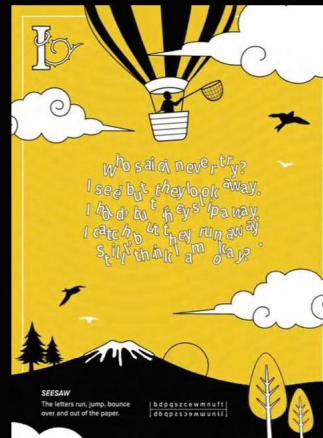
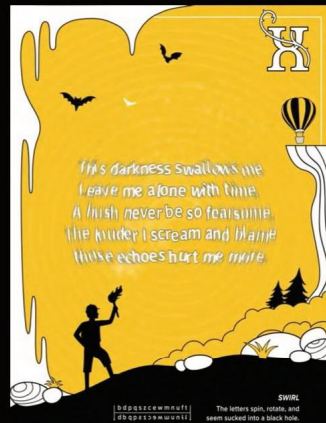
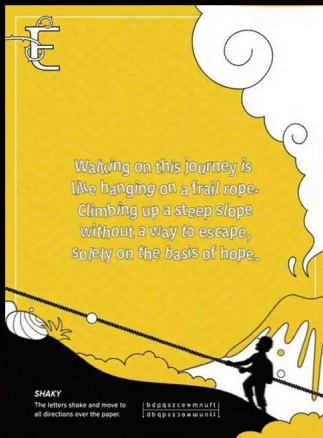
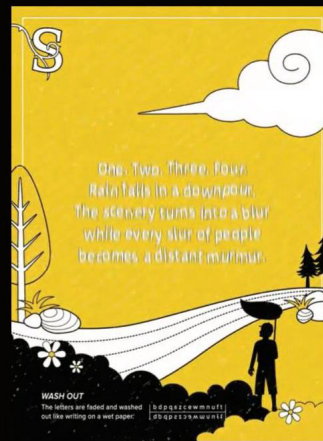
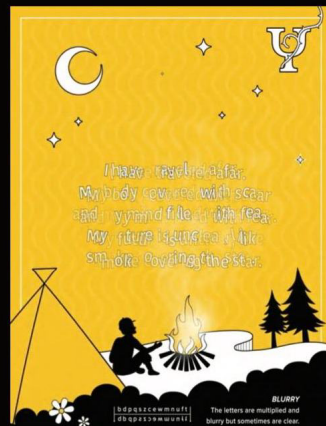
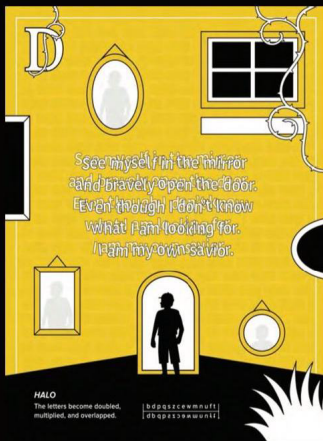


BOOX: An Augmented Simulation of Visual Dyslexia

BOOX

 BOOXDyslexia

This research project explored how **augmented reality (AR) simulations** can enhance public understanding and engagement with visual dyslexia. The symptoms are difficult to imagine or describe, often leading to misconceptions and negative labeling of individuals with dyslexia. This project began with a **participatory design method** (Martin & Hannington, 2012), where ten teenagers with dyslexia took part in two sessions involving drawing, writing, and speaking. Their contributions decided the concept, storytelling, and metaphors used to visualize reading difficulties and types of visual distortion in more subtle way. The **narrative** followed a silhouette character journeying through 7 locations, each representing 7 symptoms of visual distortion. The silhouette suggested that dyslexia can affect anyone without exception. Each page included poetic text, highlighting difficulties with spelling and rhyming. Color choices were based on the most challenging combination for dyslexics to perceive (Rello, 2012), reinforcing the message through visual discomfort. By utilizing visual storytelling and immersive simulation, the study involved 287 participants and measured noticeable improvements in **engagement, comprehension, and perception** scores. Findings revealed that multisensory and interactive experiences stimulated curiosity and created more meaningful learning in many ways.



AR Explanation



The following yellow pages contain augmented reality.



Experience the seven visual distortions which are faced by dyslexics everyday.

some books tell a story,
while others **change** a story.

it's difficult to explain dyslexia to someone who doesn't have it.
Here, I am showing you what they experience through BOOX.
Put yourself in their "box" then you will understand the challenges.

