



# Meet the Local Through Storytelling: A Design Framework for the Authenticity of Local Tourist Experience

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**Abstract.** Based on a rapid ethnographic investigation on a historical site in China, this study aims to formalize a storytelling design framework towards enhancing the authenticity of local tourist experience. Specifically, semi-structured interviews were conducted with residents, tourists, and tour guides. Participatory observation was adopted to understand storytelling behaviors. I analyzed the field data through affinity diagram in two rounds. The first round of analysis was guided by the theoretical lens of Staged Authenticity, bringing the emergence of the core category—the gap towards achieving the authenticity of local tourist experience. This gap is specified as six barriers: social exclusion; mental and physical cost; artificiality; cost-effectiveness; storytelling triggering; and local expertise diffusion. The second round of analysis was guided by the Storytelling Design Framework, resulting in an in-depth comparison of storytelling practices contributed by residents and tour guides. Based on these findings, I formulated the storytelling design framework for the authenticity of local tourist experience and prototyped an audio guide application to illustrate one potential use of the framework. This study enriches understandings of local tourist experience and provide groundings for design applications in tourism.

**Keywords:** Authenticity · Storytelling · Tourist experience · Local experience · Rapid Ethnography · Audio guide application

## 1 Introduction

The concept of authenticity—the sense of being true, real, and unique—has been widely discussed since its initial introduction to tourism research [1, 2]. Among these discussions, the actualization of authentic tourist experience drew considerable attention [3–5]. The perception of local experience, which refers to the experience of immersing in local culture and environments, is suggested to be an essential aspect for achieving authentic tourist experience. This is expressed by the stated desire for tourists to engage more intensively with the residents of tourist destinations [6], to involve more meaningful interactions with the local culture [7], and to gain more intimate sharing of personal tales than a standard telling of tourism facts [8].

Storytelling involves the interpretation of folklore, legend, and social event. It is a potential medium to enhance the authenticity of local tourist experience. Several studies suggested the positive effect of storytelling on tourists' perception of locality, followed by an emerging strand of HCI studies to explore potential utilizations of digital storytelling in tourism and cultural heritage contexts [9–13]. For instance, Burova et al. [10] proposed a storytelling-based application to facilitate tourists' engagement with cultural exploration at the airport. They further evaluated that interactive storytelling is an effective method in persuading tourists to explore local products at the airport and thus promote tourists to explore local culture.

Despite fragmented solutions have been proposed to enhance local tourist experience, a fundamental framework to guide storytelling design towards the authenticity of local experience is scant. To address this issue, I conducted a field study to approach the first research objective—develop a contextualized understanding of culture-oriented tourism with a specific focus on residents' interpretation of locality and tourists' perception of authentic tourist experience. Based on these findings, a secondary objective is to formalize a design framework towards enhancing the authenticity of local tourist experience. This study adds to a contextualized understanding of culture-oriented tourism practices. The formulated design framework provides groundings for HCI researchers to develop solutions to better engage tourists in tourist destination and cultural heritage. The framework has implications for design practices toward enhancing the authenticity of local experience.

This paper is structured as follows. In Sect. 2, I frame the theoretical basis of Staged Authenticity and Storytelling Design Framework. Section 3 elaborates on the research methods and the process of data analysis. In Sect. 4, I report on the identified themes and barriers in current tourism practices. In Sect. 5, I formulate the design framework for the authenticity of local tourist experience, introduce its building blocks, and unfold rationales for deriving the framework. A potential utilization of the framework is demonstrated in Sect. 6 through an audio guide application. In Sect. 7, I situate this study in the field of HCI and tourism research to suggest implications, limitations, and avenues for future research.

## 2 Theoretical Framework

### 2.1 Authenticity of Local Tourist Experience

Authenticity is a widely discussed and debated concept in tourism research. Scholars discuss authenticity within typologies of objectivism, constructivism, and existentialism [4, 14–16], leaving a clear and unified definition controversial. The concept of authenticity I adopted in this study is from Sharpley [17], who defines authenticity in tourism context as traditional culture and its origin, in the sense of being true, real, and unique. Authenticity of local tourist experience has been widely discussed and empirically investigated since the concept of authenticity being introduced to tourism studies [1]. Evidence supports that the perception of local experience—the experience of immersing in local culture and environments—is an essential aspect for achieving authentic tourist experience. Specifically, researchers advocate that tourists are increasingly demanding authentic, experientially oriented opportunities involving more meaningful interactions

with locals [3, 5, 18]. Arsenault and Trace [6] observed that tourists increasingly desire to engage more intensively with the residents. Paulauskaite et al. [7] explored the perceived authenticity of local experience on online accommodation rental platform Airbnb, investigating what influences customers to select Airbnb accommodations through qualitative interviews. The empirical findings indicated that interactions with hosts and with local culture were important to Airbnb users.

