The Interactive Exhibit, JFK and Design-Build

"Museums began as human society's equivalent of cultural memory banks."
— David Dean, *Museum Exhibitions.* [1]

"If a movie makes it really big, they make an amusement park ride out of it. Superman The Ride!… Batman The Ride!… JFK The Ride!"
— Brian Regan; *The Epitome of Hyperbole*. [2]

DAVID KRATZER
Philadelphia University

THE INTERACTIVE EXHIBIT

The exhibit *Mathematica: A World of Numbers…And Beyond*, designed by Charles and Ray Eames in 1961, marked a distinct shift in exhibition design by making the visitor an active participant in the unfolding of information. Moving beyond the static, didactic "one way" presentation, the installations were organized around the notion that the visitor affected the content delivery - transforming the exhibit into a personal experience. This ability to translate information into an "interactive" learning condition created a dynamic and engaging platform from which to consider the nature of exhibitions and the presentation of didactic information.

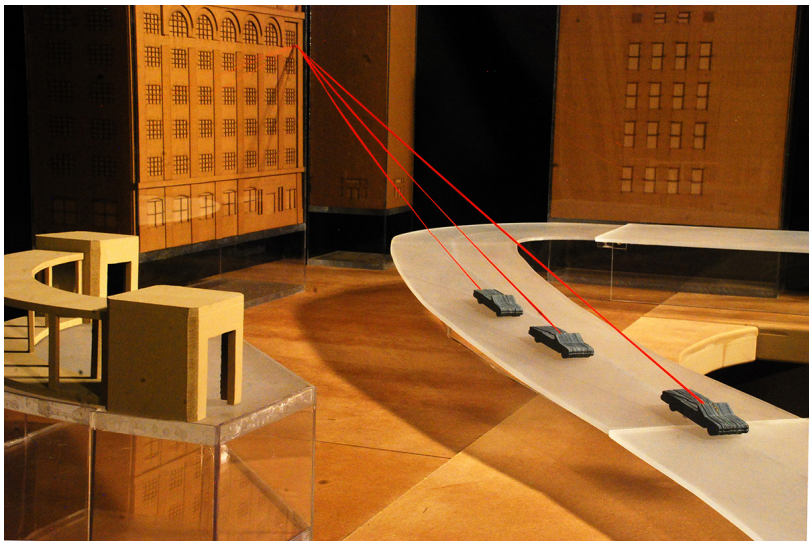

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Figure 1: Single Bullet Dealey Plaza Maquette Constructed by Architecture Students with Oswald Shot Tracings From the Texas Book Depository

In 2010, Former U.S. Senator Arlen Specter donated his papers and personal effects to Philadelphia University. In 2011, the university applied for and received a grant to host, curate, design and fabricate an exhibit to celebrate the life and career of Arlen Specter to be located in the campus library. It was the inaugural research/ presentation event for the Philadelphia University Arlen Specter Center for Public Service.

Specter's emergence into the public eye began with his Warren Commission service investigating the JFK assassination and the "single bullet theory" which he developed and promoted. A cross campus, interdisciplinary exhibition committee was assembled to coordinate, direct and develop the "show." The component design/ fabrication team included graphic design and architecture students in Design-Build studio coursework. The exhibit, entitled *Single Bullet and the Warren Commission Investigation of the JFK Assassination* opened for the 50th anniversary of JFK's death in November, 2013. [3]

This paper explores the nature of the "interactive" exhibit, the role of representation, and their effects on the "collaborative" processes utilized in creation of a Design-Build academic exhibit – in this case the enormous task of framing a collective contemplation on one of the most powerful events of the 20th century.

