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Panel: Applied E-Lit as Participatory Research-Creation for Social Change

THE BYDERHAND PIONEER PROJECT: ACCESSIBLE LOCATIVE LITERATURE IN A MULTISENSORY GARDEN AT A SCHOOL FOR THE VISUALLY IMPAIRED

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LINKS TO VIDEO:

YouTube: https://youtu.be/J-XpA9IaNRc

Google Drive:
https://drive.google.com/file/d/1p0JJQIx5G4LsIpvH6ChecizHUUIoO-VB/view?usp=sharing

1. Introduction

Byderhand (at hand) is an on-going interdisciplinary research project on locative literature by the Department of Creative Writing, North-West University, South Africa. Multimodal and multilingual story and poetry installations have already been installed in several places

When the team was approached by a school for the visually impaired about the possibility of a Byderhand installation as part of a planned multi-sensory garden on their school grounds, we were intrigued by the idea and the new challenges it posed.

A multisensory environment is a dedicated space created for educational purposes, and explicitly makes provision for students with special education needs – to provide a stimulating environment in a safe area (Hussein 2010).

This request paved the way for a project investigating the possibilities of site specific digital literature for persons with visual impairment (blindness and low vision), and our acceptance of the invitation lead to multi-layered collaboration and a multitude of discoveries.

Our discussion will focus on the participatory dynamics in the development of the multisensory garden, the locative literature, and the interface; and how the installations contribute to an enriched learning environment and a deepened experience of place and literature.

We start with a video showing some users' experience of the installation and the garden.

2. Script of the video: Byderhand Pioneer Project

In 2017, the Pioneer School for the Visually Impaired in Worcester in the Western Cape, South Africa, started a multi-sensory garden project on their school grounds. The Byderhand team of the Subject Group Creative Writing at the North-West University was approached to join this collaboration project.

The Byderhand Pioneer Project is an interactive literature project that uses QR codes to make site-specific texts available in the garden.

The Byderhand information board may be found at the entrance to the garden. This board tells users how to scan the QR codes. The instructions read as follows: *Open the QR scan app on your phone. Put your phone's camera on the QR code. Slowly pull your phone away until the QR code is scanned.*

The QR code has a braille frame around it, so that blind learners can easily feel the QR code.

After the QR code is scanned, the link takes the user to the appropriate interface. The interface design is visually simple so that users with low vision can work with it. The interface is furthermore programmed for basic screen reader software so that it can also be accessible to blind users.

When the user accesses the literature, the text's contrast and size can be adjusted.

Each text has a recorded soundtrack which is read by the author or by a voice artist.

For the soundtrack, there is also a simple control bar: namely to play, replay and stop the sound.

There are ten garden verses in the garden. Each text is site-specific and somehow related to the garden.

The garden verses were written by well-known poets. The verses are complemented with music arrangements, typographic animations, as well as translations in Setswana, IsiXhosa, English, German and Portuguese. A further extension for accessibility and multilingualism is the addition of sign language.

Learners can experience first-hand what the plants feel, smell and taste like.

Another feature of the garden is the walking surfaces that are made of a variety of textures that bring about different sensory experiences. The textures were chosen to go with some of the children's verses.

The project is furthermore used for teaching purposes to expose learners to new experiences and possibilities of literature. The learners also get the opportunity to sharpen their technological skills.

Apart from the literature and the interesting plants in the garden, there is also a music installation that is very popular among the learners.

Another extension of the Byderhand Pioneer Project is the Pioneer Stories. These stories were written or told by learners and former learners, and are about their adventures and experiences at the school and in the town and environment, among others. Twenty-seven stories were posted on the school grounds at sites that are relevant to the stories.

These stories are also available to the public in Blindiana Barista, a coffee shop at "Innovation for the Blind". Here, visitors can relax, enjoy a cup of coffee and read or listen to a story.

Blindiana is also the home of Joseph Matheatau's first blind Barista. Joseph's story forms part of the Pioneer story collection as well.

The instructions of the project are available in Braille and in large print, and it works the same as those on the school grounds and the multisensory garden.

With this project, everyone can experience place and literature in a new way …

3. Participatory dynamics in the development of the multi-sensory garden, the locative literature and the accessible interface

The project was consciously grounded in a participatory worldview and research paradigm, which guided the execution of the project practice and related research. Important points of departure included the concept of project-driven research as basic units in digital humanities (Burdick *et al.* 2012); the participatory paradigm and collaborative inquiry (Heron & Reason 1997); the empowering research paradigm as advocated by researchers in disability studies (Barnes 2003); the practice-based research approach, and participatory design. The principle of "nothing about us without us", which denotes that persons with disabilities must be integrally involved when projects or initiatives affect them directly (Rowland 2004), was accepted as the basis for the project. In the narrative on technology for the disabled, the project and approach would follow the idea of using everyday technology to ensure or improve accessibility, and to counter stigmatisation, as a human right (Mathiesen 2017; Perry 2015).

The planning and execution of the diverse aspects of the project involved a variety of collaborators and displayed a distinctive participatory dynamic.

The creation of the **multisensory garden** on the school grounds, as an overarching collaborative project, involved the expertise, skills and input of various role players – something which contributed to the organic development of the garden to a central purpose. The school was in charge of the development of the multisensory garden. Various partnerships were formed for the practical implementation of the garden project; occupational and speech therapists, orientation and mobility specialists and music teachers at the school of the visually impaired contributed specialist knowledge; and learners from the school were involved throughout. Although the Byderhand team was not actively involved in the establishment of the garden, the content of the selected poems influenced the design in diverse ways.

