Development of a Chatbot Application as a Linguistic Learning Media for Children with Autism Spectrum Disorder

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Abstract

ASD is a neurological and developmental disorder that begins in early childhood and lasts throughout life affecting communication, social interactions and learning. This also has an impact on the number of vocabulary children have in speaking and language skills. Most children with ASD are familiar with operating devices. The gadget is one of the learning media. According to various previous studies, chat media on devices can be used as a medium for language learning. There is a potency I developing a chat media in devices as an effort to provide language learning facilities for children with Autism Spectrum Disorders using the SDLC waterfall method. Starting with requirement gathering and analysis, system development, system implementation and coding, ended with testing. The conclusion that can be drawn from the requirement gathering and analysis is the need that chatbots are able to provide image-mediated communication, provide acceptance and motivation for children, and are based on a strong theoretical basis because in the future it will be applied to children with ASD. In developing this application, this application is functioning properly according to requirement gathering and analysis.

Research Background

- The very rapid development of a child in the first 5 years of life is called the golden age. This development occurs rapidly in cognitive, linguistic, social, emotional, and motor skills (Childhood Development and Early Learning, 2010).
- Autism Spectrum Disorder or ASD is a neurological and developmental disorder that begins in early childhood and lasts throughout human life. ASD affects how a person acts and interacts with others, communicates, and learns (U.S. National Library of Medicine, 2016).
- Indonesia has 2.4 million autistic citizens with an addition of 500 new cases / year (Kemen PPPA, 2018).
- Children with ASD do not only experience deficiencies in social interaction, communication, and learning, children with ASD also experience disruptive and unruly behaviors (Siti Chodidjah, 2018).
- There is a huge population of ASD who has access to gadgets and often operate it. (Mazurek, Micah O., et al. 2011)

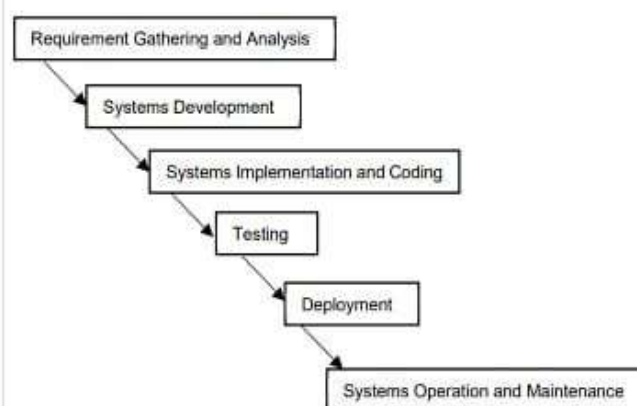## Objectives & Research Question

The objectives in this study are :
- Apply specialized chatbot based application to help special education teacher as well as parents to give a chat mediated linguistic education for children with ASD,
- Identify key features of linguistic education relevant to children with ASD applicable as a form of a chatbot-based application

The research question in this study is how to develop a chatbot application as a linguistic learning media for children with Autism Spectrum Disorder?

Methodology

The method used in this study is waterfall model SDLC as shown in the figure below

Result

These are the result of the requirement gathering and analysis :
- The chatbot should be able to provide image mediated communication.
- The chatbot need to have strong theoretical base so that it could help therapist to treat autism symptoms
- The chatbot need to be able to give acceptance and motivation
- The chatbot does not need to have specific phrase or words

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