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COLLABORATIVE EXHIBIT PROCESS

The exhibition committee assembled for the *Single Bullet* exhibit included library administration/ staff, an exhibition consultant, archivists, grant writers, researchers; and faculty/ staff from the fashion, law & society, architecture and graphic design programs. The charge of the committee was to create the exhibit through a collaborative, interdisciplinary, real world learning process embodying the university core initiative of *Nexus Learning* - and for this process to be evident in the final product. The diverse team found little initial consensus on what should be included in the exhibit and the strategy of viewing was limited simply to conveying didactic information through fixed panels. Consensus building committee workshops, facilitated by the architecture and graphic design faculty, revealed an initiating goal of creating an "interactive exhibit" which presented the content in a manner prompting the visitor to draw their own conclusions on the JFK assassination by reviewing the "evidence" in a manner similar to Arlen Specter's search ending with the Single Bullet "conclusion." [4] The team immediately organized the exhibit as a polemic between two areas

Figure 2: Interdisciplinary Collaborative *Single Bullet* Design Workshop

– an assassination room which addressed the historic event and a Specter Room which focused on the evidence of the event which the viewer could review in as unbiased a way as possible. These areas, given the size of the available library space, were separated to differing floors creating an historical separation and tension. Procession involved entering the library from the Quad and ascending a half level up to an orientation/ introduction component on the main floor of the library, up to the assassination room on the second floor and then down to the Specter Room in the basement. The difficulty in choreographing the exhibit was further compounded by the fact that very few actual artifacts were available. The true problem became evident – the team would have to generate interactive content without the benefit of real historical objects.

THE NATURE OF ARTIFACT AND EXHIBITION

The core of any exhibit is an "artifact" whether actual or implied. At a basic level, an object of some value is offered for viewing ("showing") whether it is a three-dimensional object, a two-dimensional image, a digital projection, virtual construction, an installation that can be experienced or simply a space or place. Such artifacts embody meaning inherently through their "realness" and actuality. For David Dean, museums are primarily "places to encounter actual objects – the real things …which by nature embody social and cultural values framed through the lens of history." [5] These objects have the power to transport us to other times and activate our imaginations. The ability of an artifact to impart viewers with meaning is directly related to the spectator's translation of the content - the process of developing a personal understanding of, and ephemeral context for, the artifact. The delivery of meaning, both actual and implied, is scripted by the exhibitor – the one doing the showing. The story is controlled by the story-telling and history is often written by the victors.

For Kathleen McLean, the act of "showing" "brings with it an inherent dialectic between the intentions of the presenter and the experiences of the spectator."[6] Traditionally, a curator arranged objects and scripted an exhibition around decidedly subjective principles and intentions – often with other curators as the primary audience. Typically they held the prized position to set content and delivery methodologies with the exhibit designer subsequently packaging the intentions into a physical construct. This system tended to create "one-way conversations" "embodying the curator's vision."[7] While not universally a problematic condition, this model is limited in challenging wider audiences and topics. In the 1960's and 1970's, the educational reform movement challenged the nature of exhibition design by "wrestling content and interpretive control away from curators and putting it firmly in the hands of educators." [8] It became a primary goal of exhibitions to be guided by an educational charge and for all showings to be opportunities for learning. For McLean, this was best exemplified by Frank Oppenheimer's *Exploratorium* which explored "self-directed learning, interactivity, and individual discovery" delivered through interactive constructions which would form the basis of a new kind of museum.[9]

Preceding Exploratorium was the ground breaking exhibit *Mathematica: A World of Numbers…And Beyond*, designed by Charles and Ray Eames in 1961. Commissioned by IBM and initially located at the California Museum of Science and Industry, the project embodied the notion of the educational exhibit. The content was "rigorously researched by staff members and outside experts (who) were consulted regularly. Despite the fact that the exhibitions were packed with information, artifacts, and images, a great deal of care was taken to make them accessible – making learning interesting and 'fun.'"[10] The centerpiece is a collection of mechanical kinetic

interactive demonstrations of mathematical concepts such as Probability, Mobius Strip, and Celestial Mechanics. Engagement by students (visitors) in consideration of subject matter is directly related to the quality of their learning and the kinetics "have proven to play an essential role in the encouragement of longer and deeper interactions at exhibits in *Mathematica.* Exhibits that displayed motion were more socially engaging than static or interactive only exhibits."[11] The visitor initiated the machines and engaged with the mathematical concepts through physical presentation of the content. In completion of the exhibit, the Eames combined the roles of curator, educator and exhibit designer in creating a clear and singular exhibit that remains vital and in use to this day, albeit at alternative locations. But a question emerges – are these types of interactive exhibits conducive to interactive learning?

