

COMP3423

Human Computer Interaction

Assignment 1 - Tablet User Interface Design for
Multiplication Table Learning App

Main theme: Multiplication Game with Animal

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1. Objective of Project

This project aims to attract children to learn multiplication by playing games. It provides a comfortable learning platform to children and enhances their memories on multiplication by playing games. The setting of game has been set as a forest, children can **substitute into a character** and think that they are in forest. They need to practice their multiplication skills and get fruit coin as their food.

2. Explanation on game design

a. Home Screen

After pressing start screen, a Homepage is shown on the screen.



There are four large buttons representing each of the screen:

	Left	Right
Up	“X” represents “Multiplication Screen”	“To - do list” represents “Progress Tracking Screen”
Down	“Game Console” represents “Practise Screen”	“Gear” represents “Setting Screen”

By using **icons**, children can easily understand what button represents without **recalling their memories** from their mental model and easy to **build up their short – term memories** with icons.

b. Multiplication Screen

On the “Multiplication Screen”, children can learn multiple with the button below. Children can choose what multiple they want to study for (e.g. Press “1”, the multiple of 1 are shown on the table.) This **provides a medium** for learning multiplication and **based on what they have studied on school**.



Also, children could have a practice with the selected multiple when they press the “Play” button on right – up corner. It can provide a medium for children to build up their **long – term memories** on multiplication. Besides, there are **formula** below question for **giving a hint** to indicate answer to kid. This helps them to calculate right answer and **remember** formula of each multiple.

Flow of multiplication Screen:

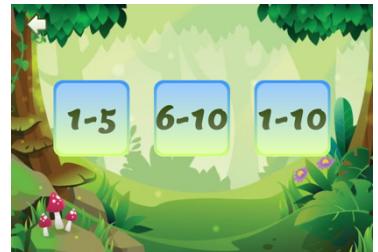


(If they get wrong answer, the button will be in “**RED**” to inform wrong answer)

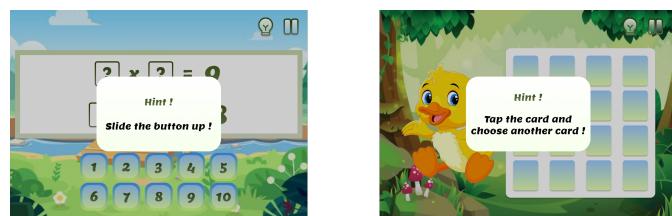
c. Practice Screen

To attract children attention, some mini game is created for practicing skill of multiplication. There are three buttons for selecting level of difficult:

- “1 - 5”, “6 - 10” represents “**Easy**” mode
- “1 - 10” represents “**Hard**” mode



The mini game would randomly be distributed by server system. It is going to provide some information of some mini game:



(Hint will be provided for some difficult mini game)

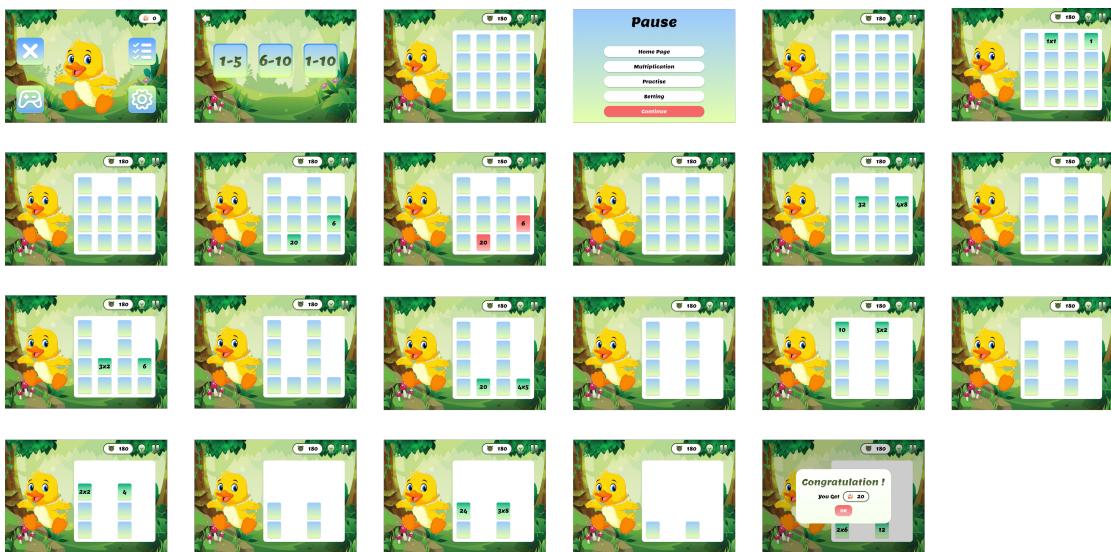
A. Flashcard

From flashcard, children can press the card and find another card to match up the correct formula of multiplication. It can **recall their memories** on the multiplication formula by seeing the content of card. Besides, the **interactive element** (e.g., card) could encourage them to find the possible answer, they could be **active** to learn by themselves which can train their **independency**. Also, it provides a medium to train up their **short - term memories** when they are taping on the card and find another card to match up the formula.



