

Lottery Mindset: Using an Immediate Feedback Assessment Tool to Enhance Learning in the Introductory Accounting Class

ABSTRACT

This paper explores the use of immediate feedback scratch-off cards in the first course in accounting. Using “Immediate Feedback Assessment Technique” scratch-off cards, we examined whether students exposed to this tool would perform better on subsequent objective exams than students not using this tool. Students reacted in a positive fashion and they seemed to enjoy using scratch-off cards. The empirical results supported the assertion that the scratch-off cards facilitated an effective real-time learning.

INTRODUCTION

It is truly amazing to see the promotional power of game pieces to change consumer behavior. Students, often categorized as millennial students, have encountered many games of chance in their young lifetimes. Today’s millennial students want instant gratification and feedback (Fogarty 2008). As stated by Fogarty, p. 369, “The generational category is upon educators with increased ferocity, since Millennials now make up the entirety of our traditional undergraduate student population.” Our society could be described as having a “lottery mindset.” The following vignette drives home this point:

For lunch my young daughter surprisingly picked Burger King® rather than her favorite McDonalds® restaurant. Why the sudden change in venue I asked? The answer was that Burger King® was offering its customers special game pieces. The game piece allowed customers to scratch-off boxes to win prizes. Scratch-off the correct box and one could win an expensive new video gaming system, screamed the promotional materials. That day we won French fries.

If scratch-off game pieces can influence lunch preferences, could such tools make a difference in the learning behavior of students in an academic setting? Commercially produced scratch-off cards that allow students to select answers to objective questions are now readily available at a nominal cost. We would expect students to enjoy a new novelty item, such as using scratch-off cards, but could this tool be used as an innovative technique to successfully enhance learning?

METHOD

This study examines the impact of scratch-off cards to facilitate students’ learning in the introductory accounting class. We obtained scratch-off cards from our campus faculty development center. The development center obtained cards from Epstein Educational Enterprises, a company based in Cincinnati, Ohio. The scratch-off cards are called IFAT® cards which stands for “Immediate Feedback Assessment Technique” and are available at a minimal cost from the company (www.epsteineducation.com).

Like computer forms that educators use for grading multiple-choice questions, the IFAT® cards allow students to select a multiple-choice answer that is covered by a waxy opaque coating similar to the coating that is used on scratch-and-win lottery tickets. Students select the answer they think to be correct and scratch-off the coating. If the selection is correct, a star appears in the box and students go on to the next item. If the choice is incorrect, a blank space appears. Should they get a blank space, students can then reconsider the options that remain and continue to scratch-off the boxes until the star is found (DiBattista, 2001).

The designers affiliated with producing scratch-off cards have asserted that such cards can enhance learning (Epstein, et al. 2002; Epstein & Brosvic, 2002). The answer-until-correct procedure allows students to learn from their mistakes in a real-time learning environment. The correction of initially inaccurate responses aids the cognitive process in understanding the correct response.

To see if the scratch-off cards could be effectively used to enhance learning for students in introductory accounting, an experiment was conducted. Two instructors, each teaching multiple sections of the introductory course, participated in a trial in which some sections were given scratch-off objective questions for study as review material for midterm exams and other sections were given access to the same review questions, but no scratch-off cards. The instructors/authors of this paper have no connection to Epstein Educational Enterprises.

Students in the “treatment” sections, working independently, completed a 20-item multiple choice test. They were then randomly assigned into teams consisting of 4 or 5 students and were given the task of determining a consensus answer for each question. Students then worked through a scratch-off card to ascertain if their consensus answer was correct. We used the 25-question IFAT[®] scratch-off form. The last five questions on the form were not used. There was no grade associated with this exercise; however, to make the exercise interesting and to boost team rivalry we sometimes posted the scores of the teams on the white board. By providing such feedback, it added a more competitive element to the exercise. Teams that correctly answered all 20 objective questions would earn the top score of zero, whereas teams that had to scratch-off extra boxes before reaching the correct answers would be assigned a score based on the number of extra boxes that had to be scratched-off (e.g., scratch-off six extra boxes and the team score would be six).