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Figure 3: A Visitor in JFK's Seat, Governor Connally and Self Actualization Monitors

THE INTERACTIVE EXHIBITION & INTERACTIVE LEARNING

In the case of both *Mathematica* and *Exploratorium*, the interactive quality was, and is, limited to activating machines and displays to initiate discourse. While the kinetic qualities of the machines did result in greater viewer engagement, the exhibits conveyed their content in a single direction – exhibit to viewer. The observer had no ability to alter the information or direct the exploration. Akin to a "download", the content was delivered via a one-way curatorial conversation. It was certainly more "fun," as was the goal of the Eames's, but still inherently singular in effecting the thinking responses of its viewers. For Moreno and Mayer, educational interactivity is a "characteristic of learning environments that enable multidirectional communication… two-way action (between learner and teacher)… in order to foster learning."[12] They add the qualifier of *multimodal* which incorporates both verbal and non-verbal knowledge to the learning environment such that, "an interactive multimodal learning environment is one in which what happens depends on the actions of the learner (where) the defining feature… is responsiveness to the learner's action during the learning." In other words, the learning is directed, and altered, by the student rather than determined by the teacher, faculty and curator.

With the goal of sorting out the terms "interactive learning," "active learning," "collaborative learning," and "cooperative learning," - so prevalent in current pedagogical discourse - Ted Panitz proposes definitions for two terms he believes form the starting point for discussion. *Collaboration* is "a philosophy of interaction and personal lifestyle where individuals are responsible for their actions, including learning and respect for abilities and contributions of their peers." *Cooperation* is

"a structure of interaction designed to facilitate the accomplishment of a specific end product or goal through people working together in groups."[13] He proposes the underlying premise for collaborative and cooperative learning as founded in "constructivist epistemology" and follows with an interactive teaching paradigm forwarded by Johnson, Johnson & Holubec where "knowledge is constructed, discovered and transformed by students. Faculty create the conditions within which students can construct meaning from the material studied by processing it through existing cognitive structures and then retaining it in long-term memory where it remains open to future processing and possible reconstruction."[14] Panitz continues the discussion by quoting Ken Brufee who believes there are two types of knowledge to consider in the "constructive conversation" of education. *Foundational knowledge* "is agreed upon socially justified beliefs" – quantifiable knowledge such as correct grammar, mathematics procedures and history facts. *Non-foundational knowledge*, on the other hand - and of interest to this discussion- is "that which is derived through reasoning and questioning versus rote memory."[15] "It is more likely to address questions with dubious or ambiguous answers that require well-developed judgment to arrive at, judgment that learning to answer such a question tends, in turn, to develop."[16] This idea of which type of knowledge the visitors of an exhibit can contemplate and interpret echoes David Dean's proposition that sophisticated exhibits should challenge both sides of the viewer's brain. The left brain for cognitive, quantifiable meanings/ functions and the right brain appeal for imaginings, associations and intuition.[17] It became clear through early research presentations by the *Single Bullet* student Design-Build teams that in order to accomplish the goal of creating an interactive exhibit promoting the visitor to develop personal judgments simple didactic panels would simply not be enough to carry the meaning or fully pique one's interest. A means to develop an emotional response that engaged both quantitative and qualitative aspects of the topic was necessary.

It is important to note within this discussion that architecture studio courses, and especially Design-Build studios, offer exemplary platforms for interactive learning where the student's work is primarily self-directed and faculty, and in this case the exhibit team, responded to student propositions in guiding the inquiry. The student's interdisciplinary process of design, presentation, prototyping and fabrication with the committee created an infectious collaborative environment where the entire team developed an ownership and advocacy for the constructions.