Tourists' anticipation for the authenticity of local experience can be theoretically sketched by Staged Authenticity—a well-acknowledged and disseminated theory to explain tourist attraction and tourist motivation [1, 2, 19]. MacCannell [1] introduced sociologist Erving Goffman's "dramaturgical perspective" to study tourism activities. According to Goffman [20], the social structure is assimilated to a large stage with the division of "The Front" and the "The Back". "The Front" refers to the place where performing actors, guests, and service staffs interact with each other. The actions for strangers or casual acquaintances are called frontstage behavior. "The Back" is the closed place for the performance of the frontstage, it can be described as a place with a close connection with truth, intimacy, and authenticity. MacCannell [1] suggested that in tourism development, local hosts present their culture (including themselves) as a commodity to tourists. This leads to the "staging" of the authenticity of the host's social life, which is a common phenomenon in modern tourism experiences. Deepak [21] further elaborated the positive effect of Stage Authenticity on ethno-tourism, that is, ethno-tourism with Stage Authenticity as its core will, to some extent, strengthen the authenticity of local culture and contribute to the reconstruction of traditional culture and ethnologic identity.

The present study adopts Staged Authenticity as a theoretical perspective to guide our empirical investigation for its revealed explanatory power on our research scope—HCI practices for enhancing local culture-oriented tourist experience. I take the example of Airbnb to illustrate the relevance between Staged Authenticity and HCI practices. The partial success of Airbnb owed to its strategy to enable interactions between tourist and house-owner towards co-creating culturally immersive tourism experience [7]. HCI practices involved in Airbnb, like mobile applications and online service platforms, play a key role in mediating Staged Authenticity between house-owner and accommodating tourists. For example, a house-owner may commercialize the local culture as room decorations and local stories being upload to the Airbnb platform. The tourists may order on the platform and share the uploaded stories, making the digital platform a mediator to satisfy Staged Authenticity.

## 2.2 Storytelling

Stories can be of many forms such as folklore, legend, and social event. Storytelling as a means of social interaction is a way to create and sustain human connections and relationships [22]. Scholars have brought the concept of storytelling to the discussion of tourist experience, and the positive effect of storytelling for enhancing touristic experience and local culture exploration has been implied. HCI research, adopting digital storytelling techniques on mobile devices to guide visitors to a historical site enhanced the identity of the destination through affecting tourists emotionally and increasing the receptiveness and precision of conveyed information [9]. Burova et al. [10] conducted

a field evaluation of an airport application to demonstrate that interactive storytelling is an effective method in persuading travelers to explore local products at the airport and thus promote tourists' exploration of local culture.

Digital Storytelling revolves around the idea of combining storytelling with a variety of digital multimedia, such as images, audio, and video [23]. Many forms of digital storytelling were initiated and tested on digital devices, ranging from the development of audio-based [24], photo-based [25], location-based [26], to analog-based [27] storytelling prototypes.

Researchers have also introduced digital storytelling to tourist destination and cultural heritage contexts. For instance, Chowdhury [11] presented Pintail—a mobile companion application for guided storytelling in travel contexts. It prompts the user to create, remix, and reflect on their own travel stories. Specifically, Pintail synthesizes contextual story prompts from online travel reviews and doodle-books to inspire story creation. These prompts can guide users to create atomic travel stories. Created stories are then printed on paper and become analog story-artifacts or conversation-starters. Lombardo and Damiano [9] presented and evaluated a storytelling-based application on mobile devices for an anthropomorphic guide to a historical site. They addressed the storytelling paradigm in a mobile context in the way of third-person “performed narration” of a single character in an augmented reality scenario.

However, several limitations of digital storytelling solutions in tourism might be sketched. First, existing solutions largely engage machine-generated stories, leaving human touch and personality largely uncharted attributes. Second, existing narratives tend to strip context-dependency, leaving a culturally immersive tourist experience uneasy to be satisfied. Third, existing applications largely require a lot of time and efforts to create the narrative, which is contradicted to tourists' anticipation for non-invasive, easy to access interactions in tourism contexts. The transmissibility and replicability of the stories are limited as well.

