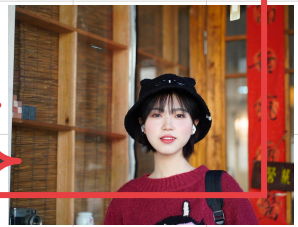
DIGITAL SCAM PREVENTION COURSE

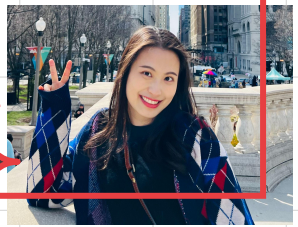
Our team

Srinidhi



Olia

Yuetong



Shaina

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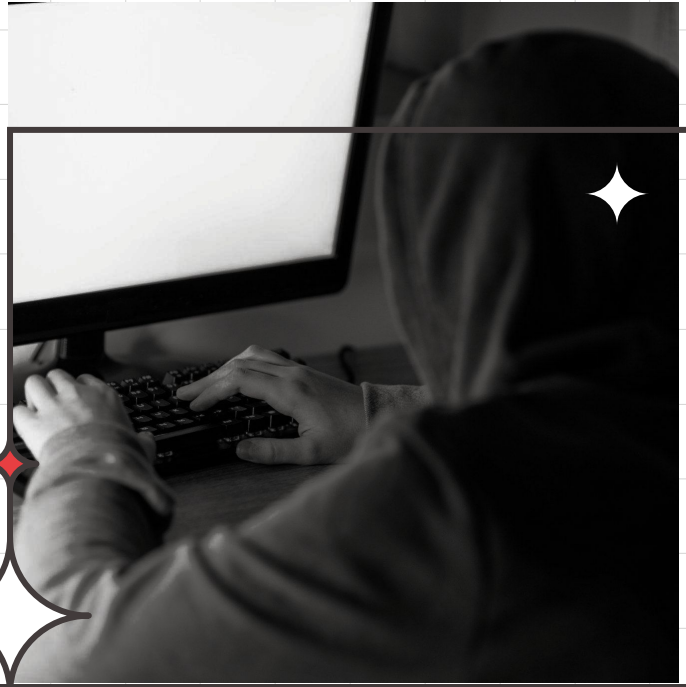
01

Introduction

What are digital scams?

- Phishing
- Job related
- Online Shopping
- Romance/dating
- Social Media

Digital scams are fraudulent activities that take place online or via electronic communication channels, such as email, social media, or text messaging.



Background on digital scam

- In recent years, digital scams have become increasingly common and sophisticated, posing a significant threat to individuals, businesses, and governments worldwide.
- According to a 2020 report by the Federal Trade Commission (FTC) in the United States, consumers reported losing over $3.3 billion to fraud in 2020 alone, with the highest reported losses coming from imposter scams and online shopping scams.
- The increasing prevalence and sophistication of digital scams highlight the need for increased awareness and education around these issues.

02

Exploratory research

Interviews summary

Participants: 8, Age: 22-30, Gender: Male: 3, Female: 5

"The design purpose of these social platforms is not to protect user data security."

"When participating in offline activities, if I want to leave contact information, I always give fake phone numbers and residential addresses."

03

Data collection

Question type & Sampling method

- Scams awareness
- Social media platforms & activities
- Scam activities
- Protections
- Demographics

How confident are you in your ability to identify scams and misleading information online?

