

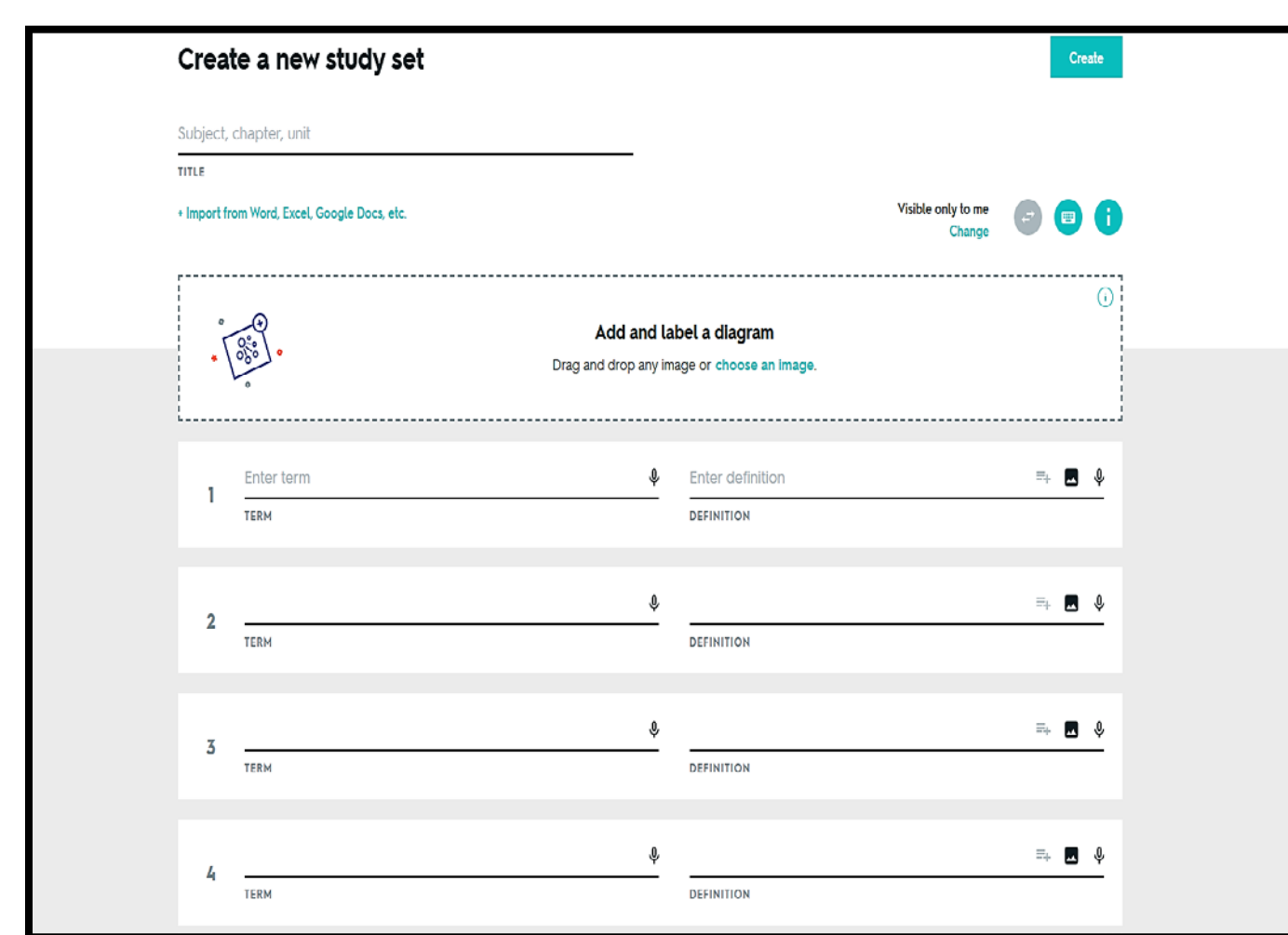


## Introduction

- One popular method of self-testing is by using flashcards
  - 40% of students report using flashcards to study material (Karpicke, Butler, & Roediger, 2009)
- There are many different tools available for creating flashcards
  - Students can use electronic tools to make them (e.g., Quizlet, StudyBlue, Cram, etc.) and can make cards on physical paper
- Students may use electronic and physical flashcard differently
- On one hand, electronic flashcards may produce more learning benefits because learners are able to type information on a card more quickly
- On the other hand, physical flashcards may produce more learning benefits because learners are writing higher quality information on a card to compensate for time
- The present research:** We examined whether there are differences in how students create flashcards when using electronic tools versus physical index cards

## Materials & Procedure

- Participants & Design:** 88 Texas Christian University undergraduate students participated. Method of making flashcards (index cards or Quizlet) was manipulated between-participants.
- Materials & Procedure:**
  - Participants read a text and made flashcards over the content in the text (Rawson & Kintsch, 2005).
  - In the electronic condition, participants made flashcards using Quizlet



- In the physical condition, participants made flashcards with 3' x 5' index cards
- Participants reported how often they make flashcards to study for material in their classes, how often they make electronic flashcards, and how often they make physical flashcards.

