Storytelling with Digital Photographs:
Supporting the Practice, Understanding the Benefit

Brian M. Landry
Thesis Proposal Defense
School of Interactive Computing
College of Computing
Georgia Institute of Technology
Digital Capture of Experiences
Sharing Our Experiences

- Display
  - Picture Frames
  - Photo Albums
  - Slideshows
Sharing Our Experiences

• Requirements for Photoware
  – “Reminiscing talk”
  – Co-present storytelling (for people who were not there)
  – Calls for technologies to support co-present storytelling

The Power of Story

• History Archival (StoryCorps)
• Remembering details of an experience (Frohlich et al., CSCW ‘02)
• Approach to increasing consumer-level digital literacy to “shape the technologies of tomorrow” (Lambert ‘02)
• Potential to become rich form of media annotation (Frohlich et al., CSCW ‘02)
Sharing Our Experiences

- But what happens when you’re not co-present?
Driving Question

• How do we support storytelling using interactive technologies to communicate experiences to people not present?
• Selecting a structure by which to communicate is key
Plot Driven Story

Initial Conflict  Climax  Resolution
The Power of Plot-Driven Story

- Dialog between people, cultures and times (Madej, Comp. Ent. ‘03)
- Storytelling helps us assign meaning to experiences (Polkinghorne ‘98)
- Self-realization (Davis, THEN ‘05)
- Therapeutic benefit (Pennebaker Lit. & Med. ‘00)
But it’s Difficult with Photos

- Practical & Technical
  - Media Manipulation
  - Media Composition
  - Process Management
  - Time Consuming

- Plot-Specific
  - Brainstorming
  - Story Development
  - Pacing
  - Economy
Proposed Solution

- Structure photo activities as storytelling

<table>
<thead>
<tr>
<th>Photo Activity</th>
<th>Storytelling Activity</th>
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</thead>
<tbody>
<tr>
<td>Annotation</td>
<td>Brainstorming</td>
</tr>
<tr>
<td>Search</td>
<td>Brainstorming</td>
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<tr>
<td></td>
<td>Story Development</td>
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<tr>
<td>Construction</td>
<td>Story Development</td>
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<td>Media Composition</td>
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Thesis Statement

Structuring photo activities as storytelling can lead to (1) the production of plot-driven stories that (2) are satisfying to the author, (3) satisfying to viewing audiences, (4) and increase the use of storytelling with digital media as a means to communicate personal experiences.
Research Questions

1. How do previous experiences as media consumers and producers impact the effort and desire of novices to create plot-driven personal stories?

   Can structuring photo activities as storytelling...

2. lead to a satisfying experience and output for story authors?

3. produce a satisfying outcome for viewing audiences?

4. produce plot-driven stories according to professional practice?
Research Questions

• How does a suite of annotation, search, construction supports impact the storytelling process?

• Can structuring photo activities as storytelling lead to adoption of digital storytelling as a means of communicating personal experiences?
What is a Plot-Driven Story?
“Monster at the End of This Book”

- Reader reaches page before last
- Grover is terrified

- Grover is afraid of monsters
- Monster at end of book
- Reader keeps turning

- Grover realizes he is the monster at the end of the book

Initial Conflict  Climax  Res
My Best Friend’s Wedding

- I get to know friend’s fiancée
- Wedding day arrives
- Realize I’m not losing a friend but gaining a new one.
- Best friend announces he’s getting married
- I’m concerned our friendship will change
- I reaffirm my commitment as a friend
Outline

Structure photo activities as storytelling & evaluate for satisfaction

Present findings and guidelines for storytelling tool design

Create and evaluate tool (iTell) to support digital storytelling

Learn from existing work

How do we enable expression through story using digital photographs?

Initial Conflict

Climax

Res

Everyday people communicate through plot-driven personal stories
Learning From Existing Work

• **Center for Digital Storytelling** (Landry & Guzdial ‘06)
  – Story Development (models, feedback)
  – Process Management (facilitated)
  – Collaboration (story circle)

• **Writing Support**
  – Begin with a good story (Trottier ‘95, Collier ‘01)
  – “Set a tentative focus” (Hacker ‘98)
  – Procedural Facilitation (Bereiter & Scardamalia ‘87)
  – Dramatica
iTell

• Learned from CDS and experts in literature on writing, and media production
• Designed iTell to address novice needs:
  – Brainstorming
  – Story Development
  – Process Management
  – Media Composition
iTell: The Design

• Provide a holistic support for media and story activities
• Guide while not limiting creativity
  – Transaction process model
  – Four step process
  – Goals & directions

iTell: Lessons Learned

- Role of media in Retrospective Storytelling
- Storytelling Styles: Novice vs. Professional
- Balancing Writing and Media
- Supporting Novices via Expert Support Model
Proposed Solution

- Structure photo activities as storytelling

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Outline

1. Structure photo activities as storytelling & evaluate for satisfaction
2. Create and evaluate tool (iTell) to support digital storytelling
3. Learn from Center of Digital Storytelling
4. How do we enable expression through story using digital photographs?
5. Present findings and guidelines for storytelling tool design
6. Everyday people regularly communicate by telling plot-driven personal stories
Storytellr

- 3rd party flickr application
- Provide familiar entry-point to storytelling
Annotation Phase

• Previous Work
  – GPS (Sarvas et al., MobiSys ’04)
  – Visual concepts (Smith and Chang, IEEE Mult. ’97)
  – Face detection (Kuchinsky et al., CHI ’99)
  – Drag & Drop (Shneiderman and Kang, InfoViz ’00)
  – Games (Von Ahn and Dabbish, CHI ’04)

