*

- *What collection objects will be used?*
  - *What are the desired learning outcomes?*
  - *Who is the target audience?*
  - *What are the attendance goals?*
2. Compose a project brief that includes predetermined elements and characteristics of the proposed exhibit.
- Exhibit goals
  - Exhibit objectives
  - Budget, time lines and other critical project constraints
  - Interpretive plan including exhibit topic, objects, images, activities, etc.
  - Technology
  - Target audience
3. Conduct field research to address questions the development team needs to know and learn about their audiences to meet goals, objectives and other items outlined in the project brief. Qualitative research is useful for answering questions such as:
- *Who is the target audience?*
  - *What are the leisure-based psychographic profiles of the target audience?*
  - *What are the critical service encounters to investigate?*
4. Examine and evaluate critical attributes of the existing exhibit.
- *What are the learning outcomes and do they meet objectives?*
  - *What difficulties or frustrations are visitors experiencing?*

- *How are visitors interacting with the exhibit and with each other?*
- *Is the exhibit experience positive?*

### ***Design Tools***

- Activity Analysis Model
- Fly on the Wall
- Interviews
- Interviews + Fly on the Wall
- Narration
- Surveys & Questionnaires
- Focus Groups

### ***Outcomes***

An aligned development team with shared assumptions and expectations of the exhibit requirements as well as a common understanding of their audience needs and desires. A written project brief and documentation of field research provides references for future use.

- A written project brief outlining goals, objectives, target audience and other critical elements that influence development.
- Documentation of field research.
- Documentation of the examination and evaluation of the existing exhibit.

**PHASE 2: Identify tensions, conflicts and controversies within and between activity systems**



### ***Objective***

To identify discrepancies between the target audience requirements and the museum based exhibit requirements. The tensions, conflicts and controversies between visitors and museum objectives uncover areas of opportunity and adjustment for further exploration of concepts and development of solutions.

### ***Activities***

1. Analyze field research to find tensions between critical service encounters.
2. Compile character profiles that reflect patterns of behavior and psychographics of the target audience(s) discovered through field research.
3. Consider adjustments to the project description to accommodate the needs and desires of the character profiles.
  - *Do the character profiles match the description of the target audience identified in the project description?*
  - *Are the predetermined exhibit characteristics, such as activity, learning objectives, technology, interpretive plan of the exhibit appropriate for the primary character profiles?*
4. Identify tensions, conflicts and controversies between critical service encounters. For example:
  - The relationship between character profiles and the existing exhibit to identify current tensions, conflicts and controversies during participation.
  - The relationship between character profiles and the characteristics of the proposed exhibit to find conflicts between visitor and exhibit objectives that are potential barriers for reaching goals.

### ***Design Tools***

- Service Encounter Model
- Single-Case Analysis
- Cross-Case Analysis
- Affinity Diagrams
- Character Profiles

### ***Outcomes***

A realistic and concrete representation of the needs and desires of the target audiences as well as an adjusted project brief to reflect these requirements. Comparing persona characteristics to the goals and objectives of the future exhibit assists in the identification of potential tensions, conflicts and controversies. Areas that need further attention are opportunities for exploring new models and metaphors for design solutions.

- Visitor requirements compiled as character profiles.
- Documented tensions, conflicts and controversies between targeted character profiles and exhibit features and components.

**PHASE 3: Consider new models and metaphors and develop new solutions and designs.**

### ***Objective***

To explore new ways of interpreting exhibit content, facilitating activity and implementing technology that produces desired outcomes. These models and metaphors are developed into solutions that are testable in museum-like situations and settings.

### ***Activities***

1. Visualize desired future use of the activity that addresses the requirements of the character profiles and the exhibit.
2. Explore new interpretive models and metaphors
  - Explore new ways to address the barriers of desired learning outcomes.
  - Consider metaphors that connect the exhibit topic to activity that is appropriate for character profiles and facilitates the desired outcomes.
  - Illustrate future situations that address visitor- and museum-based requirements.
3. Create testable prototypes that demonstrate the new models and metaphors.

### ***Design Tools***

- Conceptual Landscapes
- Scenarios
- Scenario Testing
- Role Play
- Experience Prototyping
- Quick-and-Dirty Prototyping

### ***Outcomes***

Testable prototypes that represent concepts and solutions that respond to the tensions discovered in the previous phase. The entire team participates in brainstorming

new ideas and testing feasibility using design tools such as storyboards, role playing and experience prototyping before prototypes are tested with actual users.

- Adjusted exhibit requirements.
- Testable models and prototypes.

## **PHASE 4: Test and evaluate designs in their actual settings.**

### ***Objective***

To evaluate models, metaphors and solutions through feedback directly from users in situations and settings that are similar to actual museum experiences. Testing sessions in museum environments or similar settings activates an individual's personal, sociocultural and physical contexts of their museum experience for more realistic results.