To examine how digital storytelling could better enhance tourist experience, I seek a guiding framework to understand the form, media, and structure of storytelling. This is approached by adopting the coding scheme of Storytelling Design Framework [22] as a guiding scheme of coding. The authors thematically coded the interview data on older adults to identify seven considering factors in the design of systems using storytelling as a motivational framework [22]. These factors are illustrated in Table 1.

**Table 1.** Storytelling design framework proposed by Chu et al. [22].

| Factor    | Definition  |
|-----------|---|
| Audience  | The explicit or implicit audience for the act of storytelling   |
| Content   | Storytelling requires that content is produced, whether it is based on a true story or it is a fictional one  |
| Process   | The process of telling a story involves a myriad of processes from the retrieval of details, structuring, summarization, mental organization and tracking, that are typically done automatically or unconsciously |
| Context   | The social and physical environment for the storytelling process  |
| Medium    | The medium through which storytelling happens. Media used (e.g., phone, email) are solely for communication and storytelling  |
| Trigger   | This aspect relates to how storytelling is catalyzed  |
| Intention | The purpose behind storytelling   |

## 3 Methods

### 3.1 Data Collection

I adopted qualitative methods to examine the perceived authenticity of local tourist experience by exploring the meaning and interpretations of individuals in real-world contexts [28]. Rapid Ethnography is a collection of ethnographic data elicitation methods intended to provide a reasonable understanding of users and their activities given significant time pressures and limited time in the field [29]. I employ this strategy to understand context-dependent tourist experiences and develop storytelling design prototypes for its time-efficiency and gained popularity in HCI research.

The empirical investigation was situated in Confucian Temple, a historical tourist attraction located in Nanjing, China. In December 2019, I conducted a one-day participant observation on-site, specifically focusing on real-world tour guide application usage behavior of varied users. I collected pictorial and documentary data on existing audio guide applications on-site and online. After that, I recruited 10 participants for interviews. These participants are referred to as P1 to P10, numbered by their date being interviewed. I conducted semi-structured interviews with 4 local residents (P1, P2, P3, P4) on-site, 4 tourists with enriched interest and experience in local tourist exploration online (P5, P6, P7, P8), and 2 full-time or part-time tour guides online (P9, P10). The duration of interviews ranged from 30–60 min. Virtually all interviews were audio-recorded with obtained informed consent, except for one local resident declined to be taped. In the latter case, the interviewer took lengthy written notes on-site. Interview questions are roughly divided into two parts. The first part aims to elicit interviewees' perception and interpretation of local events, stories, and tourist experiences. The second part deals with storytelling, aiming to understand the form, structure, and content of digital storytelling in tourism practices.

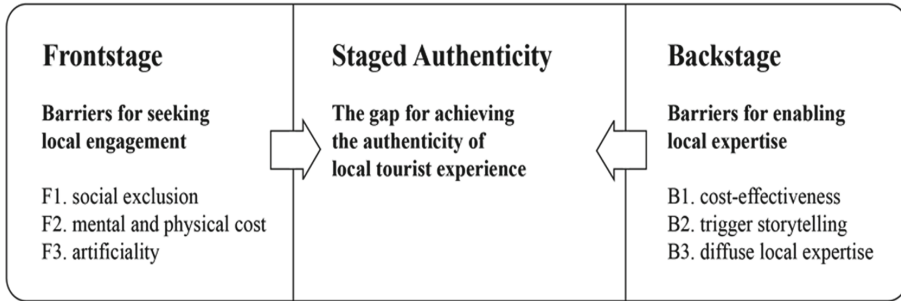
### 3.2 Data Analysis

I followed a two-step data analysis process to extract data on (1) perceptions and interpretations of authenticity towards local tourist experience and (2) storytelling practices in tourism context. In the first round of analysis, data were examined and extracted through the theoretical lens of Staged Authenticity [30], resulting in enriched quotes and narratives expressing the interpretation of authentic and local experience. In the second round of analysis, data were thematically coded based on Storytelling Design Framework [22]. The framework guided the researcher to elicit data in mapping storytelling practices. Affinity diagram—a tool that gathers large amounts of language data (ideas, opinions, issues) and organizes them into groupings based on their natural relationships—went hand in hand with the two-step data analysis process [31].

