Effects of Gaming Based Learning

on Pre-K to 2nd Graders' Emotions Statement

(Instrument Development & Data Collection Plan)

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Revised Research Question

Question 1:

What are the possible emotional triggers of video game for the young children?

Question 2:

To what extent the technologies can enhance the elementary lower level students (pre-K to second grad) understand safe failure?

Dependent variables: pretest-posttest scores and students' performance.

Independent variables: face to face class and SmartSparrow course.

Research Design

It is a single-group pretest-posttest design research which is compared pretest and posttest results with one group by a certain intervention (McMillan, 2016, p. 250). The single research group includes 9 boys aged from 5 years old to 8 years old (K-2nd grade). On February 11, 2019, all 9 boys did their pretests via SmartSparrow course. The researcher will send them a same content posttest link one week after. The intervention was a face to face class combined with online course via SmartSparrow.

$$\frac{\text{Group}}{\text{A}} \longrightarrow \frac{\text{Pretest}}{O_1} \longrightarrow \frac{\text{Intervention}}{X_1} \longrightarrow \frac{\text{Posttest}}{O_1}$$

A: 9 elementary level boys

O_1: SmartSparrow pretest in the face to face class

X_1: Face2face class + SmartSparrow online course

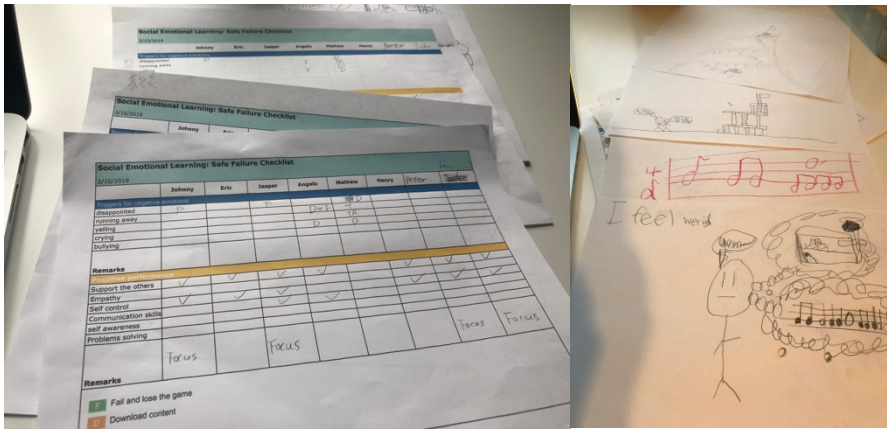
O_1: Same questions will be delivered via Google Form

Data Collection Method

The research plans to adopt a mixed method for data collecting and analyzing. For better understanding the children's emotional triggers of video games, the researcher collected qualitative data by interviews (5 parents + 4 children), Google Form surveys (9 parents) and

focus group observation. The open-ended unstructured interview questions (McMillan, 2016, p. 190) mainly focused on participants gaming and learning habits, emotional triggers and preferred learning environment. The surveys and interviews have been completed by the end of week 5.

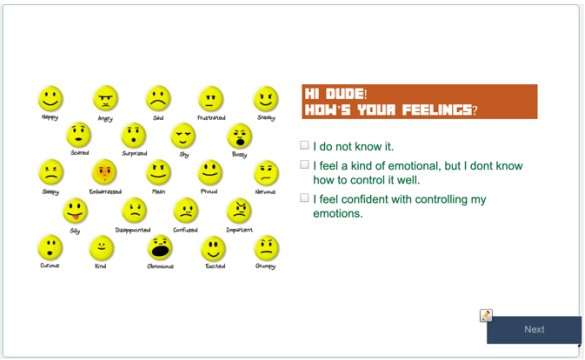
The research will use criterion-referenced interpretation (McMillan, 2016, p. 175) to compare the quantitative date (pre-posttests' scores) with Social Emotional Learning Competencies (Social and Emotional Learning, 2018). The research also designed a structured observation checklist (McMillan, 2016, p.195) for the quantitative data collecting. Meanwhile the research recorded 1-hour video for data collecting and interpreting for direct observation data review.

