Flip-It

Explanation of game mechanics

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Flip-it will be a variation of the traditional game architype of "Pairs". This architype is inspired by the traditional card game of concentration (also known as pairs, matching pairs, match match, memory etc.).

The game has previously been used as a tool to measure working memory (Fujiki et al., 2012), so fits mandated requirement of our developed game being educational.

The general concept of "Pairs" is as follow :

- A standard set of playing cards is placed face down on a surface.
- A "player" turns over two cards at a time trying to find a matching pair
- If a matching pair is found, then both cards are kept face up
- If the two flipped cards do not match they are both turned face down
- This cycle of flipping two cards at a time is continued until all matching pair are found.

As mentioned Flip-it will be built upon a variation of the key "Pairs" game mechanics. We have chosen "Pairs" various studies have taken place relating to is effect on a child's memory (Eskritt & Lee, 2002).

Changes that will be used within Flip-it will be as follows:

- The number of cards will be significantly fewer (5 sets of matching pairs)
- Each set of pairs will not match exactly, but be linked via the same theme
  - An example of this would be the name of a country and a countries flag
- Each card of a matching pair will be divided into separate rows
- The game will be time limited
- Different "Level" will be based upon distinct themes (E.g Country name/flags, Dinosaurs name / Dinosaur Picture)

- Two rows of five cards are displayed to a "Player" face down
- Each row is grouped by type (E.g. word, picture, name)
- The row position of each card is assigned randomly
- Each row will be linked via the presence of one card of a matching set
- Each matching set will matched based upon theme not visual similarity
- One card on each row can be turned at a time
- A flipped card on one row cannot be flipped facedown again until a corresponding card on the other row has been flipped.
- Once two cards have been flipped
  - If they match, both stay face up and receive a green tick
  - If they don't match, both are flipped back down again.
- A timer is running during the game loop
  - If all cards are matched within the timer the user passes the level
  - If the timer runs out before all cards are matched then the user fails the level

Game difficulty will be controlled by three factors:

1. Timer length
2. Number of cards to match
3. Difficulty of matching content (E.g. more obscure flag and country names)
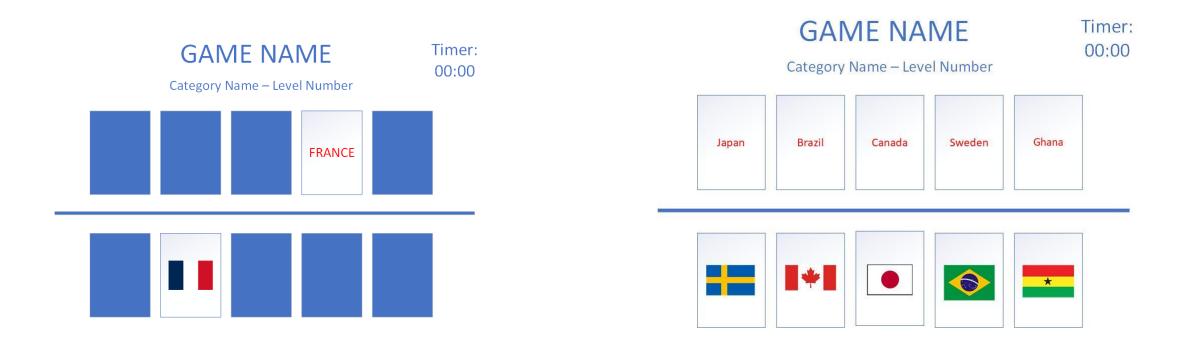
Sets of levels will be based upon a single theme, with earlier levels being easier and later levels being more challenging.

A previous level must be completed before the "player" can progress to the next level.

For the demo only the first level of three separate subjects will be created.

Flip-it - Example

An example of the game during play, and when completed can be seen below :

It should be noted that the examples are only indicative of the game UI, and will not match the finalised design

References

Fujiki, R., Morita, K., Inoue, M., Shoji, Y., Mori, K., Ishii, Y., Kawabe, C., Yamamoto, A. and Uchimura, N., 2012. Characteristics of cortical activation in schizophrenia during the card game "concentration". *The Kurume Medical Journal*, *59*(3.4), pp.53-60.

Eskritt, M. and Lee, K., 2002. " Remember where you last saw that card": Children's production of external symbols as a memory aid. *Developmental Psychology*, *38*(2), p.254.