DISLEKSIABELAJAR: MOBILE APP FOR DYSLEXIC CHILDREN TO LEARN THE MALAY LANGUAGE

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Abstract

- Dyslexia is a specific learning which affects the **reading**, **writing**, **speaking** and **listening**.
- It is **neurologically** based and often **hereditary**.
- They need practices which use the **hands, eyes, ears** and **voices**.
- **Mobile learning** (M-Learning) offers **multi-sensory channels**.
- Dyslexic children face **problems in carrying out instructions, developing links between words, sounds and meaning, arranging the sequence and organizing workflow.**
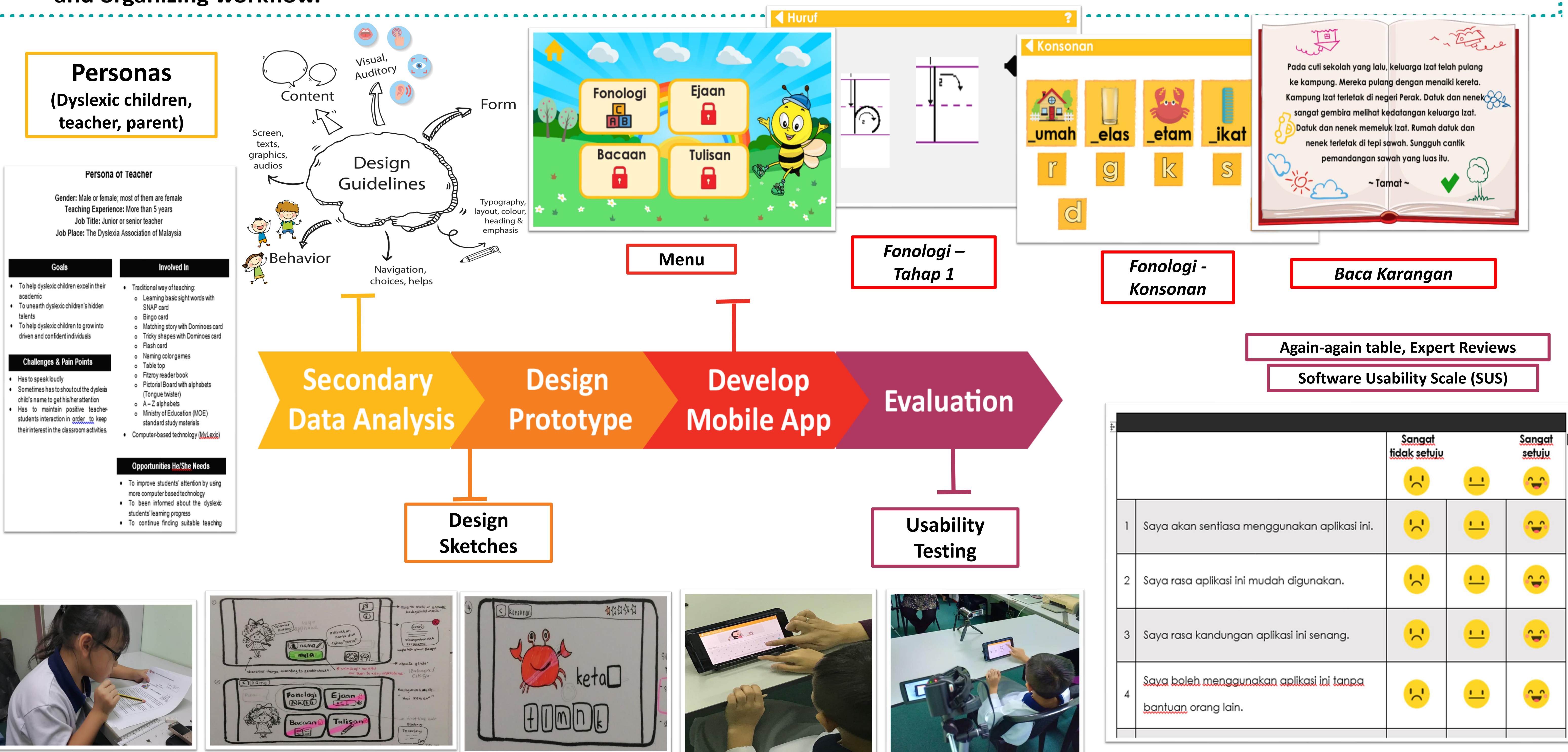
1/10 people is dyslexic

More than 700 million children & adults worldwide **at risk** of life-long illiteracy & social exclusion.