### Electronic group instructions

You have been given the article about how Hollywood films portray history. Read the text and make flashcards on Quizlet like you would for an upcoming exam over the material.

Take as much time as you need and make as many flashcards as you want. Your goal is to make flashcards to do well on a test over the material. Press continue when you are finished reading these instructions.

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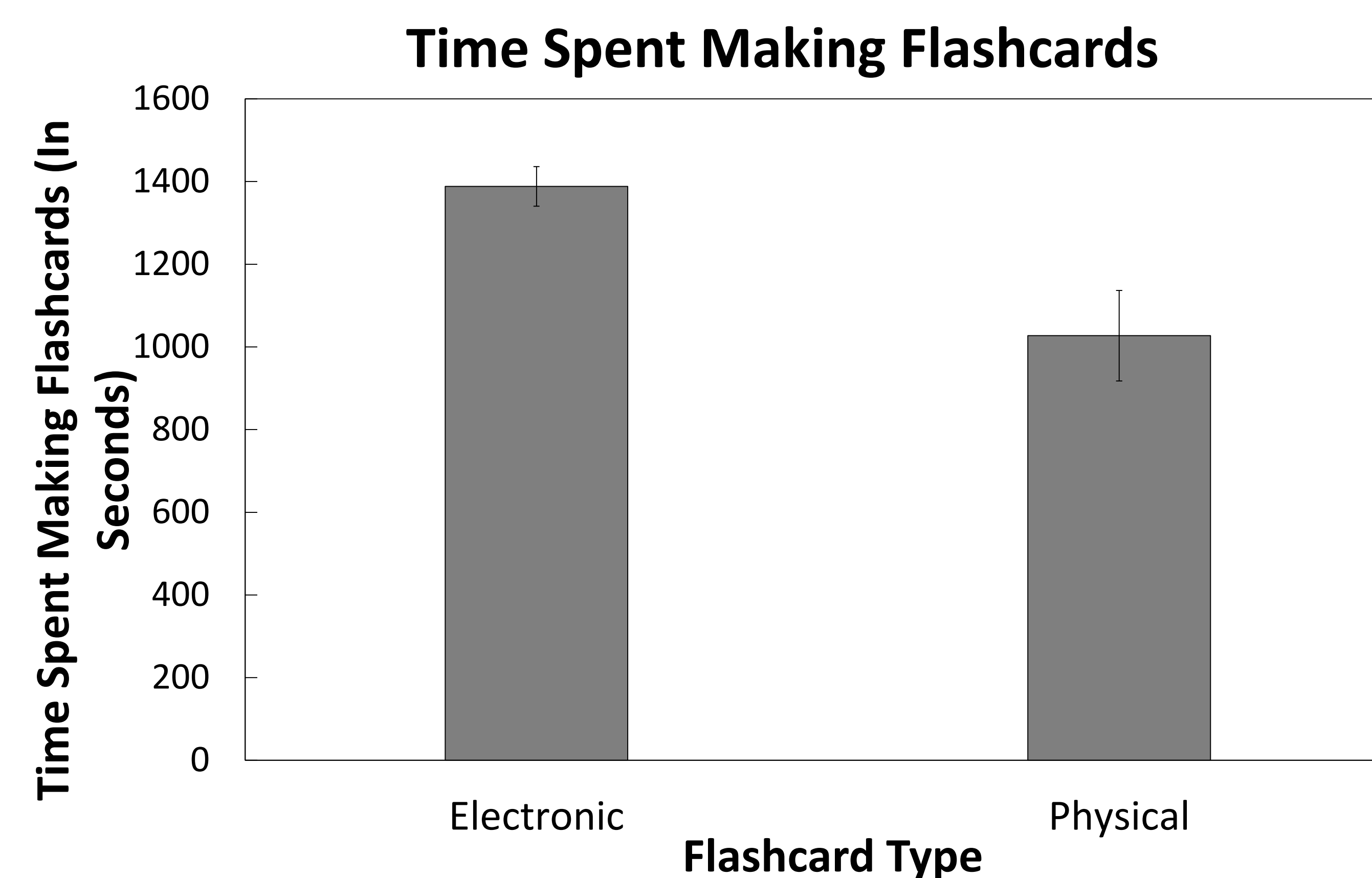
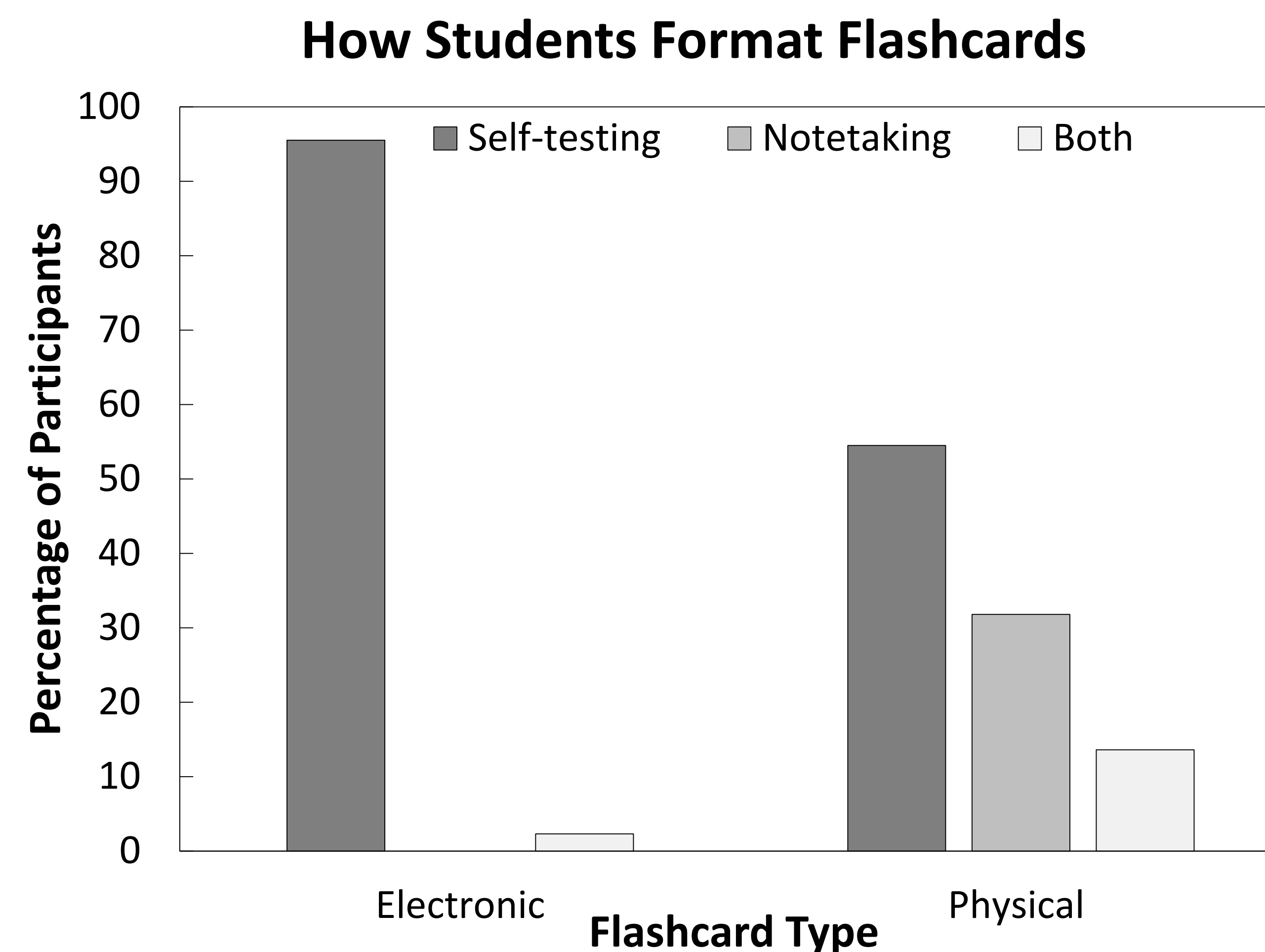
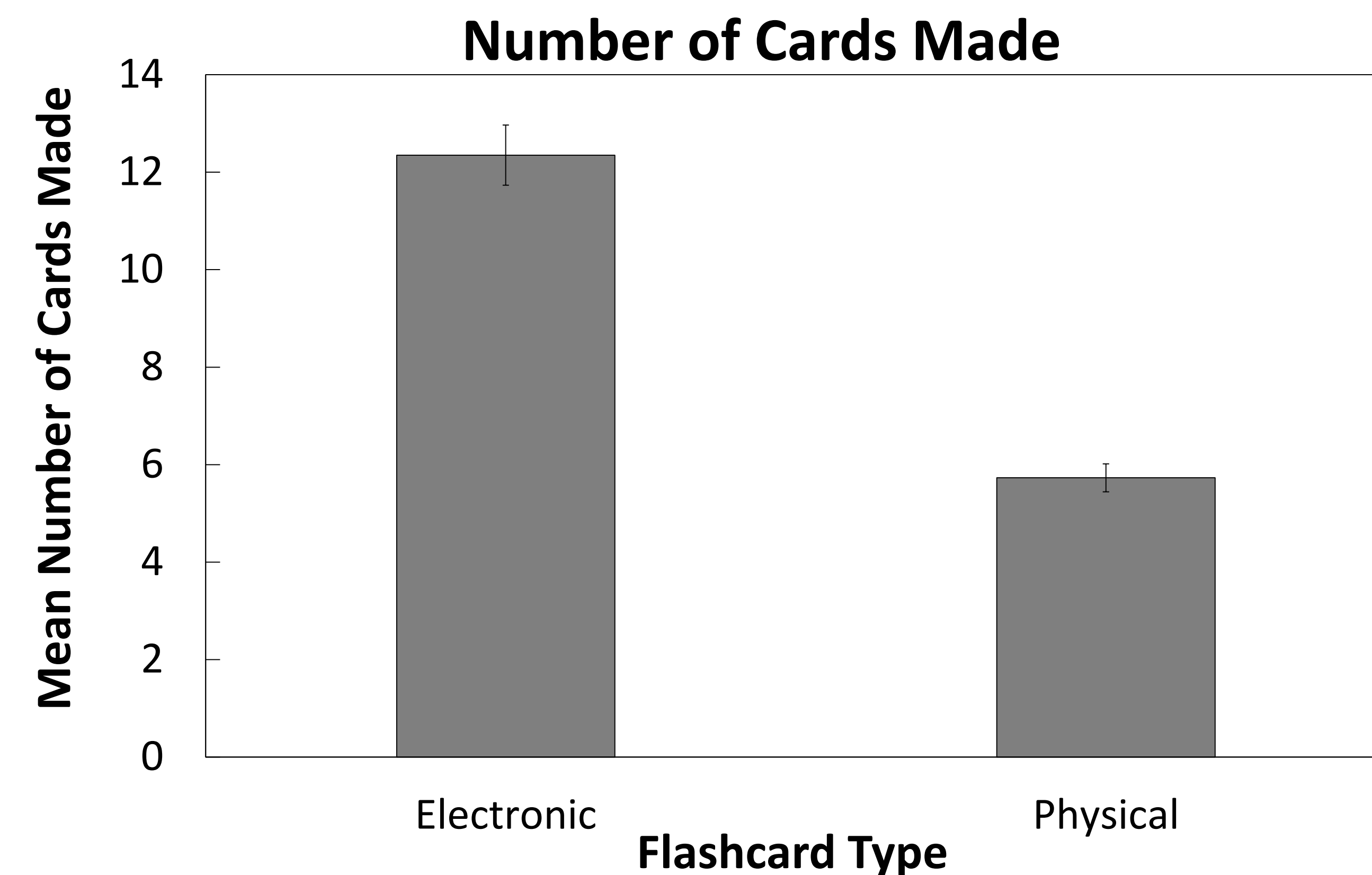
### Physical group instructions