EMPATHETIC POSTURING AS GATEWAY TO INTERACTIVE LEARNING

In search of the hook to establish emotional engagement with the project, and to develop interactive learning, the students stumbled upon the notion that to truly understand the Warren Commission's deliberations, the visitor should be "put in the place" of Arlen Specter. For David Dernie, there are three approaches to exhibition design: narrative space, performative space, and simulated experience.[18] *Narrative space* organizes an exhibit around a story. *Performative space* exhibitions are founded in movement rather than static observation and "encourage the process of imagination and exploration without worrying too much about directing the outcome of the experience."[19] *Simulated Experience* exhibitions immerse the visitor in total environments focusing on the sensorial and empirical aspects of the content.

In the case of *Single Bullet*, all three approaches came into play in order to establish the emotional connections with the visitor and establish a basis for interactivity. There were only a few "real" artifacts – the majority of the university's collection was the personal papers of Arlen Specter. Without a foundation of artifacts, the exhibition was forced to focus on the story or as described by Dean, "the message."

"Exhibitions range from being either object oriented at one extreme, to concept oriented at the other – that is, objects or messages predominate."[20] In the case of *Single Bullet,* it was decided that empathetic posturing would personalize "the story," frame the "performative" movement through the didactic presentations, and provide the emotional hook for visitors. They would be able to touch, move and physically engage with portions of the exhibit but the primary interaction would be in experiencing the context of the assassination and haptic demonstrations of the evidence. The strongest components would "simulate" the scale, spatial contexts and "realness" of the assassination event as a means to place the viewer in an interactive discourse.

Placing the visitor "in the place of" Specter codified the design and layout of the basement room around the evidence the commission had to review. This attitude then led to spectators "taking the place" of Abraham Zapruder, whose 8mm film of the assassination became the iconic evidence for the investigation. Viewers experience the actual film loop through an accurate acrylic silhouette of Zapruder himself,

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Figure 4: View Through Zapruder and His Film Loop to JFK Seat

including his hat, and an actual make and model of the camera he used. The empathetic theme then carried on to JFK himself. Inspired by the Discovery Channel's exploration of seeing the assassination through rifle scopes located in the locations where shots were purported to have originated, the visitor could best understand the conspiracy theories by sitting in JFK's seat – literally.[21] A full scale representation of the limousine centers the assassination room with seats for JFK (and Jackie). In the glass divider that separated the front seat and rear cab are three monitors displaying, via live feeds, JFK's seat from three rifle shot vantage points – Oswald's perch in the Book Depository, the Grassy Knoll, and the rail line overpass – locations from which conspiracy theorists have speculated shots originated from. As visitors sit in his seat, they see their own image simultaneously in all three monitors with red dots signifying the bullet trajectories. In front of JFK's seat is a mannequin representing Governor Connally in the jump seat, pierced with a red rod tracing the path the second bullet traveled through his body after exiting JFK's throat. The first shot missed the motorcade and the third fatally wounded the president. The visitor can spin the governor to understand the trajectories of the "single bullet" and "the magic bullet" theories relative to their own bodies and alignment of the cameras. Interestingly, most intuitively adjust their posture to align themselves with the Connally bullet rod and camera scope dots - physically moving to take the place of JFK – a jarring and disturbing inhabitation. The interaction is primarily intellectual and for those over fifty years of age the haptic qualities of the environment sync with the emotional memories of the powerful event creating what many have called a 4d historical experience.

DESIGN-BUILD EXPLORATION OF LIMO REPRESENTATION

In order to create the desired empathic platform, the of representation of the X100 Midnight Blue 1961 Lincoln Continental convertible presidential limousine became of central focus as the project moved from design to build. It is the nature of student Design-Build teams to begin with the most literal of responses and in this case the students proposed installing portions of an actual Lincoln Continental in the library to sit in. As more sophisticated and appropriate prototypes developed it became clear to the team the desired emotional connections actually suffered from the distraction of realness and the inability of the representation to simply frame the experience rather than overpower it. The connection of the visitors to their images in the monitors was the most important component and all else needed to recede from attention. One of the guiding realizations was that the scale of the car was just as important a factor as JFK's seat in setting a context for an empathic connection. The awe of size, "is this how big it actually was?" became a powerful threshold for engagement. Structural and cladding strategies led to a rib car structure which was to be skinned with a surface – first boat shrink wrap, then stretch fabric, and on to woven meshes. Interestingly, in an intermediate prototype presentation in which the limo skin was absent, the committee and students were struck by the skeletal quality of the representation without a surface. Exposing the underlying structure of the car, without finish, and with exposed fasteners, resulted in a raw craft which created a "ghostlike" impression – much like a skeleton will record the anthropomorphic qualities of its preceding life form. Stepping into an echo of the limo offered the appropriate minimal representation strategy to support an empathetic response by the viewer. To finish out the representation, the student's defined the spatial boundaries of the car inspired by the language of Calder's *Circus* where the dynamic line in space becomes a fleeting and fragile cultural echo full of movement and potential.

