

## BACKGROUND

- Vaping is becoming an increasing problem in middle and high schools. In 2018, CDC and FDA reported 3.6 million U.S. youth were past month e-cigarette users.
- With research suggesting a correlation between acute lung illness and vaping, there is a concern for adolescents being undereducated on the dangers of vaping.
- In 2018, a S.T.O.P. (Students Teaching Other Peers) vaping education initiative was developed at SIUE School of Pharmacy as a layered-learning approach to address vaping as a public health concern for 5<sup>th</sup>-12<sup>th</sup> grade students.
- In 2019, this coalition serves as an expansion of the 2018 project to provide education to other stakeholders of 5<sup>th</sup>-12<sup>th</sup> grade students.

## OBJECTIVE

- Educate 5<sup>th</sup>-8<sup>th</sup> grade students on the negative social and health consequences of electronic delivery systems (ENDS) and juices through an interactive presentation.

## METHODS

### Study Design

- A 50-minute interactive learning session was designed to include the following:
  - Pre-assessment survey (if consent obtained)
  - 15-minute interactive presentation on the topic of vaping
  - 2-3 rounds of an educational BINGO game that was designed to include questions and fun facts pertaining to vaping.
  - Post-assessment survey (if consent obtained)
- IRB approval obtained October 22, 2019 (Protocol #513).
- Sessions were conducted at 5 different middle schools in grades 6<sup>th</sup>-8<sup>th</sup> from October 30<sup>th</sup>, 2019 to November 15<sup>th</sup>, 2019.

### Inclusion Criteria

- Students in the 5<sup>th</sup>-12<sup>th</sup> grade from Southern Illinois who attended an interactive session, signed a consent form, and did not return a signed parenteral opt-out form.

### Survey

- 21-question pre- and post-surveys were conducted to assess the students' knowledge on the contents of e-cigarettes and the juice, addiction vs dependence, how nicotine impacts the brain, risk factors for vaping, and the concern for unknown long-term risks of vaping.

### Primary Outcome

- Assessed effectiveness of a possible solution to reduce gaps in knowledge among Illinois youth regarding the potential social and health consequences of using electronic cigarettes.

### Data Analysis

- Descriptive statistics including means, percentage, and standard deviations were used to describe sample population.

## RESULTS

Table 1: Students' Responses to Questions on Associated Risks of E-cigarette Use

	True (1)		False (2)		Unsure (3)		P-Value	SD
	Pre-Survey	Post-Survey	Pre-Survey	Post-Survey	Pre-Survey	Post-Survey		
Dangers of electronic cigarettes are clear	1014 (90)	1050 (97)	29 (3)	15 (1)	88 (8)	23 (2)	5.05E-11	0.453
Electronic cigarettes have nicotine in all products	749 (66)	892 (82)	165 (15)	132 (12)	216 (19)	132 (12)	2.68E-22	0.701
There are no dangers associated with vaping	56 (5)	41 (4)	991 (88)	966 (89)	83 (7)	80 (7)	4.93E-01	0.341
Electronic cigarettes undergo extensive testing	141 (12)	207 (19)	607 (54)	710 (65)	381 (34)	170 (16)	9.51E-20	0.630
May be addictive	1019 (90)	1011 (93)	33 (3)	27 (2)	79 (7)	50 (5)	6.80E-03	0.489
Use is directly linked to increase use of cocaine	368 (33)	709 (65)	159 (14)	151 (14)	602 (53)	227 (21)	1.83E-59	0.921
Use may lead to combustible cigarette use	761 (67)	915 (84)	98 (9)	72 (7)	272 (24)	100 (9)	6.18E-23	0.760
Safer than other nicotine containing products	110 (10)	96 (9)	737 (65)	854 (79)	282 (25)	137 (13)	7.50E-13	0.572