One hundred students engaged in the scratch-off review exercises. Anecdotal evidence suggests that students enjoyed using the scratch-off cards. Below are some of the written comments from students in the treatment sections. These comments appeared on the end-of-the semester course evaluation forms.

The practice problems that we checked with the scratch card were very useful the week of the test. It helped give me an opportunity to see where I was truly struggling.

I liked the review with the groups. The scratchers were a great idea and you should continue that. It was helpful because you got to work in groups to figure out the right answer. If you didn't know the right answer and someone in your group did, they would show you how to do it.

The in class exercises that we did in groups with the little sheet of paper that we had to scratch off our answer helped me the most.

The choice card is very interesting and very helpful. I love it.

Loved the multiple choice group exercise before the exams. The scratchers make the multiple choice questions a lot more fun!

I liked working in groups and doing the scratch off quiz. It told you how much you still needed to study for the test.

While the comments were positive regarding the use of this tool, often students respond in an affirmative way to almost anything that is new or different from the traditional lecture format. Consequently, we wanted empirical evidence in order to have classroom validation of this innovative instructional tool. Did scratch-off cards enhance the learning process?

We also taught 73 students in two other introductory principle sections in which students did not participate in the scratch-off experiment. These students served as our “control” group. Like their counterparts in the treatment sections, they had full access to the pre-exam review objective questions along with answers to those questions. The

questions/answers were either listed in the textbook at the back of each chapter, or on review sheets posted on the instructors' web-sites. Therefore, our hypothesis, as stated in the alternative form, is:

H₁: Students that participated using the scratch-off cards will perform better on the objective portion of the mid-term exams than students who did not use such cards.

RESULTS

We measured the response from two mid-term exams from 173 students; 100 students in treatment sections and another 73 in control sections. Before comparing how well the students did on the multiple-choice sections of the mid-term exams, we obtained from students' records the cumulative GPA of the students. The mean GPAs were 2.92 and 2.80 with a standard deviation of 0.65 and 0.72 for the treatment and control groups, respectively. The mean GPA difference between the two groups was not significant ($p = 0.1037$).

The scratch-off cards were used as reviews prior to two midterms. The mid-terms contained objective questions worth 100 points. Students' results are listed in Table 1.

Table 1: Exam Performance

	Treatment classes	Control classes
Students	N= 100	N=73
Mean Scores	145.23	133.11
Standard Deviation	26.35	23.44
T-Test on H₁	.00103	

We also ran a regression model. Given that students in the treatment group had higher GPAs versus the control group, we took the added precaution to include GPA as a control variable in the regression analysis. The results from the regression model are listed below:

Table 2: Regression Analysis

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	22076.615	11038.308	20.306	1.236e-08
Error	171	92409.073	543.583		
Corrected Total	172	114485.688	11581.891		

Adjusted $R^2 = .18$

Variable	DF	Parameter Estimate	Standard Error	t value	Pr > t
Treatment	1	10.243	3.606	2.841	0.00505
GPA	1	14.077	2.605	5.405	2.17e-07

LIMITATIONS AND CONCLUSIONS

Today's millennial students want to be engaged in active learning. The written comments suggest that students enjoyed using scratch-off cards. The empirical data results support the assertion that the scratch-off cards are not just a novelty but actually trigger active learning.

A limitation of this study is that the scratch-off cards (IFAT[®] cards) are a commercially sold product. There is a cost to purchase these cards; they are not free. For each 25-question, 4-answer choice card that we used in this study, the cost ranged from \$0.18 to \$0.21 per card depending upon the volume of cards purchased by the campus-wide faculty development program learning center. A current price listing can be found on the Epstein Educational Enterprises web-site (www.epsteineducation.com). In our study, since we had groups of students sharing cards, the cost to conduct the experiment was nominal (less than \$20).

In conclusion, students are highly motivated by games of chance and instant feedback. Scratch-off cards facilitate an environment in which students' peers assist in the learning process and allow students to learn from their mistakes by immediately displaying the correct answers. Active involvement in the assessment process seems to play a crucial role by providing an opportunity for students to determine where they are truly struggling. Students are then able to see how much they still need to study for the exams.

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