ENDNOTES

1. David Dean; *Museum Exhibition: Theory & Practice.* (New York: Routledge, 1996), 1.
2. Brian Regan; *The Epitome of Hyperbole.* (*Comedy Central Presents*. DVD, 2008.)
3. For more information on the exhibit including videos, see: http://www.philau.edu/spectercenter/singlebullet.html
4. Arlen Specter; *Passion for Truth: From Finding JFK's Single Bullet to Questioning Anita Hill to Impeaching Clinton.* (New York: Morrow/ Harper Collins. 2000) 93. When asked about the Single Bullet Theory later in life, Arlen Specter often corrected the questioners by saying it was the Single Bullet Conclusion.
5. David Dean; *Museum Exhibition.* 6.
6. Kathleen McLean; "Museum Exhibitions and the Dynamic of Dialogue." *Daedalus*, Vol. 128, No. 3, America's Museums (Summer 1999), 83.
7. Kathleen McLean; "Museum Exhibitions", 89.
8. Kathleen McLean; "Museum Exhibitions", 89.
9. Kathleen McLean; "Museum Exhibitions ", 90. Endnotes CONTINUED
10. Pat Kirkham; *Charles and Ray Eames: Designers of the Twentieth Century*. (Cambridge, MA: The MIT Press, 1995) 263.
11. Constantine, Elias, Frankfeldt, Haskell, Low & Schoenfeld; "Summative Evaluation of Mathematica: A World of Numbers and Beyond." Prepared for the Boston Museum of Science. (http://www.museotech.com/design_wp/wp-content/uploads/2007/10/mathematica_evaluation1.pdf), 2004. 2.
12. Moreno & Mayer; "Interactive Multimodal Learning Environments." *Educational Psychology Review*. Vol.19, (2007) 310.
13. Ted Panitz; "Collaborative Versus Cooperative Learning – A Comparison of the Two Concepts Which Will Help Us Understand the Underlying Nature and Interactive Learning." *Cooperative Learning and College Teaching.* V8, No. 2, Winter 1997. 3.
14. Johnson, Johnson & Holubec; *Cooperation in the Classroom.* (Edina, MN; Interaction Book Co. 1991)
15. Ted Panitz; "Collaborative Versus Cooperative Learning." 4.
16. Ken Bruffee; "Sharing Our Toys – Cooperative Learning Versus Collaborative Learning." *Change.* Jan/ Feb, 1995. 12-18.
17. David Dean; *Museum Exhibition: Theory & Practice.* 30.
18. David Dernie; *Exhibition Design*.
19. Harold Skramstad; "The Exhibiting Dilemma." *Technology and Culture*. Vol. 48, No. 3, July 2007. 608
20. David Dean; *Museum Exhibition:* 3.
21. Discovery Channel; "JFK: Inside the Target Car." Aired November 2008.