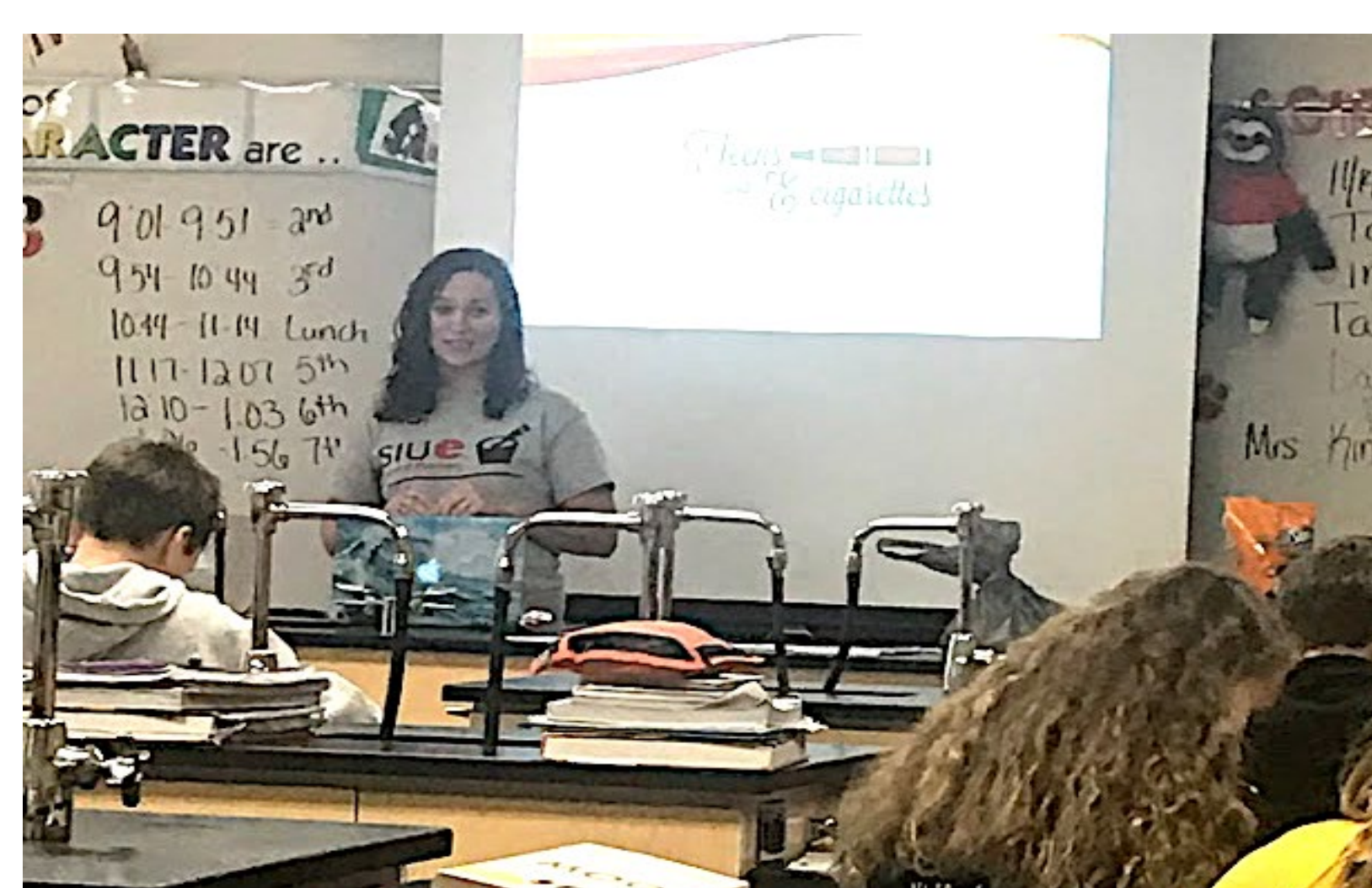


Table 2: Students' Responses to Questions on Perspective of E-cigarette Use and Law