## 4 Results

As a result, three higher-order themes emerged from the first round of coding. We bound up with three essential terms adopted by the theory of Staged Authenticity—frontstage,

backstage, and staged authenticity—to interpret the meaning of each identified theme (Fig. 1). Besides, a comparison between storytelling practices contributed by local residents and by tour guides were deduced from the second round of coding. The result is shown in Table 2.



**Fig. 1.** Themes emerged from the first round of analysis.

#### 4.1 Frontstage: Barriers for Local Engagement

“The Front” refers to the place where actors, guests, and service staff interact with each other [20]. Pertaining to tourists’ perception and interpretation of the frontstage in tourism, both locals and tourists cited the damage of commercialization to the authenticity of local culture-based tourist experience. Their perception of the damage can be described as the uniqueness of tourist experience and the fake local feature. To illustrate, P5 mentioned that “[I went to Slovenia] because so many domestic attractions have been commercialized. In fact, what you see is not the same as the original one anymore, even the locals themselves won’t go there.” P2 felt that “nowadays tourism attractions are almost the same, there are basically no cultural features, or to say the commercial [atmosphere] is too strong”.

Despite existing tourist attractions did not fully support tourists’ perception of locality, almost all interviewed tourists expressed their interest to explore the backstage of local attractions, labeled as “seeking local engagement” in present study. Seeking local engagement refers to the tourist is motivated to immerse, feel, and interact with local people, objects, events, and environments. As P5 put it, “I don’t really enjoy planned tours. Sometimes, I actively search for local destinations on [a social media] to see where locals prefer to go.” As is reported, P5 anticipated to experience local life, she thus went to a local restaurant (environment), having dinner inside the restaurant (events), and observed local people while gossiping (people). She felt she “indirectly involved in [local] activities (P5)”, which is deemed as essential for her to “experience the organic life atmosphere that cannot be felt anywhere else (P5).”

However, several barriers were identified for tourists to seek local engagement. These barriers were categorized as F1. social exclusion, F2. mental and physical cost, and F3. artificiality. As P6 indicated, she “felt embarrassed to talk with local people” and “don’t know where to start and end.” She also felt “inappropriate and being excluded by local

environments (P6).” The description expressed the feeling of social exclusion in local environments. P5 and P8 described their endeavor to search for, ask for, and go to places where local people prefer. They swift between multiple platforms to compare different places to plan the tour, indicating an increased mental and physical cost compared with a packaged tour. P10 exemplified the barriers to local engagement through audio guide applications in many tourist attractions. She put that “audio guide is a good way for strangers to experience the history of local attractions, but its narrative is very objective and it is not touching for me. It’s more like a machine talking with me and made me hard to feels like the original.” This description indicated the negative effect of the sense of artificiality on tourists’ perception of authentic local experience.

To sum up, the interviewees perceived the damage of authenticity in local tourist attractions and expressed their interests and efforts to explore local engagement. However, the seek for local engagement, to a broad audience, confronted barriers of social exclusion, mental and physical cost, and artificiality.

## 4.2 Backstage: Barriers for Enabling Local Expertise

“The Back” is the closed place for the performance of the frontstage. It can be seen as a place closely connected with truth, intimacy, and authenticity [20]. As the researcher probed deeper into the backstage of local life, the concept of local expertise, defined as the interpretation of local history, events, and tourist attractions by local residents, emerged from the analysis. Local expertise is generally delivered and diffused through storytelling, mostly in a face-to-face manner. The interviewed residents explicitly or implicitly expressed their local expertise, including traditional lifestyle and local memories that are contextualized and being interpreted subjectively. For example, P1 told us his story about the spatial arrangement of a tourist attraction and shared his childhood memory of the attraction. Local expertise differs from the expertise provided by tour guides in that the narrative of local expertise generally involved the reflection of personal experience, making the information united with human touch and cultural context. Expertise provided by tour guides, however, involved more objective, professional, and accurate knowledge on tourist attractions. P9, equipped with part-time tour guide experience, indicated that “tour guides need to be authorized by obtaining the tour guide certificate. [...] It examines your professional knowledge about attractions, such as its culture, history, etc., and how to narrate your speech.” An in-depth analysis between local expertise and tour guide expertise is presented in Sect. 4.4.

