

(consent, subjects/participants, instrumentation, procedures, data analysis)

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EDUC-999: Evaluation and Research

October 26, 2013

## **Methods Section**

### **Consent and Ethics:**

In order to gather consent, the participants for this study were asked to click on the link to open the survey only if they were over the age of 18. This certification appeared on the front page of the study saying, "By clicking the link below you certify that you are above 18 years old." Because all of the participants were over the age of 18, no parental consent was needed.

### **Participants:**

Requirements for participation were simply that the participant be over the age of 18. The research was targeted at anyone eligible to take a Massively-Open-Online-Course (MOOC) and since that, by definition, applies to the general public there were no demographic requirements other than that the participants be over the age of 18. In total, over 100 participants submitted responses to the four different surveys.

Participants were solicited using a variety of methods, most of which involved social media.

Participants were asked to take part in the survey using the following means:

1. Advertising on Facebook
  - a. Targets groups for the ads were Facebook users including:
    - i. Who live in the United States
    - ii. age exactly 18 and older
    - iii. Who like #Khan Academy, #MIT OpenCourseWare, education, #Udemy, #Massive open online course, #Coursera or #EdX
    - iv. on Right column on desktop computers
    - v. Who are in the broad categories Education/Teaching or Educational Software
  - b. This target allowed for a possible reach of approximately 1.38 million people.
  - c. I also made several posts to friends of mine via status updates
2. Advertising on Bing
  - a. Keywords targeted on Bing:
    - i. Online courses
    - ii. Video
    - iii. Higher Education
    - iv. Framingham State University
    - v. Educational Research
    - vi. Google Chromecast
    - vii. Instructional Methods
    - viii. Instructional Technology

- ix. Leap Motion
- x. Massiv
- 3. Google+ Communities
  - a. Participation was solicited in the following Google+ Communities via a custom post:
    - i. Chromecast
    - ii. MOOCs
    - iii. Massively-Open-Online-Courses
    - iv. Educational Technology
    - v. Google Drive & Google Docs
  - b. In addition, generic pleas were made to family and friends in my circles.
- 4. Other social media
  - a. I advertised for the survey on Meetup.com in the Boston EdTech group
  - b. I made several pleas on Twitter from both my username which has about 103 followers and using my company's Twitter account which has over 80 followers.

Additionally, when advertising for participants to take the survey, they were offered a chance to win either a Google Chromecast (\$35 value) or a Leap Motion Controller (\$80 value). This incentive was determined to be appropriate since it was unlikely to cause any of the participants to take any greater risks in the study than they would have without an incentive.

#### **Instrumentation:**

A web application was created in order to collect certification that participants were over the age of 18 and in order to randomize the particular test that each participant would take. This web application was in the form of a webpage that the researcher directed willing participants to. Upon arriving at the web page, without the participants knowledge, a JavaScript code assigned one of four Google Forms to the participant. The participants provided consent to being over 18 by clicking on the link.

The four Google Forms (tests) were structured in the following way:

**(Table 1.1)**

Test	Step 1	Step 2	Step 3	Step 4
Test 1a	Text of Lecture 1	Comprehension Questions	Video of Lecture 2	Comprehension Questions
Test 1b	Text of Lecture 2	Comprehension Questions	Text of Lecture 1	Comprehension Questions
Test 2a	Video of Lecture 1	Comprehension Questions	Video of Lecture 2	Comprehension Questions
Test 2b	Video of Lecture 2	Comprehension Questions	Text of Lecture 1	Comprehension Questions

Due to the random assignment, at least 25 participants took each of the 4 tests.

## Procedures:

### *Test Development*

1. The researcher selected 2 unrelated and insignificant lectures to present to the participants.
2. The text of each lecture was copied and the link to embed the videos was noted.
3. Five comprehension questions were selected for each of the lectures.
4. Four Google Forms were created and the content was added according to the setup laid out in Table 1.1.

### *Web Application Development*

1. A web site was created to which participants could be directed.
2. Welcome text was added and the age of majority agreement was added to the web page.
3. A link for the participant to click was added.
4. A JavaScript formula was written which randomized the URL behind the link on the web page to direct participants to one of the four tests.
  - a. The JavaScript formula was as follows:

```
function siteAssignment() {  
    var url = Math.floor(Math.random() * 4);  
    console.log(url);  
  
    if (url === 0) {  
        url =  
"https://docs.google.com/forms/d/1IZtKjgF1QRe9nfyeRl_AfMkf4e7x8mGN_  
KJfg3D-Xp8/viewform";  
    } else if (url === 1) {  
        url =  
"https://docs.google.com/forms/d/1zduhZmOCE4-tINw_Jb_v2utUlsEQhZYu  
KqJ9QM7B00/viewform";  
    } else if (url === 2) {  
        url =  
"https://docs.google.com/forms/d/1gPabchlBKms08GxoxOJoZdWTUIM3uNka2  
bFZMwaqM1o/viewform";  
    } else {  
        url =  
"https://docs.google.com/forms/d/1bRRvdebkxiLTtkB9PVAOzdijuBFhJHXZ-  
Lo9PGNHVqc/viewform";  
    }  
    return url;  
}
```

## Data Analysis:

**Bias:**

**Assumptions:**

**Limitations:**

**Delimitations:**