### ***Activities***

1. Evaluate prototypes using individuals represented character profiles.
2. Document activities and conversations during testing sessions.

### ***Design Tools***

- Activity Analysis Model
- Focus Group
- Scenario Testing
- Scale Models

### ***Outcomes***

Documentation of testing feedback and an understanding of the activity behaviors and comments of the tested concepts and solutions.

- Documented feedback from test participants.

## **PHASE 5: Identify tensions, incongruities and breakdowns within and between activity systems.**

### ***Objective***

To identify discrepancies between the requirements of the target audience and the concepts and models being tested. These tensions, incongruities and breakdowns allows for the possibility to re-conceptualize and examine character profiles and refine and redesign exhibit solutions.

### ***Activities***

1. Review feedback from testing to find tensions, incongruities and breakdowns of the tested concepts and solutions.
2. Examine the project description and character profiles to understand feedback. Adjustments may be needed.
3. Document evidence of the tensions, incongruities and breakdowns.
  - Illustrate tensions using the service encounter model
  - Document the testing sessions.

### ***Design Tools***

- Single-Case Analysis
- Cross-Case Analysis
- Service Encounter Model

### ***Outcome***

The identification of tensions, incongruities and breakdowns of tested concepts and, if necessary, adjusted audience and exhibit requirements.

- Documented tensions between and within targeted character profiles and tested concepts.

## **PHASE 6: Re-conceptualize, revise and redesign models and metaphors for new solutions and designs.**

### ***Objective***

Address conflicts determined in the previous phase by re-conceptualizing metaphors, refining prototypes and revising models for the development of more concrete and cohesive exhibit solutions. Metaphors and models become higher fidelity prototypes as the process progresses towards a final solution that successfully meets all exhibit requirements.

### ***Activities***

1. Explore new interpretive solutions that address the previously determined conflicts.
  - New models that address barriers to desired learning outcomes.
  - Re-conceptualize metaphors that connect the exhibit topic to activity that is appropriate for character profiles and facilitates the desired experiential outcomes.
  - Illustrate revised future situations that address visitor- and museum-based requirements.

2. Expand and combine successful concepts to make them more concrete and accurate representations of the final solution. For example,
  - Turning paper prototypes into functional, interactive displays based on interpretation models proven to result in desired outcomes.
3. Create testable prototypes that demonstrate the revised models, metaphors, and solutions.

### ***Design Tools***

- Scenarios
- Scenario testing
- Role playing
- Experience Prototyping
- Scale Models

### ***Outcomes***

Refined solutions and finished prototypes that more accurately represent final solutions and adequately address conflicts for agreeable solutions. The team participates in revising and re-conceptualization, however individuals with more specialized skills are needed to create functional prototypes and implement final designs into a finished product.

- Testable prototypes that integrate models and metaphors in more concrete representations of exhibit solutions.
- A finished product.

This strategy comprehensively defines and integrates the role of design throughout the exhibit development process for the creation of interpretive and physical exhibit

elements. Although the strategy is presented in general terms, with further testing and applications to real exhibit projects the strategy becomes more concrete and specialized to the needs of individual museums and their resources.



## Discussion

In the previous sections a theoretical framework was established and a strategy outlined based on these theories and practices. This sections frames a case study to illustrate the first phase of the activity-centered development strategy; the examination and evaluation of current practices and existing products and services in their actual settings. An exhibition project for Fort Hays State Historic Site, a historic site owned and operated by the Kansas Historical Society, demonstrates how the proposed activity-centered strategy is useful for confronting a common challenge of organizing field research to understand and define the target audience for the development of an exhibit that addresses their desired leisure activities.

### Case Study

The “Who Are You?” activity, a specific exhibit within the much larger exhibition redesign of Fort Hays, was a successful component of the current fort experience with the potential to meet the overall exhibition goals; to enhance and increase heritage tourism in the Hays community and to preserve the historical resources and the cultural assets of Fort Hays. Improving attendance among local populations is an important objective for achieving the first goal of increasing heritage tourism, however current and potential visitors were never officially or thoroughly profiled at the beginning of the project. This created a flexible and inaccurate definition of these visitors and was detrimental to the project for two reasons. First, without documented and accurate profiles, visitor behaviors, preferences, expectations, attitudes and preferences were based on assumptions and personal experiences of members of the exhibition development team. As a

result, visitor profiles shifted throughout development to meet the needs of the project and support individual arguments. Second, the Hays, Kansas community was ignored as a set of visitors with unique needs that differed from current Fort Hays visitors. Not investigating the museum behaviors of the local population created a missed opportunity for targeting the local community for an increase in Fort Hays attendance and awareness.