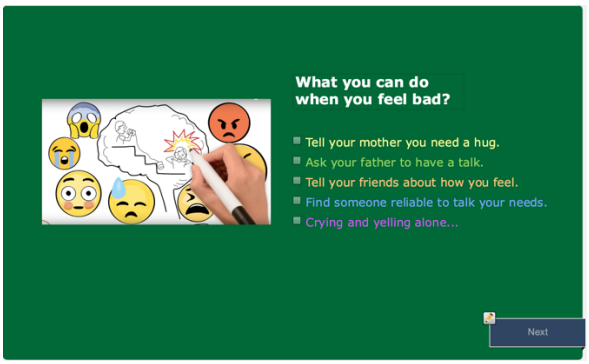


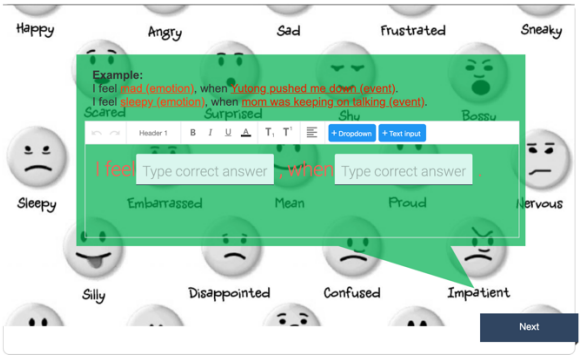
Dues to the limited capabilities of feeling expression, the research encourage the kids draw pictures to describe their feelings about safe failure at the end of class.

Pretest-Posttest Instruments

Test is an old fashioned but sufficiently sensitive quantitative data measurement (McMillan, 2016, p. 171). To lucidly evaluate student's knowledge, a comprehensive multiple-choice test (Delucchi, 2014) was designed for the pretest and posttest. The pre-test has been held by face to face class via SmartSparrow which worked as an intervention to teach the participants about safe failure. In order to provide the participants a direct and simple test, the post-test will be delivered by Google Form with the same content questions one week after the face to face class (week 6). Based on the young participants learning aptitude, the questions designed with varied and appealing formats.







Validity and Reliability

The most challenging task of the research is to choose proper measures to secure valid sores (McMillan, 2016, p. 172). The validity goal from a sensitivity perspective is to align the test directly and completely with the research questions. This research question is to ask to what extent the technologies can enhance the elementary lower level students (pre-K to second grad) understand safe failure? This research will use the Smartsparrow and Minecraft as technologies, and the posttest score will show whether students can increase their score and compose more meaningful sentence to describe their feelings of failures.

The posttest will be delivered by Google Form which may has comparable lower reliability. However, based on the reliable parents by understanding the scores will not affect any serious consequences for their children, the Google Form seems a most effective and practical choice for the post-test.

Dr. Baek's comments:

Validity: How did you ensure that the test items are appropriate to your research topic for the age group(validity)? Did you create learning materials and test items based on the California content standards you mentioned in your Proposal?

Reliability: Discuss how you deal with reliability threats (e.g. participants fatigues, lack of interest in taking the test…) Please go back to the textbook Chapter 6. In addition, using "reliable parents" is too vague. How did you train them to collect reliable data? I suggest you develop a sheet of observation guidelines for parents.

Bibliography

Bird, J., & Edwards, S. (2015). Children learning to use technologies through play: A Digital Play Framework: Children learning to use technologies through play. *British Journal of Educational Technology, 46*(6), 1149-1160.

Delucchi, M. (2014). Measuring Student Learning in Social Statistics: A Pretest-Posttest Study of Knowledge Gain. *Teaching Sociology, 42*(3), 231-239.

McMillan, J. (2016). *Fundamentals of Educational Research.* Virginia: Pearson.