Despite all tourist participants expressed their interest in local lifestyle and culture, the value of local expertise, compared with tour guide expertise, has less been explored. P5 expressed her strong interest in the habits and culture of the locals and her desire to explore and experience these contents. She said “[The local house-owner] often talk to you about, for example, what festival is on Sunday and what event will be held at the center of the town. On Sunday, he said he would try to make a local specialty dish. When we were cooking, I went around [the chief] to observe what he was doing.” P8 reported that “I prefer to search on [a social media] to look for restaurants and attractions local people recommended, because I feel that posts written with personal experience are more convincing. [...] When I went to eat, I intentionally or unintentionally noticed

them [local people] talking about their life stories, that [the experience of eating] was quite unusual, as if I was diving into their daily routine secretly.”

Some participants exemplified current solutions for delivering local expertise to tourists. P6 indicated that “The youth hostel owner is quite conversable, you will have a lot of opportunities to communicate with your buddies when you stay there. [...] He [the house-owner] will list some local features for you to find out. [...] I think this type of communication made me feels like immersing in local life.” She also indicated that a customized tour equipped with a local tour guide is a good chance to communicate with the local. This type of tourism supports tourists to select to join a small-scale travel group, guided by a local with enriched knowledge about the city he lives in.

However, barriers to enable local expertise were also identified. The first barrier is B1. the cost-effectiveness of diffusing local expertise. P6 experienced customized tour to comment that “the reciprocal interaction between tour guides and tourists takes too much human cost and thus limited to be disseminated to a broader audience.” P9, equipped with tour guide experience, described that she “often tell a similar story to a small group of audience for multiple times, which makes me feel a little bit exhausted.”

The second barrier points to B2. the triggering of local storytelling. Interviews with residents revealed that the initiation of storytelling might be challenging. Most of the interviewed locals performed a rather conservative attitude in telling their personal experiences. Only after a long time of contextualization did they begin to narrate their personal stories. P1 said that he “has nothing to tell about local living” for his concern about the sensitive nature of the information he is delivering. Approximately 10 min later, he had been channeled into the interview scenario to share his story abundantly, ranging from the physical structure of the street, the interaction routine in neighbors, to his childhood memory on tourist attractions.

The third barrier concerns B3. the diffusion of local expertise. Existing solutions largely involve dyadic communication between the local and the tourist, meaning that the diffusion of local expertise was confined to a small-scale audience. Also, the delivery of local knowledge is often unrecorded, leaving the replay and share of the story impossible. P10 commented that “a digital platform helps a lot for the collection and sharing of stories”.

In summary, although local expertise was highly anticipated by tourists, existing solutions have rarely delivered the resource of local expertise to a broad audience compared with the resource of audio guide expertise. Barriers for enabling local expertise were identified as the cost-effectiveness, the triggering of local storytelling, and the diffusion of local expertise.

### **4.3 Staged Authenticity: The Gap for Mediating Front and Backstage**

In Sect. 4.1 and 4.2, I introduced two key conceptualizations emerged from data analysis—local engagement and local expertise. I also examined barriers for seeking local engagement and for enabling local expertise under the umbrella term frontstage and backstage, respectively. These barriers formulated the gap for mediating the frontstage and backstage towards the authenticity of local tourist experience.

Certain tourism solutions confronted some specific barriers, leaving other barriers underexplored. Casual acquaintance and conversation with local residents, according to



P6, confronted the barrier of B2. storytelling triggering and B3. local expertise diffusion, leaving some crucial aspects like F1. social exclusion and B1. cost-effectiveness unexplored. Existing audio guide applications in tourist attractions, according to P10, dealt with barriers like F1. social exclusion, F2. mental and physical cost, and B1. cost-effectiveness. However, B3. local expertise diffusion and F3. artificiality was less concerned. Customized tours, according to P9, dealt with the barrier of F1. social exclusion, B2. triggering storytelling, and B3. diffusing local expertise, but the B1. cost-effectiveness for tour guides is relatively low and the F2. mental and physical cost for tourists is relatively high.

#### 4.4 Comparing Storytelling Practices Between Local Residents and Tour Guides

In this section, a comparison between storytelling practices contributed by residents and tour guides is formulated. The original Storytelling Design Framework [22] dedicated to the specific narrator of older adults deviates from our purpose to understand and compare various narrators. Hence, the current framework further incorporated the division of Narrator to analyze storytelling factors in more detail. The building blocks of the framework are illustrated in Table 2.