The following demonstration illustrates how the proposed activity-centered strategy is relevant to museums with the need and desire to do their own audience research using staff for the development of critical exhibits. The activities of Phase 1 of the exhibit strategy includes stakeholder interviews, a written project brief, field research and an examination of the existing exhibit. The project brief compiles example results from stakeholder interviews and outlines a preliminary understanding of the proposed “Who Are You?” activity. A research plan presents how the project brief, activity analysis frameworks and design tools are used for organizing and conducting field research to understand visitors and examine the current exhibit. The project brief and research plan, unless otherwise referenced, are based on my experience and knowledge of the Fort Hays project. These materials do not represent actual field research or project outcomes, only representations of how these materials can benefit exhibit development.

### **Project Brief**

The example brief compiles stakeholder expectations, audience information and interpretative plans for integrating exhibit materials, activity and technology. The brief also provides an actionable plan for research and documents project related information

for future reference. To more clearly present how activity frameworks and design tools organize and guide audience research for the development of activity-centered exhibits, critical project constraints such as time and budget are intentionally omitted.

### **Project Brief - “Who Are You?”**

#### **Project Description**

The redesign of the “Who Are You?” exhibit activity. The current activity presents visitors with the name of a fort soldier upon their arrival. Visitors are instructed to find the fate of their soldier in an exhibit located in the historic Blockhouse. The popularity of this activity, especially groups with children, provoked the desire to expand on the concept of pairing visitors with Fort Hays figures.

The redesign will diversify the characters to include woman and children and incorporate stories of daily life and responsibilities on the fort in attempt to appeal to a wider audience. Character stories will also incorporate descriptions and locations of past structures for a broader understanding of the size and scope of the original fort complex. References to the natural environment will illustrate how life on the prairie effected the lives of the soldiers and their families.

The proposed activity adds several points of discovery and inquiry to encourage exploration of the entire fort complex. Technology is viewed as a means to connect visitors to the activities and information presented at each location. However, the technology and the activity as a whole, must support the requirements of the target audience; families living in the local Hays, Kansas community.

#### **Fort Hays Exhibition Goals and Objectives**

These goals and objectives reflect feedback from stakeholder interviews, federal grant requirements and expectations from community contributions.

##### Goals:

- Enhance and increase heritage tourism in the Hays community.
- Preserve the historical resources and the cultural assets of Fort Hays.

##### Objectives:

- Engage school children within a 50-mile radius in Standards-based learning in regard to the fort's themes.
- Encourage repeat visitation among the regional population
- Use new methods of interpretation and new technologies to tell the stories of the fort.

#### **“Who Are You?” Exhibit Goals and Objectives**

The goals and objectives for the proposed “Who Are You?” activity align with the objectives of the overall Fort Hays exhibition.

##### Goals:

- Create family friendly activity
- Encourage discovery and exploration of the entire fort
- Emotionally and personally connect visitors to the people and physical setting of the fort
- Use new technologies

##### Objectives:

- Target the leisure criteria and needs of families in the local community
- Use existing buildings and sites of past structures as locations for the activity
- Tell the stories of fort soldiers as well as the stories of civilians living and working on the fort, such as women and children
- Find feasible technology options

### **Audience**

#### Current Visitors (BBC, 2004):

The BBC market research report provides specific information about current Fort Hays visitors.

- Fort Hays visitors are less educated than visitors to other Kansas Historical Society sites. Fewer than half of the respondents had a four-year college degree or a postgraduate degree. More than one-fifth of respondents had less than 12 years of education or a high school diploma.
- Three-fourths of respondents indicated that they are married. Of those who are married, about 40 percent have children living at home.
- The majority (92 percent) of respondents from Fort Hays were white.
- Over three-quarters of the Fort Hays visitors indicated they did not live in the state of Kansas. Of visitors to the fort who lived in Kansas, over 80 percent of them had lived in the state for ten or more years.

- Most visitors to Fort Hays came with at least one other person. Nearly 60 percent said they had come with their spouse, and over 30 percent said that they had come with their children.
- The majority (76 percent) of visitors to Fort Hays were first time visitors.
- Most visitors to the fort came as leisure activity, saying that they wanted to learn about the history. Eight percent said that they had never been and wanted to see the fort.
- About half of the visitors to Fort Hays came on an impulse - they *stopped at the fort because they were "passing by" or "saw it from the road."*
- Survey respondents from Fort Hays were most excited by the prospect of visiting *historic buildings and history museums (60 percent "very interested" in visiting each), and natural history museums (46 percent "very interested" in visiting).* Sports museums were the least interesting location for visitors to Fort Hays

#### Target Audience Assumptions:

According to the research of Marilyn Hood, families in the local and regional population are classified as frequent museum participants, occasional museum visitors and non participants (2004). Families with the potential to visit Fort Hays fit the profiles of frequent or occasional museum visitors. These two groups have very different requirements and expectations of their museum visits. Additional audience research is needed to learn and understand the frequent and occasional museum visitors living in the Hays community.