(Source taken from Dyslexia International,2004)

- **Visual, auditory** and **kinesthetic** learning styles are found to be suitable for dyslexic children.
- Students in **rural** and **remote** regions have **limited access to educational resources.**
- **Existing M-learning applications** for dyslexic children are designed to learn **English or Mathematics**.
- **Malaysian working mothers** found it **difficult in giving more attention** to their dyslexic children.

Personas
(Dyslexic children, teacher, parent)

Persona of Teacher

Gender: Male or female; most of them are female
Teaching Experience: More than 5 years
Job Title: Junior or senior teacher
Job Place: The Dyslexia Association of Malaysia

Goals
- To help dyslexic children excel in their academic
- To unearth dyslexic children's hidden talents
- To help dyslexic children to grow into driven and confident individuals

Involved in
- Traditional way of teaching:
  o Learning basic sight words with SNAP card
  o Bingo card
  o Matching story with Dominoes card
  o Tricky shapes with Dominoes card
  o Flash card
  o Naming color games
  o Table top
  o Fitzroy reader book
  o Pictorial Board with alphabets (Tongue twister)
  o A – Z alphabets
  o Ministry of Education (MOE) standard study materials
- Computer-based technology (MuLexia)

Challenges & Pain Points
- Has to speak loudly
- Sometimes has to shout due the dyslexia child's name to get his/her attention
- Has to maintain positive teacher-students interaction in order to keep their interest in the classroom activities.

Opportunities He/She Needs
- To improve students' attention by using more computer based technology
- To been informed about the dyslexic students' learning progress
- To continue finding suitable teaching

Design Guidelines — Content; Screen, texts, graphics, audios; Behavior; Navigation, choices, helps; Visual, Auditory; Form; Typography, layout, colour, heading & emphasis

Menu

Fonologi – Tahap 1

Fonologi - Konsonan

Baca Karangan

Process flow:
Secondary Data Analysis → **Design Prototype** → **Develop Mobile App** → **Evaluation**

Design Sketches

Usability Testing

Again-again table, Expert Reviews

Software Usability Scale (SUS)

		Sangat tidak setuju		Sangat setuju
1	Saya akan sentiasa menggunakan aplikasi ini.	☹	😐	😊
2	Saya rasa aplikasi ini mudah digunakan.	☹	😐	😊
3	Saya rasa kandungan aplikasi ini senang.	☹	😐	😊
4	Saya boleh menggunakan aplikasi ini tanpa bantuan orang lain.	☹	😐	😊

Objectives
- To develop a **mobile app** for dyslexic children at primary school based on dyslexia **design guidelines** to learn the **Malay language** (phonology, spelling, reading and writing).
- To **evaluate the usability** of the **mobile app**. Feedback from participants will be used to improve the mobile app.

Usefulness
- Supports dyslexic children to learn the **Malay language** using **technologies.**
- **Maximizes** the use of multisensory learning channel.
- **Engages dyslexic children's attention** and **participation.**

Value Added
- **Dyslexia friendly** and **interactive user interface design**.
- **LINUS**, Ministry of Education **content compliance & Expert Validation**
- **Integration** of various **multimodal** (audio, text, image etc.)
- **Increasing** level of **accessibility**.

Recognition And Acknowledgement
- **Conference paper** in **SCDM2017, Springer** & journal paper in **IJET2018, Scopus Indexed**
- **Gold Medalist,** Putra InnoCreative Carnival in Teaching & Learning (PICTL), 2018
- **Silver Medalist,** IIDEL in the Int. Uni. Carnival on E-Learning 2018 (IUCEL 2018)
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Potential Market
Special Needs Schools
Teachers
Parents

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