The Byderhand team was responsible for the production of the **multimodal literature.** The production, which can be understood as contributory participation (Rettberg 2011), entailed several aspects and phases. The school was involved throughout, for example in the invitation of the visually impaired writers, and the initial selection and editing of the texts. Furthermore,

teachers assisted with the sound recordings, the development and evaluation of the interface design, and the implementation of the project.

Participants with visual impairment were not only involved as writers, but also helped with the production – for example with recording, sound editing and interface design.

The collaboration also reflected on the formal research aspects, such as participation in research discussions, and input into research articles.

In line with the participatory nature of the project, a co-design and user-centred (Abras et al. 2004) approach was applied to design a **multimodal and multilevel interface** through which the literature is disseminated. Visually impaired persons were integral to the development and the research of accessible design.

Collaboration in the form of co-design was greatly led by explorative discussions and experimentation. These discussions shed light on how visually impaired users interact with their surroundings and most importantly, technology. After collaborators identified usability issues regarding user interface design and accessibility, possible solutions were explored and tested. Thereafter, working prototypes, based on the input and feedback of collaborators, were designed and prepared for testing.

Within a user-centred approach, designs underwent a cyclic process of prototyping, testing and evaluating. During these phases visually impaired collaborators shared their experiences and thoughts on the usability of the designs. The gathered experiential information from participants informed the improving and refining processes which led to better design solutions.

Ultimately the main goal of the interface design was to make the project accessible for users with different visual abilities. As the project developed, it became clear that there would not be a "one size fits all" solution to satisfy all users' needs. Therefore the final designs would involve a combination of braille, enlarged text, QR codes and an accessible user interface that enable users with different levels of vision to navigate through the content of the project.

As seen in the project video, this multi-layered interface enables users with different visual abilities to experience and equally enjoy the literature published on the Byderhand platform. We did however realize that, since the project is based in Worcester, it meant that very few of the writers could actually have access to the project.

As an expansion of the project and it's accessibility, we recently undertook the production of a braille publication that makes it possible for visually impaired users to experience the project from the comfort of their homes. The publication, consisting mainly of braille and QR-codes, houses the entire project's collection of garden verses as well as the Pioneer stories. This publication meant a great deal to the writers whom we personally visited to hand them their own copies. The feedback gathered from this endeavour exceeded our expectations as many of writers noted that the publication enabled them to not only share their experiences with friends and family but also to revisit memories of the school and the town. Over all the writers were very proud to be part of the project and to having been able to share their story and experiences.

5. Contribution and conclusion

Considering the relatively small scale of the project, the project contributed to mental well-being, equity, and social change on various levels.

The multisensory garden and locative literature installation contributed to an enriched educational environment, especially with regard to the principles of the Expanded Core Curriculum (ECC), such as assistive technology, sensory efficiency, orientation and mobility, and recreational and leisure skills

Observation of the interaction in the garden and feedback on the project confirm that making site-specific digital literature in such a multi-sensory environment accessible to persons with visual impairment, can contribute to an enriched and deepened experience of place and literature. The content and themes of the poems and narratives may focus the reader's attention to features in the environment, suggest physical activities, stimulate the reader's imagination and creativity, and expand borders. Literary devices such as word play and rhyme, may encourage reader-participants to recite the poems, play with words and write their own poems.

The project contributed to giving voice to visually impaired writers and narrators. What stands out especially in the narratives is the construction of narrative identity, the key role which the community plays/played in the narrators' lives, and the collective and relational process of place making and place attachment.

The poems and stories also provide ample opportunities for identification and empathy. Through the experience of the locative narrative at a particular place, the emplaced reader-participant can become aware of the narrators' embodied and emplaced experiences, and can thus imagine the places, people and community for themselves, on the basis of perspective offered by the narrator. The experience can contribute to the reader-participant's awareness of the embodiment and perception of (other) persons with visual impairments, and can also lead to a greater awareness and intensification of their own sensory experience and bodily emplacement.

The Byderhand Pioneer Project draws attention to the importance of awareness of a spectrum of sensory experiences, and contributes to the visibility of stories, bodies, and communities as suggested by Jason Farman (2015). On the whole, the project can promote empathy and understanding in various ways.

The success of the project can be attributed to the collaboration and participation of a large variety of partners and individuals in diverse collaborative relationships.

Participation in the project, made us aware of the needs of people with vision impairment and the need for greater inclusivity and accessibility – and of the contribution that the creative disciplines and the field of e-literature can make in this regard.

But always with the underlining principle in mind: **NOTHING ABOUT US WITHOUT US.**

SOME EXAMPLES OF THE INTERFACE AND MULTIMODAL LITERATURE IN THE BYDERHAND PIONEER PROJECT:

Project website: www.byderhand.net

Die huis waar ek woon (The house where I live) – William Rowland
Poem: Afrikaans with translations in English and German.
Afrikaans version read by William Rowland.

Botaniesetuinsonnet (Sonnet: botanical garden) – Hans du Plessis
Poem: Afrikaans with translations in English, Portuguese, Setswana; musical arrangement
Afrikaans version read by Hans du Plessis.

Klippepad (Rock path) – Franci Greyling
Children's poem: Afrikaans with translations in English, Portuguese, South African Sign Language; typographic animation.

Die trappe (The steps) – Jacques Coetzee
Poem: Afrikaans with translations in English and German.
English version: translated and read by Jacques Coetzee.

Music is my life – Ying-Shan Tsjeng
Story: written and read by Ying-Shan Tseng; piano: Ying-Shan Tseng.
Production and editing: Gustaf Tempelhoff

The sound of coffee – Joseph Matheatau
Story narrated by Joseph Matheatau.
Production and editing: Gustaf Tempelhoff.

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