#### **Interpretive Plan Expectations:**

To incorporate activities, interpretation and technology to make a cohesive exhibit that presents historically accurate stories that represent the lives of those who lived and worked at Fort Hays. As a whole, the stories need to incorporate men, woman and children for mass appeal. Possible characters include, Buffalo Soldiers, enlisted men, Officers, Officers' Wives, Laundress, etc. These stories will also reflect the sociocultural, economic and political climate of the nation while the fort was operational. The expected use of artifacts is minimal. Artifacts incorporated into other exhibits can be used for reference and description purposes. Exhibit materials, such as photos and props can support interpretation.

#### **Technology Expectations and Possibilities**

##### Expectations:

- Supports the needs of the target audience and interpretative plan
- Easily allows for the addition of new content
- Maintenance and upkeep preformed by Kansas Historical Society Staff
- A preference for in-house production and design
- Meets budget requirements

##### Possibilities:

- Cell phone app registers fort character and track movements around the fort. Interpretation is presents at specific locations that relate to the registered character
- Touch screen kiosks located in each build of the fort with character information and location details.

#### **Required Research**

##### Audience Questions:

- How are current visitors interacting with the "Who Are You?" exhibit?
- Who is primarily participating in the "Who Are You?" exhibit?
- What is the character profile of the primary users of the "Who Are You?" exhibit?
- What are the objectives and intentions of the current "Who Are You?" exhibit?
- How are current visitors interacting with the physical environment, including exterior interpretation, buildings and sites of past structures, while touring the fort grounds?
- How do visitors understand the fort complex, including original structures and their relationship to the existing buildings?
- How are potential visitors in the local community different from current visitors?
- What are the character profiles of local families who frequently and occasionally visit museums?
- What local leisure activities do these potential visitors prefer?
- What are the characteristics of these local activities and how do the potential visitors interact with them?
- What knowledge, perception and interests do potential visitors have of the fort?

##### Technology:

- Research available and feasible technologies
- Consider maintenance and upkeep
- Preference towards in-house production

##### Interpretation

- Find resources for the research of potential characters
- Research functions and locations of original buildings.
- Research daily responsibilities, duties, and activities of soldiers and their families.

## Field Research Plan

The goal of this research plan is to answer the audience related research questions identified in the project brief. The plan identifies what to research and how to collect critical information using the activity analysis frameworks as a guide. Although focus is on the audience, visitor experience information collected through the research plan directly relates to interpretation and therefore, influences interpretive research efforts.

Understanding these service encounters provide information about the current exhibit, how visitors interact with the physical site, including the environment and the grounds as well as the existing buildings and sites of previous fort structures. Identifying service encounters occurring in the local community provides information about the leisure preferences, motivations and behaviors of potential local visitors. The information collected from analyzing these service encounters provides an initial understanding of the requirements needed to expand the “Who Are You?” activity and make it more inclusive of the features and characteristics of the fort while targeting the needs and preferences of families.

Service encounters are determined according to the *Project Description and Required Research* outlined in the project brief (*Figure 10*, p. 33). The three service encounters listed below are critical for understanding the existing exhibit activity, the activities of the fort tour, current visitors and the potential visitors in the Hays community.

- *Exhibit Service Encounter*: the encounter between “Who Are You?” users and the “Who Are You?” exhibit.
- *Fort Tour Encounter*: the encounter between Fort Hays visitors and their tour of the fort’s physical and natural environment.

- *Local Activities Encounter*: the encounters between the target audience and their preferred local leisure activities.

#### *Exhibit Service Encounter*

This service encounter provides a framework for analyzing the compatibility of the use and supply systems and is a direct response to the following *Audience Questions* from the project brief:

- How are current visitors interacting with the “Who Are You?” exhibit?
- Who is primarily participating in the “Who Are You?” exhibit?
- What is the character profile of the primary users of the “Who Are You?” exhibit?
- What are the objectives and intentions of the current “Who Are You?” exhibit?

The results of this analysis show who is participating, why they participate and how they participate within the context of the existing exhibit structure.

*Table 1* is structured using the activity analysis framework and the systems of the service encounter model to guide research. Questions are presented with a list of appropriate design tools for conducting research to understand the relationships of and between the contexts of the activity systems. For this case study, supply system interviews are conducted with Fort Hays staff. They developed the exhibit and present the activity to fort visitors.