CONCLUSION

Stephen Greenblatt, in his essay "Resonance and Wonder" proposed these terms as distinct models for the exhibition of works of art. *Resonance* is "the power of the displayed object to reach out beyond its formal boundaries to a larger world, to evoke in the viewer the complex, dynamic cultural forces from which it has emerged and for which it may be taken by a viewer to stand." *Wonder* is "the power of the displayed object to stop the viewer in his or her tracks, to convey an arresting sense of uniqueness, to evoke an exalted attention."[22] With such an emotional, jarring and personal topic as the JFK assassination and subsequent Warren Commission, *Single Bullet* was able to activate both of these models in a dynamic collection of cultural memories, media fragments and for those who were alive in 1963, a return in history to the gravity of generational defining moment. The entrance sequence "parade route," the Warren Commission evidence area and the overall didactic panels convey a basic context in which the historical events are framed. The Zapruder silhouette and playing of his film creates in the viewer a physical presence to the tragic event by witnessing the assassination from the eyes of the filmmaker. All visitors gasp in seeing, re-seeing the kill shot only to look up and see the limousine in the same field of view as the film and other spectators taking the place of the 35th president of the United States. Entering the car and sitting in JFK's seat initiates a powerful perceptual interactive translation as the viewer experiences their own distanced image in the sightlines of the conspiracy theorists shooter positions, including Oswald's perch. For those that were alive and remember the events of those two years, the exhibit limo indeed stops the viewers in their tracks in what can only be described as an overwhelming emotional response.[23]

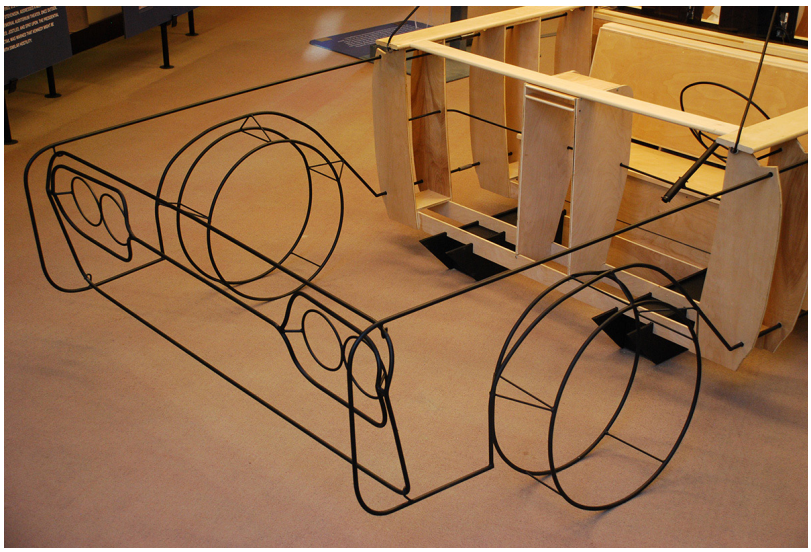

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Figure 5: Representational Material Language of the X100

22. Stephan Greenblatt; "Resonance and Wonder." In Karp & Levine; *Exhibiting Cultures*. (Washington, DC; The Smithsonian Press. 1991) 42.

23. Philadelphia University Student Team Members: John Alberto, Annelise Babula, Amanda Bonelli, Brian Corcodilos, Ryan Doll, Tim Edling, Edwin Figueroa, Robert Garcia, Zachary Garman, Francis Hanssens, Dylan Herman, Michael Holland, Chris Jablonski, Christian Kaulius, Aaron Kim, Taylor Klemm, Stefan Lesiuk, Miguel Mantilla, Calleigh McDonald, Kellie Meyers, Christina Minopoli, Nikos Nasis, Theodore Nicholas, Matthew Otricelli, Corey Pedersen, Scott Rose, Henry Thomas, Shannon M. Watt & Lauren Yager.

    Single Bullet Committee and Philadelphia University Faculty Members: Karen Albert, Library Director; Coordinator, Specter Center; Jennifer Barr, Archivist, Specter Center; Frank Baseman, Program Director, Associate Professor, Graphic Design Communication: Michael Cabus, Systems Librarian; Jeff Cepull, Vice President for Information Resources and Chief Information Officer; Donald Dunham, Assistant Professor of Architecture; Stan Gorski, Associate Library Director; Curator, Specter Center; Matt Gulbicki, Assistant Director, Physical Plant; David Kratzer, Associate Professor of Architecture; Evan Laine, Director, Law & Society Program; Elizabeth Lewis, Project Manager, Liz Lewis Associates, Exhibit Project Management; Deann Mojado, Administrative Assistant, Library; & Sarah Moore, Collections Curator, The Design Center at Philadelphia University.