Flow of flashcard (from left to right):

- Pressing “Game console” button and press “1 – 10” button to start game
- Press “Pause” and “Continue” to continue game
- Tap screen to choose two card and mouse should leave on selected row
(As remainder: left to right to choose card)



(If they get wrong answer, the button will be in “**RED**” to inform wrong answer)



(**Hint** will be provided by pressing “**light bulb**” button)

B. Quiz

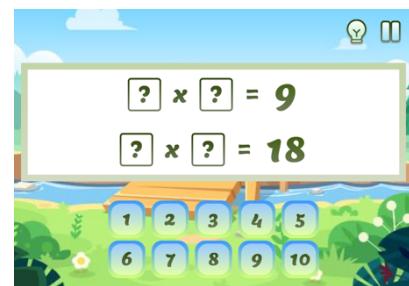


For quiz, children could see question on the block and find the corrected answer by pressing the button. The **photos** below question block are a hint for **remembering formula** (e.g., $3 \times 3 = 9$, so there are 9 strawberries). It can **recall their memories** on answering question of quiz and

allow them to **review** as well as **practice** the skill of multiplication.

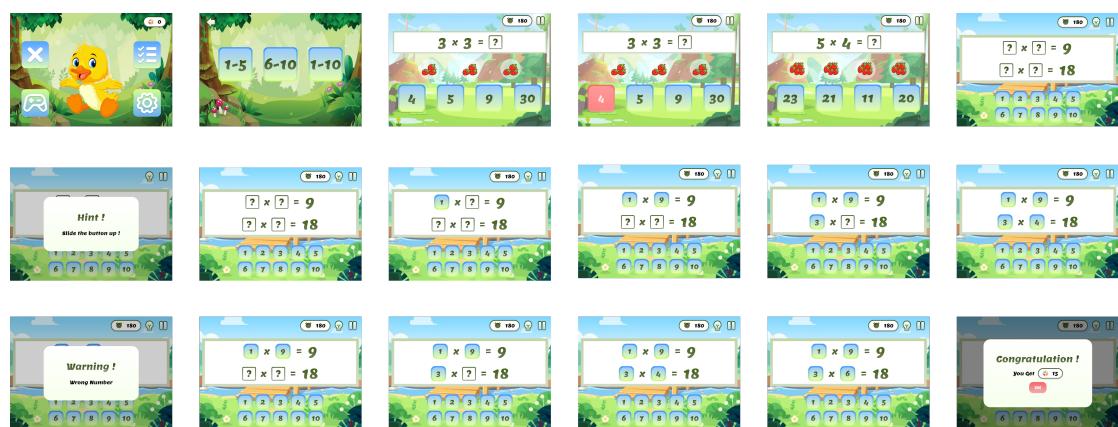
C. Puzzle

For puzzle, children could drag the button to question block and find the possible answer for satisfy the formula of multiplication. This game could help children to **recall the memories** and the interactive element (e.g., dragging button) can **enhance their muscles memories** when they are having interaction in game. It can **improve the attention, concentration of children** when they **focus on dragging button** to the right answer.



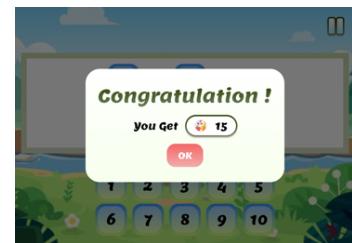
Flow of game (Combine with Quiz):

- Pressing “Game Console” button and press “1 – 5” or “6 - 10” button to start game
- Press button at quiz (button in “**RED**” inform wrong answer)
- Drag button up and tap button if answer is not satisfy at puzzle game

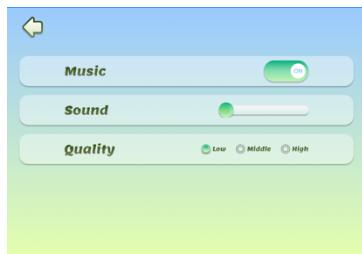


(Hint will be provided by pressing “light bulb” button)

Children can depend on their strength and knowledge to choosing level. After finished game, there are some **coin** provided for Progress Tracking Screen.



D. Pause Screen



For pause screen, children can press any time during playing game when they need to **have a rest** or **wanted to go another page**.

d. Progress Tracking Screen



When pressing “to-do list” button, it will direct to the progress tracking screen and a **pop-up window** (about information of previous practice game) could be appear.

Moreover, it will see some bar when tapping screen. The bar is related the progress of multiplication screen. If children have practice for sufficient time, some money will be provided when pressing “finish” button. It enhances children to **practice more** on multiplication by giving some prize.



When kid pressing “**Present**” button below, it will direct to “**Reward Page**” and children use money to change their characters as well as the background of game. As a child, they **love to change their characters** and **background** when playing game. It can **catch up their interest** more on game and allow them to **practice more** on multiplication.



Flow of Progress Tracking Screen:

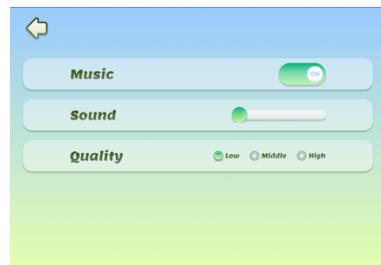
- Pressing “To – do list” button and tap the screen when pop – up window appear
- Tap “finish” button to get coin
- Tap “present” button to direct “reward page” and tap the “duck” button



e. Setting Screen

For setting screen, children can press “Gear” button.

Children can adjust turn on / off music, volume of sound and select the quality of screen. “On / off” button, slider, radio button is providing in screen respectively. Children can consider their situation and **adjust** by themselves.



3. Conclusion

To conclude, a game is designed to attract children for learning multiplication. Those screens introduced in report could provide a comfortable and attractive platform to study multiplication. Children can depend on their need to choose the possible screen and assist their study on multiplication.

4. Direction of URL

Draft of prototype:

https://www.figma.com/file/VLBeISyPZdgUOF5GwP8IoB/COMP3423_Assignment1?type=design&node-id=40%3A61&mode=design&t=Exxbz8ikxWrcHoBc-1

Prototype in Community:

<https://www.figma.com/community/file/1292760985229543849/comp3423-assignment1>