**Table 2.** A comparative analysis between storytelling practices contributed by local residents and tour guides

| Narrator  | Local residents   | Tour guides  |
|-----------|---|--|
| Audience  | Family members; neighbors; remote friends   | Tourist  |
| Content   | Historical events of the local place; personal experiences; political and social interpretations; family routines | Historical events of the local place; tourist instructions; consumption inducement       |
| Process   | Initiate by causal conversations or prompts; develop casually; end up casually                                    | Tourist plan introduction; guide instructions; tourist attraction introduction; epilogue |
| Context   | Daily routine; meeting with family and friends  | Planned trip; package tour; customized tour  |
| Medium    | Face-to-face conversation   | Face to face conversation; digital applications  |
| Trigger   | Nostalgic narratives  | Reward; professional accomplishment  |
| Intention | Maintaining human relationships; conveying lessons or messages; causal sharing                                    | Job duty; the joy of sharing   |

## 5 A Storytelling Design Framework for the Authenticity of Local Tourist Experience

In Sect. 4, I identified the gap and barriers toward achieving Staged Authenticity in tourism contexts. The actualization of Staged Authenticity, in our specific context, depends on resolving the barriers for seeking local engagement and enabling local expertise. To bridge this gap, I formulated the storytelling design framework for the authenticity of local tourist experience (Fig. 2). The core idea is to adopt digital storytelling of local expertise as a virtual thread to link resident and tourist, labeled as “Meet the Local through Storytelling”. The framework is deduced from the gap and barriers summarized above and built on the in-depth comparison between local storytelling and tour guide storytelling. The building blocks of the framework and the rationales for deriving them are illustrated as follows.

The framework consists of four essential modules: Narrator, Audience, Digital Storytelling, and Reward Mechanism.

- Narrator points to local residents equipped with local expertise and have the interest to share their personal experiences.
- Audience points to tourists with an interest in local engagement, which is represented as interactions with local people, objects, events, and environments.
- Digital Storytelling combines the human behavior of telling stories with a variety of digital multimedia, such as images, audio, and video. It is comprised of three key elements: Trigger, Mediator, and Interface. Trigger refers to the digital prompts for local residents to reflect and create their personal stories about local living. Mediator points to a tangible or digital platform for local residents to upload, adjust, and share their uploaded stories. An interface is also required for tourists to select and play stories uploaded by local residents.
- The role of the Reward Mechanism is to deliver the rewards provided by the audience to local residents who uploaded their stories. The rewards are in the form of money or virtual currency. As I pinpoint storytelling, specifying this module is beyond the scope of this study

I elaborate rationales on how the framework confront the identified barriers to achieve local experience.

- Pertaining to F1. social exclusion, the framework virtually connects local residents and tourists in a non-invasive manner, relieving tourists’ embarrassment of being excluded by local environment.
- Pertaining to F2. mental and physical cost, our digital solution can be integrated into convenient devices like mobile phones, making the access of local engagement anytime, anywhere.
- Pertaining to F3. artificiality, the real, personal stories delivered through human voice contrast to the universal, machine tone delivered by existing audio guides.
- Pertaining to B1. cost-effectiveness, a local resident can deliver his story to a much broader audience digitally, relieving the physical effort to tell stories repeatedly.

- Pertaining to B2. storytelling triggering, digital prompts are suggested for local residents to reflect and create their stories, eliminating the embarrassment and worries for the invitation of the talk on-site.
- Pertaining to B3. local expertise diffusion, the proposed framework provides a digital solution to create, store, disseminate, and reward the uploaded stories, stepping towards a closed loop for local expertise diffusion.

## 6 A Storytelling-Based Audio Guide Application

An audio guide application interface was prototyped to demonstrate one potential use of the framework (Fig. 3). Residents can record and upload their own interpretations of the historical site through an intuitive, effortless interactive process. Travelers can select and play stories uploaded by residents. Narrating diversified local stories in residents' voice is suggested to enhance tourists' perception of local experience. The on-demand service offers payment for the resident once their story is played, and a local tourist experience can be better enhanced. There are three major use scenarios of the audio guide application (Fig. 4).

**Upload and Download.** Residents upload their own stories about local landmarks on the app. Tourists download the app and reserve a local tour.