**box +
book =
boox**

I believe that DYSLEXIA can be considered as an invisible problem which can't be explained, perceived, or imagined completely by other people. If it can't be understood, asking for acceptance is impossible. Therefore... BOOX comes to offer an alternative to empathize dyslexics by developing a deeper comprehension through storytelling and also bringing a virtual experience of 'how dyslexic see the wor[ld]?' through AR.



BOOX: An Augmented Simulation of Visual Dyslexia

Fonita Theresia Yoliando, S.Ds., M.A., Prof. Dr. Khairul Azril bin Ismail

This research project explored how augmented reality (AR) simulations can enhance public understanding and engagement with visual dyslexia. Unlike other forms of dyslexia, visual dyslexia involves distinct visual-perceptual distortions—such as seeing words doubled, overlapped, irregular, moving, fading, or jumping off the page. These symptoms are difficult to imagine or describe, often leading to misconceptions and negative labeling of individuals with dyslexia. To address this, I developed an AR-based simulation in the form of a giant book titled BOOX: An Augmented Simulation of Visual Dyslexia, offering a hands-on experience of visual distortion. The project aimed to raise public awareness through an interdisciplinary approach—combining art, design, and technology—and assess AR’s impact on the effectiveness of simulation. Using a participatory design method, the project actively involved individuals with dyslexia. Results showed that immersive AR experiences significantly improved participants’ engagement, understanding, and empathy, highlighting the potential of AR as a powerful educational and advocacy tool.

Sustainable Development Goal(s) Relevancy

Goal 10: Reduced Inequalities

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- 2016. *Being You*. Directed by Alex Gomez Garcia. Produced by Roadtrip Nation.

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Short Biography

Fonita Theresia Yoliando is a Visual Communication Design lecturer and researcher at Universitas Multimedia Nusantara. Her thesis at UCSI University Malaysia, “Augmented Campaign in Simulating Dyslexic’s Visual Distortion”, and her other research projects reflect her dedication to inclusive design, particularly in supporting individuals with special needs through the integration of design, interactive media, and technology. Her notable artworks, BOOX Dyslexia and GENERAKSI Game, have been showcased in Indonesia, Malaysia, and Australia through the support of association and government. She also actively contributes to the creative industry through a wide range of design projects, as a graphic designer, UI/UX designer, and brand manager in both national and international companies. Her diverse professional experience—spanning design studios, retail, digital platforms, and more—has enriched her academic journey and continues to shape her as an educator and practitioner.

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2nd Short Biography

Prof. Dr. K. Azril Ismail is an academic leader, researcher, and professional artist dedicated to advancing Malaysia's cultural heritage. Since 2005, he has worked in both Malaysian and UK institutions, fostering contemporary art practices and collaborative research. Currently, he serves as Deputy Rector (Academic Affairs) at the National Academy of Arts, Culture, and Heritage (ASWARA). His most recent exhibition received great response from the society and government, such as Rong Rupa Rakta in Bali (2023) and VR Malaysia's Prison (2022). His works are not limited to visual arts, but cross-over as well into various forms, such as Semangat Redang (2022) with Aida Redza, Ssega Angin (2022) at the Venice Biennale's Pera + Flora + Fauna, and ALANGKAH (2021) at ArtScience by ASM & Maybank Foundation. For over two decades, Prof. Azril has explored the intersection of art, academia, and governance, resulting in a deeply intertwined, practice-led life.

Title

BOOX: An Augmented Simulation of Visual Dyslexia

Production Process Years

2019-2020

Publication Year

2019

Publication Details

Indonesia's Exhibition

Location : Gramedia World, BSD, Tangerang, Indonesia

Date : 21 September – 6 October 2019

Supported by : Universitas Multimedia Nusantara (UMN), Dyslexia Center Indonesia (DCI), Pantara Special School

Malaysia's Exhibition

Location : Idrissi International School, KL, Malaysia

Date : 2 November 2019

Supported by : UCSI University , Persatuan Dyslexia Malaysia (PDM)

Publication Media

Published Book

Recognition

The article about BOOX was published in the UCSI Magazine, GAINS Education news, and several local media.

Grants

BOOX received an industry grant from GAINS Education Malaysia (PT Eduventor Academy Sdn. Bhd.) totaling RM 35,000 for the period of 2021–2023. This collaborative project brought together design students, lecturers, and developers to create an educational tool for children with dyslexia, focusing on reading, writing, and listening skills through an augmented reality (AR) application. The outcome is a board game integrated with a mobile AR app, combining storytelling, character design, and a multisensory approach to enhance learning engagement and experience. The project's outputs have been registered for copyright and are ready for publication and distribution.

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- Pantara Special School