**Table 1: Activity Analysis of the Exhibit Service Encounter**

Contexts of Activity Analysis	Use System	Supply System
<p><b>Object</b></p>	<p>“Who Are You?” exhibit:</p> <ul style="list-style-type: none"> <li>• How do people understand the topic of the exhibit?</li> <li>• What is the prior knowledge of the exhibit topic?</li> <li>• Are they interested in the topic, why or why not?</li> <li>• How do the participants relate to the interpretive themes of the exhibit?</li> </ul> <p>Design Tools: interviews, survey &amp; questionnaires, card sorting, narrative</p>	<p>“Who Are You?” exhibit:</p> <ul style="list-style-type: none"> <li>• What is the exhibit and related activities?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<p><b>Subject</b></p>	<ul style="list-style-type: none"> <li>• What participation trends are emerging?</li> <li>• Who are the participants and what are their demographics?</li> <li>• Who declines participation?</li> <li>• Where are participants from?</li> <li>• Why are they visiting the fort?</li> </ul> <p>Design Tools: direct observation, surveys &amp; questionnaires, interviews</p>	<ul style="list-style-type: none"> <li>• What is the topic of the exhibit?</li> <li>• What stories are told in the exhibit?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<p><b>Tools</b></p>	<ul style="list-style-type: none"> <li>• What objects are used to accomplish the activity?</li> <li>• What cognition artifacts are used to accomplish the activity?</li> <li>• Are participants using tools not required by the supply system?</li> </ul> <p>Design Tools: direct observation, interviews</p>	<ul style="list-style-type: none"> <li>• What research resources are used to develop soldier bios?</li> <li>• How are more stories added?</li> <li>• What objects are provided for participants to accomplish the activity?</li> <li>• How is the exhibit presented?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<p><b>Rules</b></p>	<ul style="list-style-type: none"> <li>• Are participants following supply systems rules, why or why not?</li> <li>• What social rules are acknowledged or present during participation?</li> </ul> <p>Design Tools: direct observation, follow up interviews</p>	<ul style="list-style-type: none"> <li>• What is the expected and intended use of the exhibit?</li> <li>• Have previous adjustments been implemented due to participant feedback?</li> <li>• What rules are publicly stated (written or oral) for exhibit participation?</li> <li>• What rules are not presented, but implied? How are they implied?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<p><b>Community</b></p>	<ul style="list-style-type: none"> <li>• How often do participants visit museums?</li> <li>• Are they comfortable and at ease in museum settings?</li> <li>• Did they visit museums as children?</li> <li>• How do the participants usually spend leisure time</li> <li>• Do they fit the profile of frequent museum visitors or occasional museum visitors?</li> </ul> <p>Design Tools: direct observation, interviews, surveys &amp; questionnaires</p>	<ul style="list-style-type: none"> <li>• Who are the target users?</li> <li>• What assumptions do the suppliers have of the target user and their museum behaviors and expectations?</li> </ul> <p>Design Tools: interviews</p>

<p><b>Division of Labor</b></p>	<ul style="list-style-type: none"> <li>• What tasks are performed to accomplish the objective?</li> <li>• Who is performing these tasks?</li> <li>• How are participants interacting with each other to accomplish the tasks?</li> <li>• What social, familial roles are assumed by the participants?</li> </ul> <p>Design Tools: direct observation, follow up interviews</p>	<ul style="list-style-type: none"> <li>• What tasks have to be performed to accomplish the objective of the activity?</li> <li>• What social and familial roles are assumed and needed to achieve objectives?</li> </ul> <p>Design Tools: interviews</p>
<p><b>Objective</b></p>	<ul style="list-style-type: none"> <li>• Why did the visitors participate in the “Who Are You?” activity?</li> <li>• What did they hope to achieve by participating with the exhibit activity?</li> <li>• Did participation meet expectations and fulfill desired outcomes, why or why not?</li> </ul> <p>Design Tools: direct observation, interviews, surveys &amp; questionnaires</p>	<ul style="list-style-type: none"> <li>• What are the desired outcomes?</li> <li>• What are the visitor experience goals and objectives of the exhibit?</li> <li>• What are the learning goals and objectives of the exhibit?</li> </ul> <p>Design Tools: interviews</p>

Table 1: Activity Analysis of the Exhibit Service Encounter. The contextual elements of activity analysis guide research on the use and supply systems of the service encounter.

### Fort Tour Encounter

This service encounter provides a framework for analyzing the compatibility of the use and supply systems of the fort tour service encounter, which includes the components of the physical and natural environment. Interpretive panels, locations of original fort buildings and remaining historic structures are elements of the physical environment. The weather as well as trees and other green spaces of the natural environment are also critical fort tour elements to investigate. The Fort Tour Encounter is a direct response to the following *Audience Questions* from the project brief:

- How are current visitors interacting with the physical environment, including exterior interpretation, buildings and sites of past structures, while touring the fort grounds?
- How do visitors understand the fort complex, including original structures and their relationship to the existing buildings?

The results of these analyses shows who visits the fort, how they tour the historical components of the physical environments and how the elements of the natural environ-



ment effect their tour experience as well as how they understand the history of frontier forts such as Fort Hays.

Table 2 is structured using the activity analysis framework and the systems of the service encounter model to guide research. Questions are presented with a list of appropriate design tools for conducting research to understand the relationships of and between the contexts of the activity systems. For this service encounter, supply system interviews are conducted with Fort Hays staff. They developed the exhibit and present the activity to fort visitors.