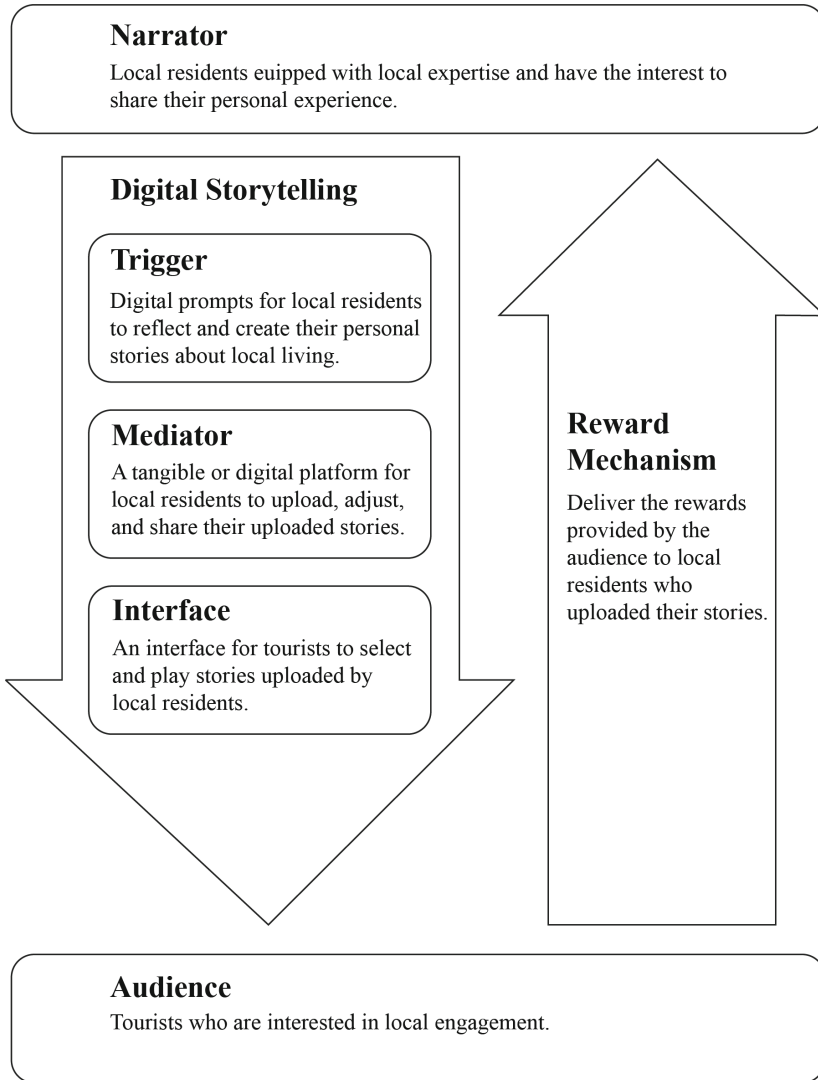
**Storytelling.** When viewing landmarks, tourists can listen to the stories uploaded by locals through the application. In this way, landmarks can be deeply experienced and the interaction between the local and the tourist can be better enhanced non-invasively. Tourists can discard a specific narrative at any moment and jump to another one they prefer to explore content non-linearly.

**Recall Anytime, Anywhere.** After traveling, the app automatically generates video clips according to the pictures taken and the stories the tourist listened to.

## 7 Discussion

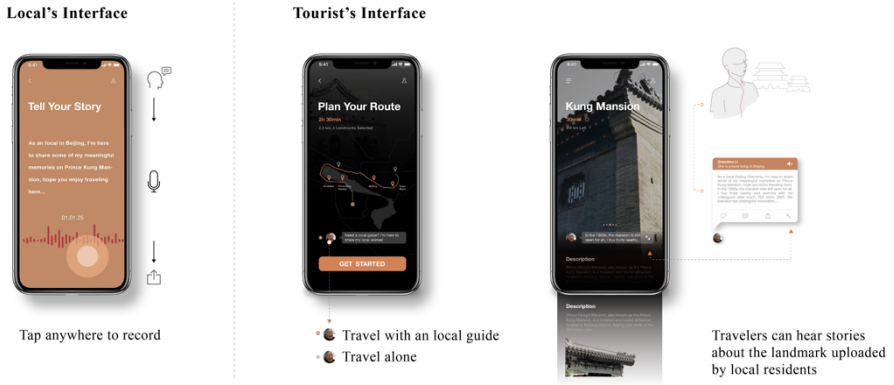
This study presented barriers for enhancing tourist's perception of locality and formalized a comparative analysis of storytelling practices between residents and tour guides. The idea of adopting digital storytelling as a mediator between residents and tourists was formulated as a prescriptive design framework, following an audio guide application prototype to illustrate one potential use of the framework. In this section, I situate the findings in HCI research, tourism research, and design practices. I further suggest limitations of this study and avenues for future research.