You have been given the article about how Hollywood films portray history. Read the text and make flashcards using index cards like you would for an upcoming exam over the material.

Take as much time as you need and make as many flashcards as you want. Your goal is to make flashcards to do well on a test over the material. Press continue when you are finished reading these instructions.

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## Results

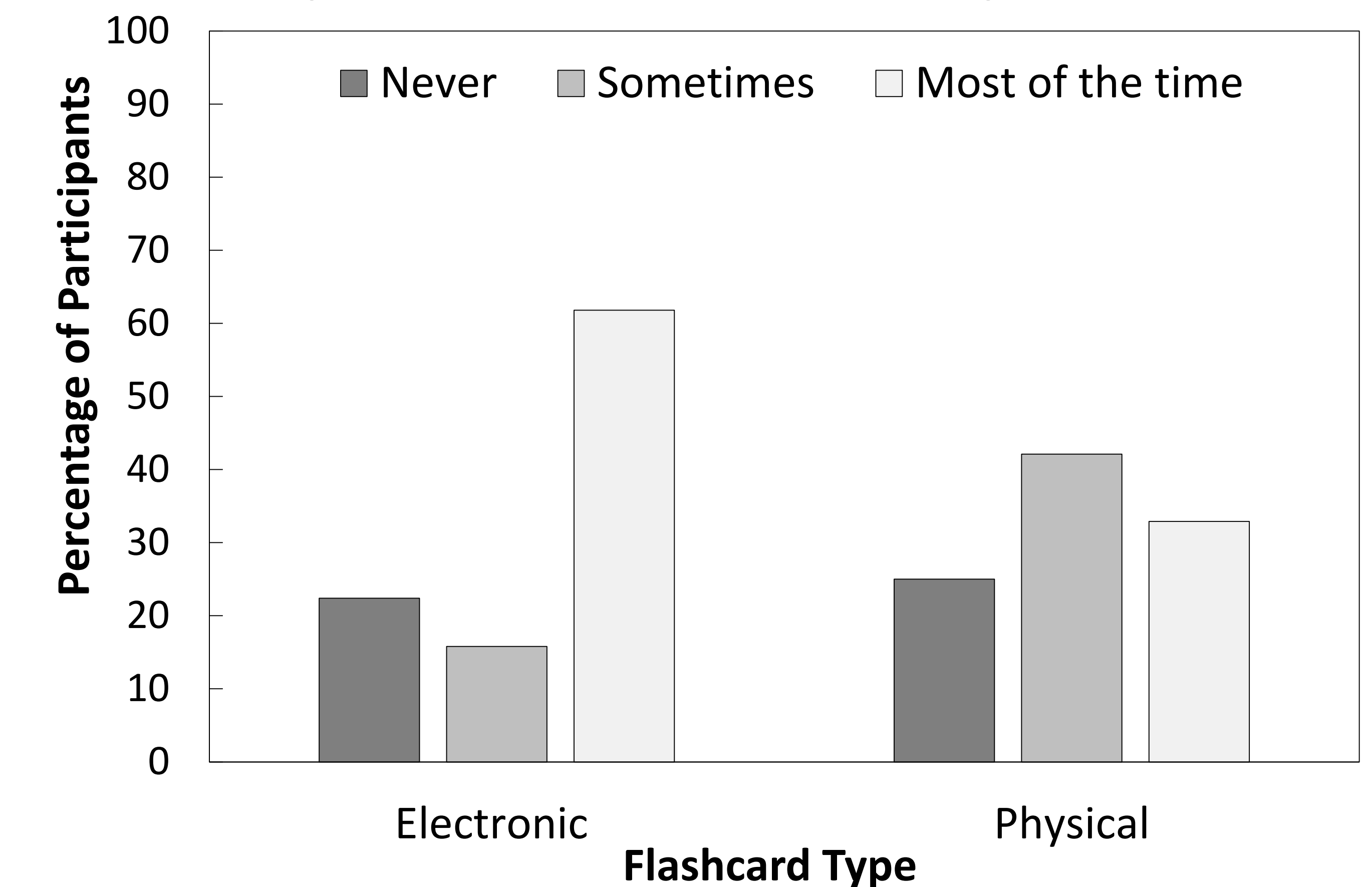


## Self-Reported Use of Flashcards to Study for Classes

Condition	Never	Sometimes	Most of the time
Electronic	11.9	52.4	35.7
Physical	16.3	48.8	34.9
<b>Total</b>	<b>14.1</b>	<b>50.6</b>	<b>35.3</b>

Note. Values shown are percentages

## Self-Reported Use of Electronic/Physical Flashcards



## Conclusions

- Learners constructed more cards in the electronic condition relative to the physical condition
- Learners in the electronic condition made more cards than did learners in the physical condition
- Learners in the electronic condition spent more time making flashcards than did learners in the physical condition
- The majority of participants report using flashcards to study for material in classes, with more participants using electronic flashcards than physical flashcards

## Future Directions

- Examine the quality of the information that participants put on flashcards
- Evaluate memory performance and if there is a learning benefit for one flashcard type over the other
- Investigate whether examples of well constructed flashcards influences the quality and quantity of flashcards