Table 2: Activity Analysis of the Fort Tour Service Encounter		
Contexts of Activity Analysis	Use System	Supply System
<b>Object</b>	<p>Fort Hays tour: outdoor interpretation, historic structures and the natural environment.</p> <ul style="list-style-type: none"> <li>• How do people understand the original fort complex?</li> <li>• What is the prior knowledge of frontier forts?</li> <li>• Are they interested in the topic, why or why not?</li> <li>• How do the visitors relate to themes and information presented in the outdoor interpretation?</li> </ul> <p>Design Tools: interviews, survey &amp; questionnaires, card sorting, narrative</p>	<p>Fort Hays tour: outdoor interpretation, historic structures and the natural environment.</p> <ul style="list-style-type: none"> <li>• What is the fort tour?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<b>Subject</b>	<ul style="list-style-type: none"> <li>• Who are the visitors and what are their demographics?</li> <li>• Where are visitors from?</li> <li>• Why are they visiting the fort?</li> </ul> <p>Design Tools: direct observation, surveys &amp; questionnaires, interviews</p>	<ul style="list-style-type: none"> <li>• What is the topic of the fort tour?</li> <li>• What stories are told on the fort tour?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<b>Tools</b>	<ul style="list-style-type: none"> <li>• What objects are used to accomplish the activity?</li> <li>• What cognition artifacts are used to accomplish the activity?</li> <li>• Are visitors using tools not required by the supply system to enhance or support the activity?</li> </ul> <p>Design Tools: direct observation, interviews</p>	<ul style="list-style-type: none"> <li>• What research resources are used to develop soldier bios?</li> <li>• What objects are provided for participants to accomplish the activity?</li> <li>• How is the tour presented?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<b>Rules</b>	<ul style="list-style-type: none"> <li>• Are visitors following supply systems rules, why or why not?</li> <li>• What social rules are acknowledged or present during participation?</li> <li>• What are the perceived rules of the fort tour?</li> </ul> <p>Design Tools: direct observation, interviews</p>	<ul style="list-style-type: none"> <li>• What is the expected and intended use of the tour?</li> <li>• Have previous adjustments been implemented due to participant feedback?</li> <li>• What rules are publicly stated (written or oral) for the tour?</li> <li>• What rules are not presented, but implied? How are they implied?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>

<b>Community</b>	<ul style="list-style-type: none"> <li>• How often do visitors visit museums?</li> <li>• Are they comfortable and at ease in museum settings?</li> <li>• Did they visit museums as children?</li> <li>• How do the visitors usually spend leisure time</li> <li>• Do visitors fit the profile of frequent museum visitors or occasional museum visitors?</li> </ul> <p>Design Tools: direct observation, interviews, surveys &amp; questionnaires</p>	<ul style="list-style-type: none"> <li>• Who are the target users?</li> <li>• What assumptions do the suppliers have of the behaviors and expectations of fort visitors?</li> </ul> <p>Design Tools: interviews</p>
<b>Division of Labor</b>	<ul style="list-style-type: none"> <li>• What tasks are performed to tour the site?</li> <li>• Where do visitors stop, what do they do when they stop?</li> <li>• How are visitors interacting with the physical and natural environment?</li> <li>• Who is performing these tasks?</li> <li>• How are visitors interacting with each other to accomplish the tasks?</li> <li>• What social, familial roles are assumed by the participants?</li> </ul> <p>Design Tools: direct observation, follow up interviews, mapping</p>	<ul style="list-style-type: none"> <li>• What tasks are performed to accomplish the objective of the tour?</li> <li>• What social and familial roles are assumed and needed to achieve objectives?</li> </ul> <p>Design Tools: interviews</p>
<b>Objective</b>	<ul style="list-style-type: none"> <li>• Why did visitors tour the site?</li> <li>• What did they hope to achieve touring the site?</li> <li>• Did the tour meet expectations and fulfill desired outcomes, why or why not?</li> </ul> <p>Design Tools: direct observation, interviews, surveys &amp; questionnaires</p>	<ul style="list-style-type: none"> <li>• What are the desired outcomes?</li> <li>• What are the visitor experience goals and objectives of the tour?</li> <li>• What are the learning goals and objectives of the tour?</li> </ul> <p>Design Tools: interviews</p>

Table 2: Activity Analysis of the Fort Tour Service Encounter. The contextual elements of activity analysis guide research on the use and supply systems of the service encounter.

### *Local Activity Encounters*

This service encounter, in addition to the research of Marilyn Hood, provides a framework for locating and analyzing local leisure activity encounters that are popular with the target audience of the proposed “Who Are You?” exhibit. The examination of successful local service encounters is useful for the comparison of the characteristics of current visitors with the frequent and occasional museum visitors living in the local community. The field research of local activities is a direct response to the following *Audience Questions* from the project brief:

- How are potential visitors in the local community different from current visitors?
- What are the character profiles of local families who frequently and occasionally visit museums?
- What local leisure activities do these potential visitors prefer?