This study contributes to the field of HCI research in several aspects. First, the formulated storytelling design framework for the authenticity of local experience provides foundation for developing products, applications, and services in culture-oriented tourism contexts. The formulated framework extends to the guidelines proposed by Burova et al. [10] for a storytelling application for touristic public spaces. As the present study focused on the specific context of cultural exploration, our findings add to the



**Fig. 2.** The storytelling design framework for the authenticity of local tourist experience.

proposed guideline of “facilitating cultural exploration” [10] through specifying a storytelling design framework to facilitate cultural exploration. Second, the identified barriers for achieving the authenticity of local experience provided an enriched and contextualized understanding of local culture-oriented tourism practices. This understanding provides empirical bases for HCI researchers to develop and refine existing solutions [9, 32] towards engaging tourists in a tourist destination and cultural heritage. Third, the in-depth comparison between storytelling practices presented by local residents and tour guides adds to existing discussions on digital storytelling solutions in the tourism sector.



**Fig. 3.** Main interfaces of the audio guide application



**Fig. 4.** Main use scenarios of the audio guide application

By suggesting local residents as potential narrators, rather than tour guide professionals, new pathways for digital storytelling might be unfolded.

Pertaining to tourism studies, the reported narratives and reflections of the interviewees are consistent with Paulauskaite et al. [7] who found that interactions with local culture contributed to user’s perception of authentic experience while using Airbnb. The identified gap for achieving the authenticity of local experience in real context extends current understandings of authenticity in tourism practices.

For design practitioners, the audio guide application has practical value for commercialization in tourist attractions. The function of delivering local residents’ stories to tourists through digital platforms can also be integrated into existing tourism solutions, such as Airbnb, to enhance tourists’ perception of locality.

This study contends with several limitations. First, despite efforts to derive the framework with theoretical groundings and rationales, the evaluation of the framework has not been discussed. This is because the pivotal body of this paper concerns enriching understandings of local culture-oriented tourism to inform practitioners through proposing a design framework. Evaluation of the framework is out of the scope of the present study.

Besides, the perception of authenticity, central concept of this study, confronts controversial perspectives towards being effectively measured. Scholars discuss authenticity in tourism from multiple perspectives, ranging from objective authenticity, existential authenticity, to constructive authenticity [4, 14–16]. The blurry definition made the effective measurement of authenticity perception controversial. Second, this study was based on a specific historical site in China. It is suggested to be cautious in generalizing the findings to a much broader context as tourist practices and experiences are largely culture and context-dependent.

I suggest several avenues for future research. Pertaining to the field study, more diversified and representative cases can be incorporated for investigation. Pertaining to the proposed framework, future research may evaluate how digital storytelling contributes to the authenticity of local experience through field testing prototypes built on the framework. What's more, the triggering mechanism of storytelling should be elaborated. This is because our analysis found that local residents may be conservative in talking with others. Chu et al. [22] also indicated that older adults may have too little to talk about or too much to tell. Hence, it is crucial to develop and evaluate appropriate storytelling prompts to generate stories with suitable content and length.

## 8 Conclusion

In this paper, I presented a rapid ethnographic study to provide a contextualized understanding of local experience and storytelling practices in tourism. As a result, the gap towards achieving the authenticity of local tourist experience was identified, specified as barriers for seeking local engagement and for enabling local expertise. Six detailed barriers were identified as social exclusion; mental and physical cost; artificiality; cost-effectiveness; storytelling triggering; and local expertise diffusion. I also presented a comparison between local storytelling and audio guide storytelling. Based on the findings, the storytelling design framework for the authenticity of local tourist experience was formulated and illustrated by an audio guide application prototype. This study adds to a contextualized understanding of culture-oriented tourism practices. The formulated design framework provides the foundation for HCI researchers and practitioners to develop solutions to better engage tourists in tourist destination and cultural heritage.

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