

# Kinekid for disabled children

Team 3

21300040 공용현 / 21300507 이기훈 / 21400359 백윤정 / 21600026 구예본

## Background / Objective

### Background

Developmental disorders are diseases caused by failure to follow normal development process or by discontinuation of certain functions. The number of children with developmental disabilities continues to rise from 2013 to 2017 \*training programs for children with developmental disabilities currently remain in utilizing 1-2 dimensions of data and have spatial limitations that require children to visit to relevant centers to receive training programs. developmental disabilities can't take sufficient training programs at the right time (5-11 years old). and existing program is 'lack of fun'. it was not user-oriented

### Objective

We are planning to develop training program for disabled children by using Kinect that can provide motion-recognition-based content. children can improve their development at home through interesting training programs without problem of accessibility to center. Through storytelling, it can improve their self-efficiency and immerse themselves in an interesting way.

\*\*\*Sung-In Kim et. al. (2014). 'Development of a kinect based serious game for improving cognitive development in children with Autism Spectrum Disorder' The HCI Society of Korea, 21-24.

### Three Lessons for Disabled Children



### Limitations of Learning Programs fo Disabled Children

*"existing programs has failed into getting continuous interest because it doesn't consider kid's needs"*



- Desabled hildren tteacher, Specialist interview

## General Process (Based on the process defined at the beginning of the semester)

### Customer Definition & Issue

#### Customer Definition

The 5-6 year-old children with no proper education because of accessibility and low quality of existing program

#### Customer Issue

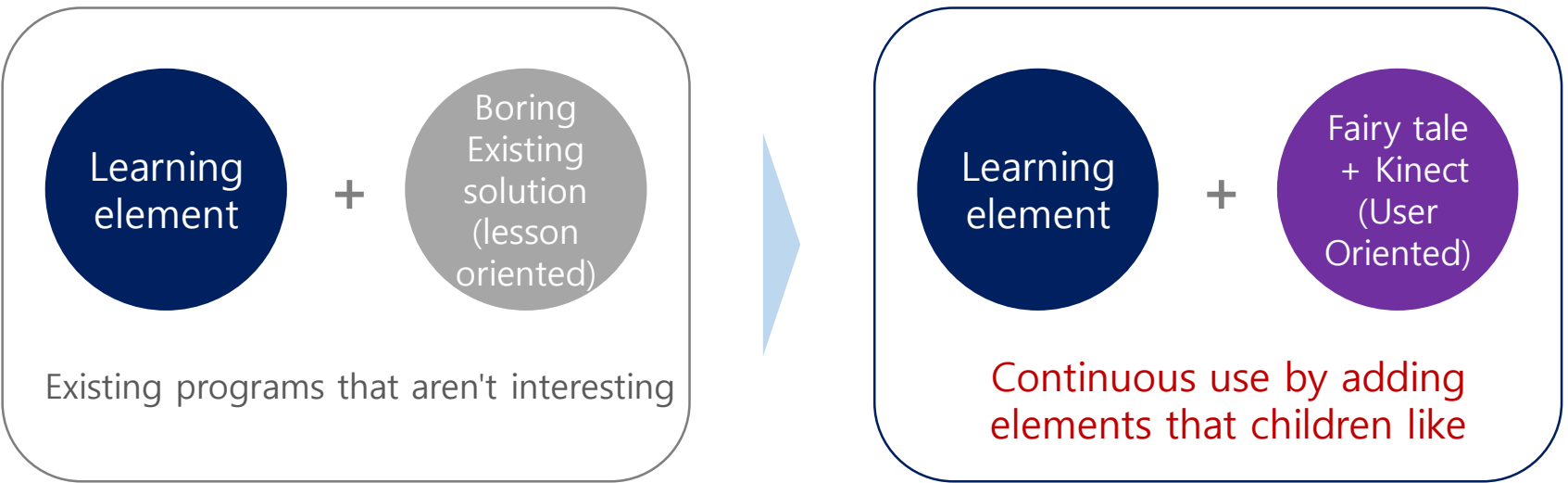
1. One-dimensional existing learning programs,
2. Low accessibility to learning programs

#### Goal

1. Providing training programs that are also available at home
2. Develop programs that are more user-friendly

### Concept Ideation

#### Our concept direction



#### Story selection

Among many fairytales, we chose '콩쥐 팥쥐' because its original content of a solving multiple missions is suitable for the game. 콩쥐 solve many missions and develop social, cognitive, and athletic abilities by game.

#### Production process



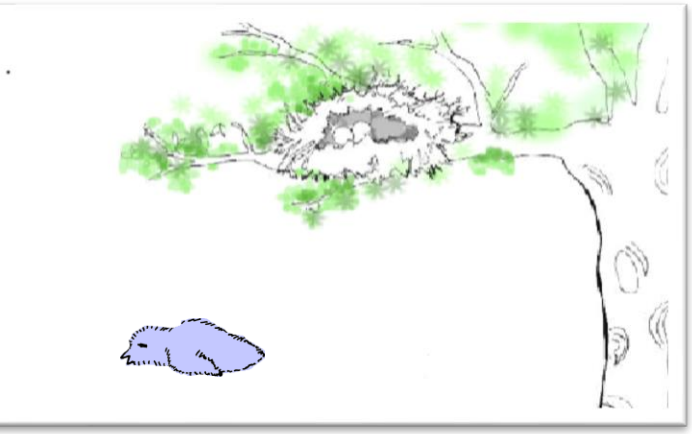
Coding using scratchx , linked to Kinect motion recognition device.  
Draw all objects and pictures and insert recorded sound.  
Reflect the feedback received when we made paper prototype



#### intro

Choose a fairy tale among '아기 장수 우투리', '콩쥐팥쥐', '백구의 모험' etc

Each fairy tale has various story and stage.



#### Cognitive skill

Find and fit shape, blind area inference, one-step drawing etc, cognitive skill  
It helps disabled children improve their cognitive skills and brains.  
In this example, 콩쥐 should find and insert suitable picture among stuffs

#### Exercise

standing on one foot, balancing, stretching etc , rehabilltation training.  
This stage enables childs to exercise indoors and make boring training fun  
In this example, 콩쥐 has to pump feet to fill the leaking jar

#### sociality

Learn how to interact with others in various situations by storytelling.  
to help a person; to refuse a request; to praise correctly; to ask etc.  
In this example, 콩쥐 choose whether to help a mother bird's ask or not.

### User feedback

Since children with developmental disabilities cannot provide adequate feedback, we have received feedback from teacher and student who have experience with Disable children

#### Strong point

- It is more active and requires a big movement than conventional education. children with developmental disabilities, delicate activities are boring and difficult.
- Being the main character in the story and proper compensation are good motivations. Walking alone gives themselves accomplishment.
- Compare to general children, they are self-centered so teach appropriate responses. in this reason, sociality part is helpful.

#### Weaknesses

- Setting target in detail. there are Various type of disabled child and have a different degree of disability
- In some case they can't move without help. Strenuous activity is exhausting
- hope various stories be added.

### Future schedule

Add various missions for each stage and increase their completeness. add other fairy tale contents such as '아기장수 우투리'  
Set the level to each mission from easy to hard, so that children can choose discipline level that suitable for them  
Get concrete user feedback from disabled children and develop