- What are the characteristics of these local activities and how do the potential visitors interact with them?
- What knowledge, perception and interests do potential visitors have of the fort?

The results from this field research provide data about the target audience of families living in the local community. This leads to the identification of target audience profiles that represent leisure criteria, characteristics of preferred activities and their expectations and knowledge of Fort Hays.

The project brief references a marketing study conducted at Fort Hays by BBC Research & Consulting. This report revealed a majority of current Fort Hays visitors fit Marilyn Hood's profile of frequent museum participants (2004). These current visitors make the decision to stop at the fort based on their leisure criteria, which includes, a planned visit, historical interests, curiosity and Kansas travel information (BBC, 2004). Frequent museum participants consider their leisure activities worthwhile based on the challenge of the experience and the opportunities to learn. Whereas, occasional museum participants perceive museums to be physically and psychologically uncomfortable. They prefer leisure activities that comfortably support active social interaction with family and friends. Considering these preference, local service encounters are listed below.

- Sternberg Museum of Natural History Museum: is a local museum that attracts frequent museum participants from the Hays community.
- Hays Public Library: offers family programs that fit the leisure requirements for frequent museum participants.
- The Mall Cinema: is the local movie theater that attracts families that fit the profile of occasional museum participants

- Ellis County Fair and the Wild West Festival: are two community events that attract both frequent and occasional museum participants that are potential Fort Hays visitors.

Table 3 is structured using the activity analysis framework and the systems of the service encounter model to guide research. Questions are presented with a list of appropriate design tools for conducting research to understand the relationships of and between the contexts of the activity systems. For this service encounter, supply system interviews are conducted with staff and employees of the local activities. Additional market research such as locating primary and secondary resources may be necessary to fill gaps in supply system data.

Table 3: Activity Analysis of Local Activity Encounters		
Contexts of Activity Analysis	Use System	Supply System
<b>Object</b>	<p>Community activities: local attractions, programs and events that attract frequent and/or occasional museum visitors (Hood 2004).</p> <ul style="list-style-type: none"> <li>• Where is the activity taking place? Shopping mall, movie theater, library?</li> <li>• What is the activity?</li> </ul> <p>Design Tools: interviews, survey &amp; questionnaires, card sorting, narrative</p>	<p>Community activities: local attractions, programs and events that attract frequent and/or occasional museum visitors (Hood 2004).</p> <ul style="list-style-type: none"> <li>• Where is the activity taking place? Shopping mall, movie theater, library?</li> <li>• What is activity?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<b>Subject</b>	<ul style="list-style-type: none"> <li>• Who are the participants and what are their demographics?</li> <li>• Where are visitors from?</li> <li>• Why did they decide to participate in the activity?</li> </ul> <p>Design Tools: direct observation, surveys &amp; questionnaires, interviews</p>	<ul style="list-style-type: none"> <li>• What is the topic, theme and/or emphasis of the activity?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<b>Tools</b>	<ul style="list-style-type: none"> <li>• What objects are people using to participate in the activity?</li> <li>• What objects are used to accomplish the activity?</li> <li>• What cognition artifacts are used to accomplish the activity?</li> <li>• Are visitors using tools not required by the supply system to enhance or support the activity? How are they being used?</li> </ul> <p>Design Tools: direct observation, interviews</p>	<ul style="list-style-type: none"> <li>• What resources were are used to develop the activity?</li> <li>• What objects are provided for participants to accomplish the activity?</li> <li>• How is the activity presented? Are people facilitating the activity? What is facilitating the activity and participation?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>