	True (1)		False (2)		Unsure (3)		P-Value	SD
	Pre-Survey	Post-Survey	Pre-Survey	Post-Survey	Pre-Survey	Post-Survey		
Legally sold to people under the age of 18	176 (16)	243 (22)	739 (65)	749 (69)	215 (19)	749 (69)	1.85E-07	0.522
Media indicates is a safe alternative to cigarettes	422 (37)	491 (45)	386 (34)	442 (41)	321 (28)	154 (14)	3.77E-12	0.766
Marketing strategies target youth	544 (48)	809 (74)	219 (19)	135 (12)	366 (32)	142 (13)	1.14E-36	0.834
Vaping is cool	46 (4)	48 (4)	1008 (89)	972 (89)	76 (7)	67 (6)	5.14E-01	0.326

## RESULTS

Figure 1: Students' Responses to Knowledge Based Questions Answered Correctly

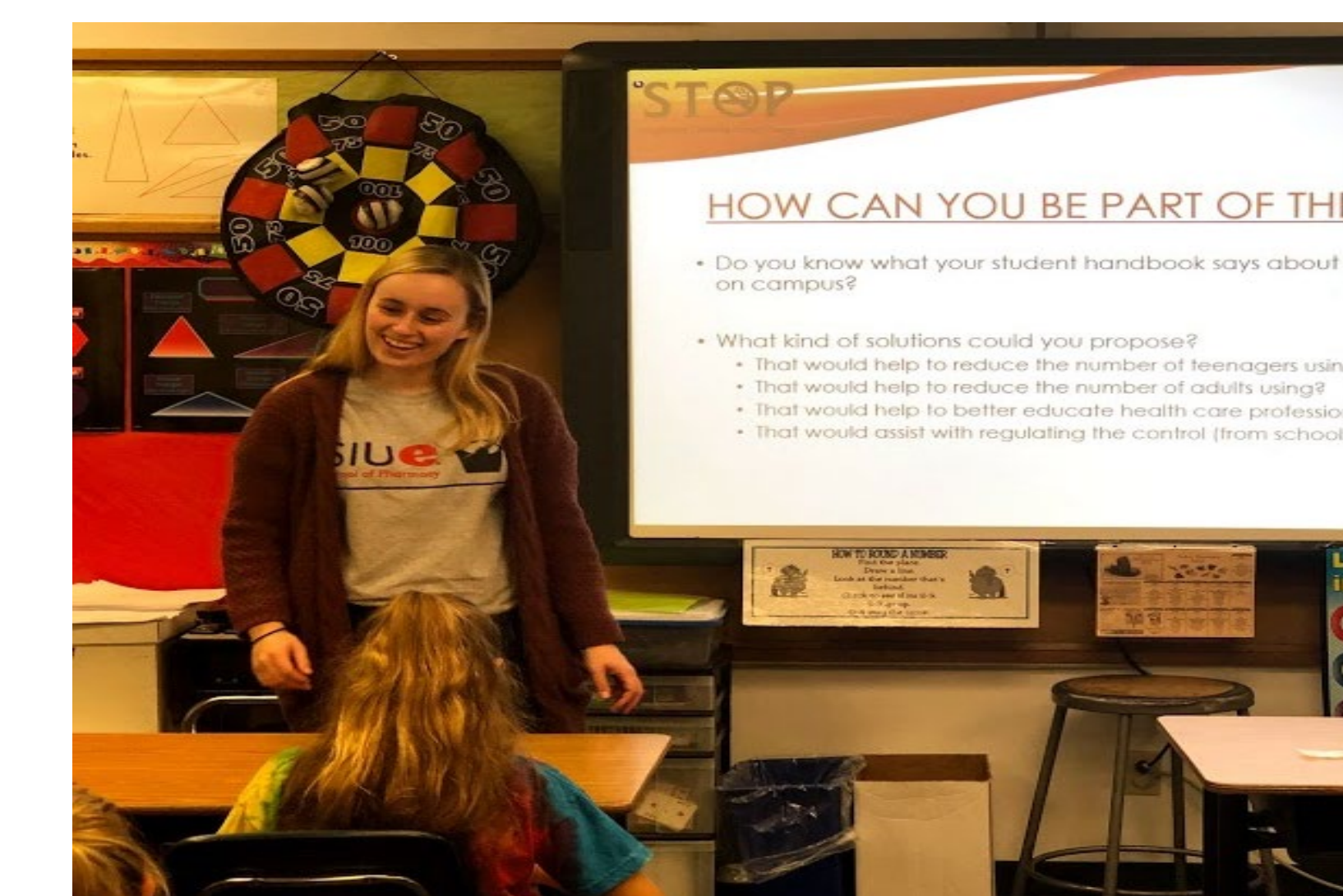
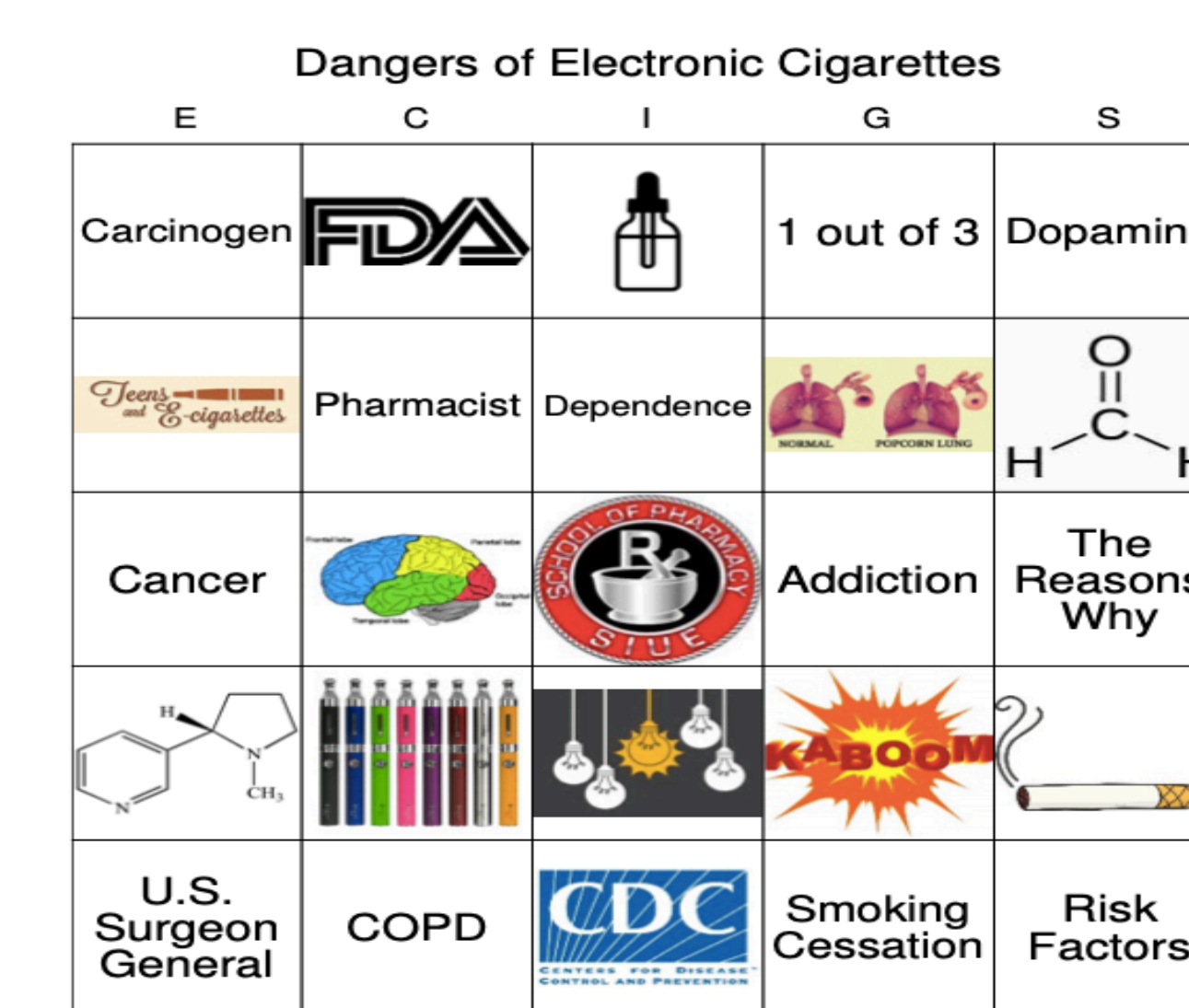
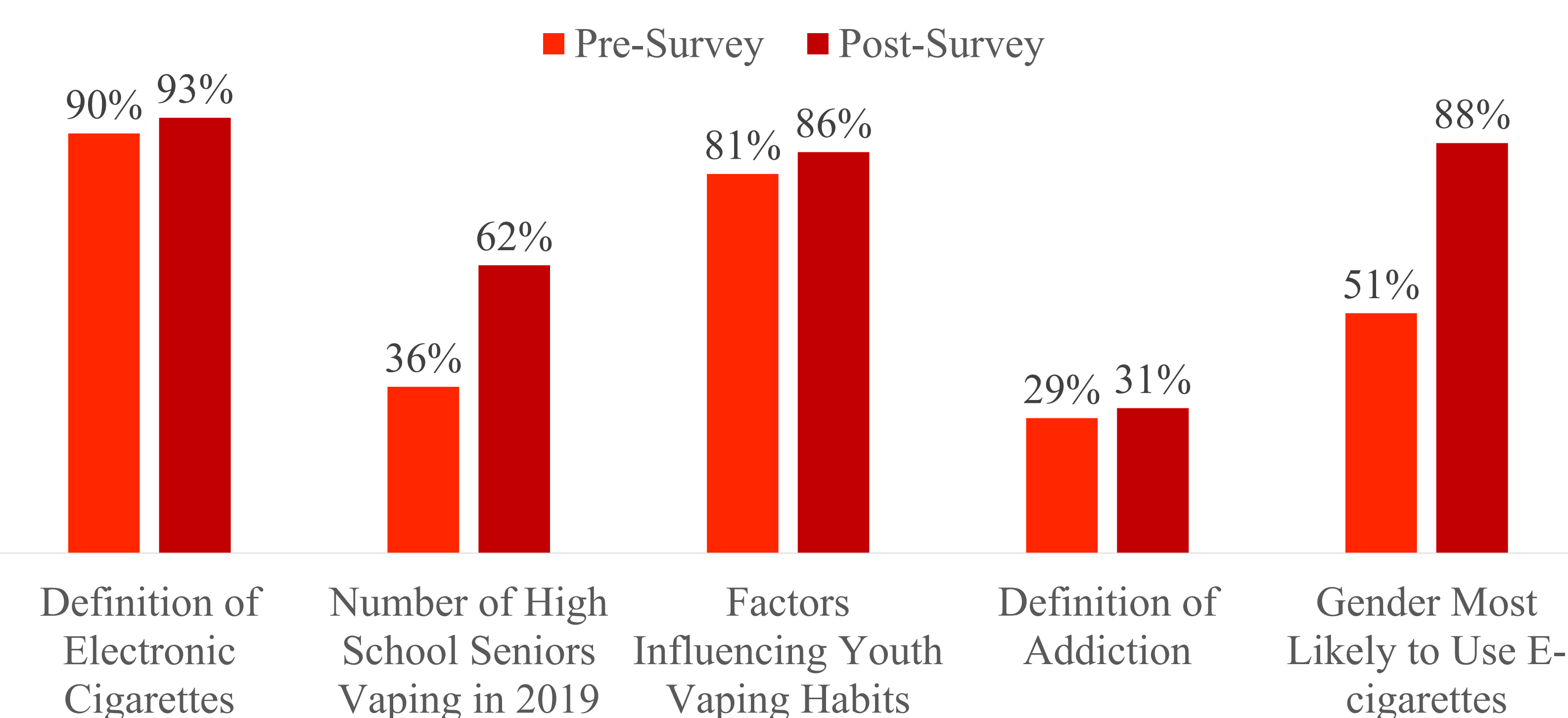
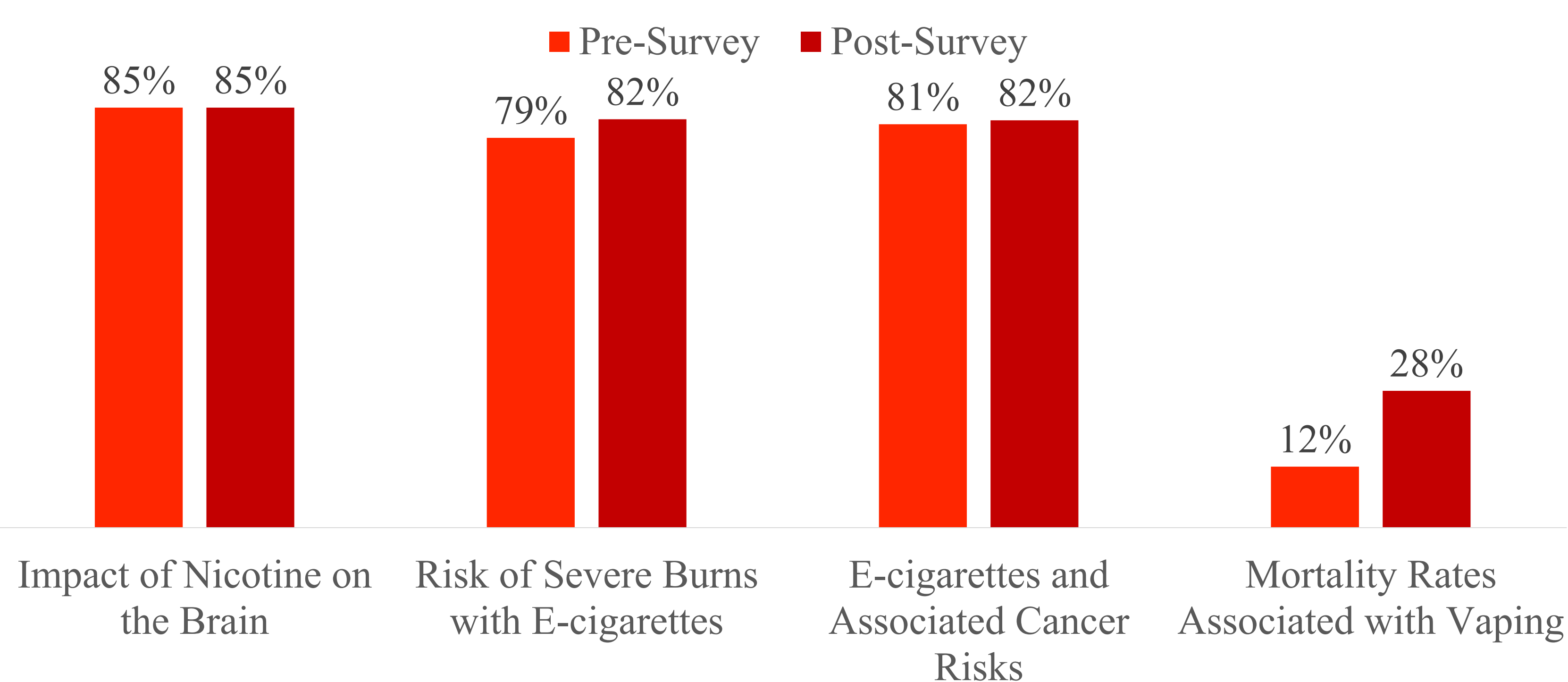


Figure 2: Students' Responses to Questions on Associated Risks Answered Correctly



## CONCLUSION

- This study suggests that Illinois students from the age of 6<sup>th</sup>-8<sup>th</sup> grade have potential gaps in knowledge on the topic of vaping.
- Due to the potential consequences that are currently known, and the potential for long-term consequences that are not yet understood, continuing education is needed for youth in order to ensure they make educated decisions about whether they chose to use e-cigarettes or quit vaping in the future.
- The intervention used during this study showed positive benefits of an overall 11% average increase in knowledge and has the potential to serve as an educational resource for a variety of users in the community to inform youth on the topic of electronic cigarettes.