• Tend to capture
  who, what, when, where
Annotation Phase

- Elicit the *how* and *why* of experiences for storytelling
- Begin brainstorming process
- Guided manual annotation
- Occurs in conjunction with the photo uploading process
Annotation Phase

- Can occur apart from storytelling

<table>
<thead>
<tr>
<th>Annotation Type</th>
<th>Plot Element</th>
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<tbody>
<tr>
<td>Positive Emotion</td>
<td>Setup / Resolution</td>
</tr>
<tr>
<td>Neutral Emotion</td>
<td>Setup / Resolution</td>
</tr>
<tr>
<td>Negative Emotion</td>
<td>Conflict</td>
</tr>
<tr>
<td>People Present</td>
<td>Characters</td>
</tr>
<tr>
<td>Place</td>
<td>Setting</td>
</tr>
<tr>
<td>Rating</td>
<td>Audience</td>
</tr>
</tbody>
</table>
Tagging:

Title:
right in the kisser

Description:
brian and brian playing around with my new imac

What emotion(s) does looking at this image evoke?
happy
sad
angry

Who is pictured in the photo?
brian dorn
brian landry

Where was this picture taken?
cs
Search Phase

- Continue brainstorming
- Initiate story development thought process
- Leverage story annotations via prompted search
- Select media for story
**Storytellr::Search**

What is the tone or mood of this story? What emotions come to mind?

- happy
- sad
- angry

What people appear in this story?

- brian

Where does this story take place?

- vacherie

What events might describe this story?

- wedding

Search
Construction Phase

• Story Development
  – Assign images to plot elements
  – Develop text for each image/plot element

• Media Composition
  – Photos
  – Voice
  – Music
Evaluating Storytellr

Storytelling for Digital Photographs

- Question 1 (user perspective)
- Question 2 (user satisfaction)
- Question 3 (aud satisfaction)
- Question 4 (professional eval)
- Question 5 (design eval)
- Question 6 (adoption)

- Perspective Study
- Study 1 (Storytellr Eval)
- Study 2 (Audience Eval)
- Study 3 (Professional Eval)
- Study 4 (Adoption)
Perspective Study

- Views of participants will help explain their behavior as they use Storytellr
- Assess current level of satisfaction
- Establish a baseline to compare user experiences against RQ 1 (user perspective)
Perspective Study

• Qualitative interviews regarding...
  – Consumption of end-user media
  – Telling plot-driven stories
  – Quality expectations of amateur productions
  – Perceptions of required effort

• 10 participants
  – Adults (varying age groups)
  – Own a digital camera
  – Take photos at least on special occasions
  – Novice media authors

RQ 1
(user perspective)
Storytellr Study

• Is the Storytellr experience and end product satisfying to users?

• Does the design support plot-driven storytelling

RQ 2 (user satisfaction)

RQ 5 (design eval)
Storytellr Study

- Lab Study
- 10 Perspective study participants
- Conduct observation, survey and focus group regarding...
  - Excitement
  - Pride
  - Required time
  - Required effort
  - Confidence with repeating the process

RQ 2 (user satisfaction)
RQ 5 (design eval)
• Conduct observation, survey and focus groups about...
  – reports of development of a sense of the plot of an experience
  – reports of how the supports influence interaction with the tool
  – observation of how design elements lead users to a plot-driven output
Audience Study

• Do Storytellr stories satisfy audiences?

• Are audiences able to understand the plot of the story?

RQ 3
(aud satisfaction)
Audience Study

- 20 participants
- Each participant will view a random selection of Storytellr stories
- Surveys of target audiences regarding...
  - Identification of the plot’s message
  - Perception of quality as compared to artifacts made with other tools

RQ 3 (aud satisfaction)
• Can structuring photo activities as storytelling produce plot-driven stories according to professional practice?
Professional Study

- 5 experts as participants
- Random selection of stories from Storytellr study
- Content Analysis
  - Causally linked events
  - Initial conflict
  - Building tension
  - Climax
  - Resolution
- Solicit expert opinion

RQ 5
(professional eval)
Adoption Study

• Can structuring photo activities as storytelling lead to adoption of digital storytelling as a means of communicating personal experiences

RQ 6
(adoptive)
Adoption Study

• Online Storytellr deployment
• Occur in parallel with Storytellr Study
• Software Logging of…
  – Number of accounts created
  – Number of stories completed
  – Number of repeat story creators
  – Number of requests for features
## Plan of Completion

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<th>Task</th>
<th>Expected Completion</th>
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<tr>
<td>Perspective Study</td>
<td>July 2007</td>
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<tr>
<td>Data Analysis (Perspective Study)</td>
<td>August 2007</td>
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<td>Storytellr Prototype Completion</td>
<td>October 2007</td>
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<td>Storytellr Deployment</td>
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<td>Professional Study</td>
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<td>April 2008</td>
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<td>August 2008</td>
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Acknowledgements

- Committee: Mark Guzdial (chair), Gregory Abowd, Beth Mynatt, Michael Smith and John Thomas
Thank You. Questions?

Storytelling for Digital Photographs

- Question 1 (user perspective)
- Question 2 (user satisfaction)
- Question 3 (aud satisfaction)
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- Question 5 (design eval)
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- Perspective Study
- Study 1 (Storyteller Eval)
- Study 2 (Audience Eval)
- Study 3 (Professional Eval)
- Study 4 (Adoption)
YouTube Analysis

• Are people creating plot-driven stories on their own?
Committee Feedback

• How many people do I really need?
• How do I recruit?
• In what instances will survey be sufficient and when should I interview?