<p><b>Rules</b></p>	<ul style="list-style-type: none"> <li>• Are participants following supply systems rules, why or why not?</li> <li>• What social or familial rules are acknowledged or present during participation?</li> <li>• What are the perceived rules of the activity?</li> </ul> <p>Design Tools: direct observation, interviews</p>	<ul style="list-style-type: none"> <li>• What are the intended supply system rules?</li> <li>• What is the expected and intended use of the activity?</li> <li>• Have previous adjustments been implemented due to participant feedback?</li> <li>• What rules are publicly stated (written or oral) for the tour?</li> <li>• What rules are not presented, but implied? How are they implied?</li> </ul> <p>Design Tools: interviews, direct observation, role playing</p>
<p><b>Community</b></p>	<ul style="list-style-type: none"> <li>• How often do the participants visit museums?</li> <li>• Are the participants familiar with Fort Hays?</li> <li>• What are their perceptions of the fort?</li> <li>• Have they visited the fort? Why or why not? When?</li> <li>• How do the participants usually spend leisure time?</li> <li>• Do the participants fit the profile of frequent museum visitors or occasional museum visitors?</li> </ul> <p>Design Tools: direct observation, interviews, surveys &amp; questionnaires</p>	<ul style="list-style-type: none"> <li>• Who are the target users? Why?</li> <li>• What assumptions do the suppliers have of the behaviors and expectations of participants in regard to the activity?</li> </ul> <p>Design Tools: interviews</p>
<p><b>Division of Labor</b></p>	<ul style="list-style-type: none"> <li>• What tasks are completed to accomplish the desired outcome of participating in the activity?</li> <li>• Who is performing these tasks</li> <li>• How are visitors interacting with each other to achieve the desired outcomes of participating in the activity?</li> <li>• What social, familial roles are assumed by the participants?</li> </ul> <p>Design Tools: direct observation, follow up interviews, mapping</p>	<ul style="list-style-type: none"> <li>• What tasks are necessary to accomplish the supply system objectives?</li> <li>• What social and familial roles are assumed and needed to achieve supply system objectives?</li> </ul> <p>Design Tools: interviews</p>
<p><b>Objective</b></p>	<ul style="list-style-type: none"> <li>• Why did participants choose to participate in the activity?</li> <li>• What did they hope to achieve as a result of participation?</li> <li>• Did the community activity (the object) meet expectations and fulfill desired outcomes of the participants, why or why not?</li> </ul> <p>Design Tools: direct observation, interviews, surveys &amp; questionnaires</p>	<ul style="list-style-type: none"> <li>• What are the supply system goals and objectives?</li> <li>• What are the supply system's desired outcomes of the activity?</li> </ul> <p>Design Tools: interviews</p>

Table 3: Activity Analysis of Local Activity Service Encounters. The contextual elements of activity analysis guide research on the use and supply systems of the service encounter.

Activity analysis of the three critical service encounters provides data about the current exhibit activity, current visitors and potential local visitors. The project brief focuses and aligns the development team, while the research plan outlines how the theoretical approach of activity analysis is directly applied to the development of museum exhibits. The next step in Phase 1 of the activity-centered exhibit strategy is to analyze the data. Analysis based design tools, such as affinity diagrams, assist to derive general

principles of user characteristics and behavioral patterns from the collected data. These patterns are compiled for the creation of character profiles that represent the differences of current and potential fort visitors. This case study does not show analysis, rather a demonstration of how an activity-centered exhibit development strategy is relevant for guiding research and creating a foundation of concrete knowledge and understanding of museum visitors.

## Conclusion

The benefits design brings to exhibit development is determined by the role design plays throughout the development process. Research and literature reveal a shared interest in human experience in museum and design professions. Both professions understand the benefits of designing for positive experiences and use similar standards of practice to achieve desired results. The frameworks and process of activity-centered design provide a comprehensive strategy for bridging the gap between theory and practice in the creation of exhibits that facilitate desired visitor experiences.

As museums continue to compete against other forms and trends of leisure activity, exhibit strategies that plan and design for positive and valuable visitor experiences are needed. The strategy proposed in *An Activity-centered Design Perspective for the Creation of Museum Exhibits* directly responds to this need by centralizing human activity. The theoretical underpinnings of situated action and activity theory provide the frameworks while the design process supplies tools for accomplishing the strategy. The activity analysis framework serves two functional purposes: 1) it structures field research for the identification of trends and characteristics of leisure activities; and 2) it describes the behaviors of successful and positive leisure experiences. The service encounter model continues the process and evaluates how effectively interpretive materials such as text, objects, images, technology and exhibit activities communicate exhibit messages to the target audiences. The application of strategic design tools throughout the Evaluation, Requirements and Implementation phases of the activity-centered design process advances exhibit development toward solutions that pair target audience needs and behaviors to appropriate exhibit objectives that reach exhibit goals.

The process of examining current activities, finding tensions, designing to ease those conflicts and testing solutions in actual settings is the foundation of the activity-centered development strategy for the creation of audience-based exhibits. The strategy outlines a comprehensive plan of action using the benchmarks of the activity-centered design process. Each benchmark is defined by the objective, critical activities, relevant design tools and expected outcomes. Although this strategy defines actions for exhibit development, an activity-centered strategy is adaptable to the development of other audience-based museum programs and events.

The Fort Hays case study is an example of how the proposed strategy confronts audience-based research obstacles. The case study demonstrates how the strategy aligns a development team, frames audience-based research and provides the tools necessary to achieve the first benchmark of the development process. As a result, a discussion of exhibit development using a design language begins.

To continue to advance the role of design in exhibit development, the next step requires an opportunity to test the comprehensive strategy on actual exhibit projects. This testing makes the strategy more concrete and specialized to the unique resources of museums and constraints of each exhibit project. Time, budgets and staffing resources, intentionally left unaddressed, will begin to shape the strategy as well. The important factor through testing and evaluating the strategy is maintaining the focus on activity. Having an activity-centered strategy that plans for and understands human behavior stays ahead of leisure trends and positions museums as a competitive leisure option.



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