# Experiences with the Co-Design and Evaluation of Locative Media Experiences with the National Trust

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## Abstract

In this paper we present our recent research work with the English Lake District National Trust. This work has involved the co-design of a Locative Media Experience for a rural valley in the Lake District. The co-design activity has sought to create an engaging visitor experience and one that fits with the key aims/values of the National Trust. The Locative Media Experience has received both domain expert evaluation and evaluation through public field trial over the Easter vacation period.

## Author Keywords

Locative Media; Nature; Lake District.

## ACM Classification Keywords

H.5.m. Information interfaces and presentation.

## Introduction

The Lake District National Park is located in Cumbria in the North of England and a significant portion of the land and more of the public bridleways are managed by the National Trust (NT) conservation charity. We have been working with the NT for 3 years in order to explore the potential of suitably designed Locative Media Experiences (LMEs) to enhance the visitor

Figure 1: The Langdale Valley.
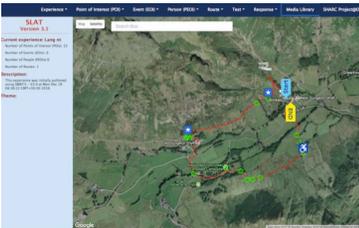


Figure 2: Screenshot illustrating the authoring of the Langdale LME using the web-based editing tool provided by the SHARC.



Figures 3: NT Ranger presenting at one of the PoIs during a contextual interview.

experience and meet the guiding principles of the NT. In particular, a guiding principle for the NT is that of conservation and encouraging visitors to the lakes to appreciate the importance of conserving the area for future generations.

Our early work [5] with the NT involved the design and field-trial evaluation of an Android app that provided an LME for visitors to the Bowderstone, a specific natural landmark in the Borrowdale valley of the Lake District. The positive results of the field trial led to the NT requesting the development of a further LME for a specific valley (called Langdale).

In the next section we present background and related work. This is followed by a section describing the timeline of our current research including meetings with stakeholders at the Lake District NT, the co-design of an LME for the Langdale valley and its (domain) expert evaluation and public field trial evaluation. Finally we present a brief discussion and plans for future work.

## Background and Related Work
In this section we introduce the term Locative Media before presenting a brief survey of the HCI literature involving studies of technology in nature.

### Locative Media
One of the earliest examples of a locative media project (dating from 2002 and actually pre-dating the locative media term) was the '34 North 118 West' project (http://34n118w.net/). The project coupled location sensing (GPS in this case) with mobile computing devices in order to support a 'locative narrative' in which users would be pushed audio narratives relating to the history of places they passed by in Los Angeles.

A thorough coverage of Locative Media systems, including the contemporary issues associated with smartphone apps is presented in [6]

### Technology in Nature within HCI/Design Literature
A review of the HCI/Design literature reveals surprisingly few examples of research that has studied the role of technology in nature. The relatively few systems that do report on technology interaction 'outdoors' typically focus on the learning domain, e.g. the Ambient wood project [12], the GreenHat Mobile Augmented Reality System (supporting students in learning about biodiversity [10] and the MobileGIS system which forms one of the case studies described in [1]. Examples of systems where learning is not the goal typically focus on wayfinding, e.g. the Hobbit 'asocial hiking app' [11].

## Timeline of Current Research
Following the field trial of the Bowderstone LME, the NT's visitor engagement manager introduced (via e-mail) the lead author to another member of the NT who held the position of programme manager for the NT's proposal to make the Lake District a World Heritage Site. An initial meeting between the programme manager and the lead author took place on 24th November, 2016, at the NT's offices in the Lake District village of Grasmere. A subsequent meeting was arranged and took place in December 2016 and provided the opportunity for the programme manager to experience for himself a developed LME. Following this, the programme manager suggested a visit to the Langdale Valley in order to undertake the walk that he wanted an accompanying LME to be developed for.

### Introduction to the Langdale Valley

Figure 4: Use of laminated photo handouts by the NT Ranger.



Figure 5: Domain expert evaluation of the developed LME by NT Ranger.

The lead author and research undertook the walk in Langdale with the NT programme manager on 20th December 2016 (see figure 1). The route followed was a distance of approximately 2km and was captured using the SMAT tool [3] developed to support the mobile 'in-situ' authoring of LMEs and a key component of the SHARC software framework [4]. Figure 2 shows the captured route with highlighted POIs imported into the framework's web-based SLAT editing tool enables further editing of the draft LME to be carried out.

*Contextual interview with NT Ranger and GUIDE*
In order to obtain additional potential content for the LME the NT programme manager arranged a contextual interview with a Ranger for the NT who would take us on his guideed walk that followed the intended route for the LME. The guided walk lasted approximately 2 hours and during the walk the ranger would stop at the POIs en-route in order order to both verbally present and use photo handouts (see figures 3 and 4).

*Domain expert evaluation of LME*
In April 2017 we carried out an expert evaluation of the developed LME involving members of the NT who worked in the area. The experts (see Figure 5) provided useful feedback which was used to refine the LME's content prior to a subsequent public field trial.

*Public Field Trial in Langdale of the developed LME*
The public field trial tool place between 11th and 17th April 2017. It was important to hold the trials over this Easter period in order to gain access to those visiting the area during their Easter vacation. The LME's content and the procedure and results of the trial will be presented more fully during the workshop but, in brief, the content comprised 124 media items (53 text items, 56 photos, 1 audio clip and 14 videos) across 16 PoIs. The field trial itself involved eight groups with an average size of 3. We certainly hoped for more groups to be involved but despite offering a prize of 40 GBP (amazon voucher) for taking part (awarded to a randomly selected participant group) many of those approached explained that they were too busy with other plans. Before commencing the trial, participant groups were presented with a tablet running the LME and given a brief demonstration of its use. After taking part in the trial participant groups were required to complete a Santa Barbara Sense Of Direction [9], NASA TLX [7], SUS [2] and AttrakDiff2 [8] questionnaires. A semi-structured interview was also conducted with each participant group. The walk time across participant groups ranged from 1hr 9 mins to 2 hrs 43 mins. The overall feedback from the groups was positive with an average SUS score of 80.9. In terms of qualitative feedback, positive comments included statements such as ""*We've done this walk numerous times but this time we actually noticed our surroundings*" (group 3).

## Discussion and Future Work

As mentioned earlier, we were disappointed with the number of participant groups that took part in the public field trial. We certainly now recognize the difficulty of recruiting significant numbers of users and a key challenge for this kind of research where intended participants are likely to be on a family holiday and with plans for their holiday already formed.

Our work with the NT has highlighted the potential of locative media in facilitating an engaging visitor experience. Plans for future work include producing a further set of locative media experiences for additional valleys in the Lake District and further field trials.

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