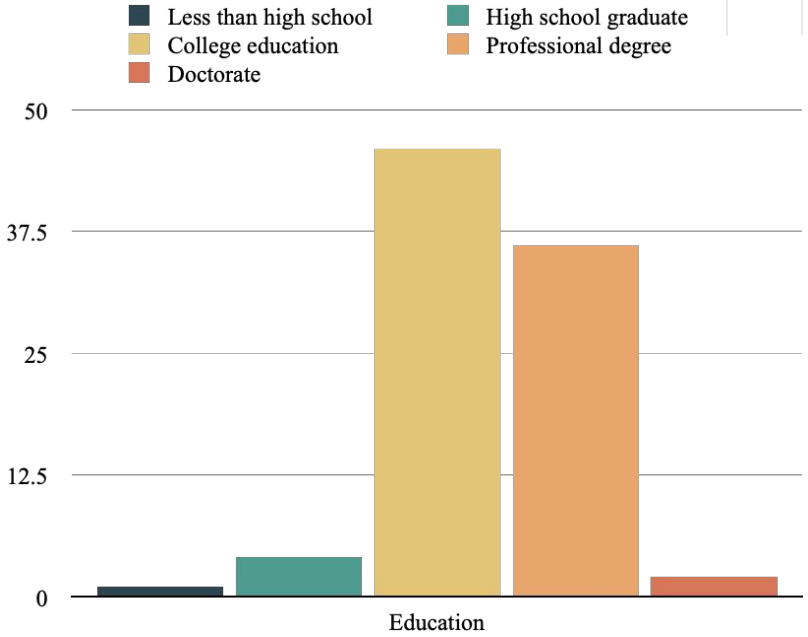
Please select which of the following types of scams or misleading information have you encountered.

Convenience Sampling & Snowball Sampling

Email, WhatsApp, Wechat, Instagram, etc.

Summary statistics

- Valid survey response: 89
- Female: 64%, Male: 35%, Third gender: 1%
- Mean age group: 22 – 24 years old
- Mean social media usage: 3 -5 hours
- Mode money loss: none at all



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Survey analysis

Does confidence level differ from education level ?

	Below and Graduate	Master&PHD
Mean	3.882352941	4.315789474
Variance	0.985882353	1.411095306
Observations	51	38
Pooled Variance	1.166720046	
Hypothesized Mean Difference	0	
df	87	
t Stat	-1.872509659	
P(T<=t) one-tail	0.032247556	
t Critical one-tail	1.662557349	
P(T<=t) two-tail	0.064495112	
t Critical two-tail	1.987608282	

Two Sample t-Test

t=-1.87 p=0.064 > 0.05
Not Significant at 95% level
We can conclude, that there is no difference in confidence level between Education below Graduate and above.

Does mobile usage time differ from age level ?

Two Sample t-Test

t=0.26 p=0.80 > 0.05
Not Significant at 95% level
We can conclude, that there is no difference in mobile usage time between age below 24 and above.

	Below 24	Above 24
Mean	3.239130435	3.186046512
Variance	0.941545894	0.916943522
Observations	46	43
Pooled Variance	0.929668886	
Hypothesized Mean Difference	0	
df	87	
t Stat	0.259547592	
P(T<=t) one-tail	0.39791298	
t Critical one-tail	1.662557349	
P(T<=t) two-tail	0.79582596	
t Critical two-tail	1.987608282	

For master students, what action is more frequent ?

Matched Pair t-test

t=5.0 p=0.00000294 < 0.05
Significant at 95% level

For master students, they use public Wi-Fi to access sensitive information more frequently than purchase a product online from unfamiliar websites.

t-Test: Paired Two Sample for Means

	public Wi-Fi to access sensitive information	purchase a product online from unfamiliar websites
Mean	2.701149425	1.942528736
Variance	1.956161454	1.426891206
Observations	87	87
Pearson Correlation	0.414154784	
Hypothesized Mean Difference	0	
df	86	
t Stat	5.004450486	
P(T<=t) one-tail	1.46985E-06	
t Critical one-tail	1.662765449	
P(T<=t) two-tail	2.9397E-06	
t Critical two-tail	1.987934206	

For college students, where do they encounter scams more often ?

t-Test: Paired Two Sample for Means

	Social media	Email
Mean	2.269230769	2.641025641
Variance	1.394105894	1.505827506
Observations	78	78
Pearson Correlation	0.42610723	
Hypothesized Mean Difference	0	
df	77	
t Stat	-2.544612445	
P(T<=t) one-tail	0.006470358	
t Critical one-tail	1.664884537	
P(T<=t) two-tail	0.012940715	
t Critical two-tail	1.991254395	

Matched Pair t-test

t=-2.54 p=0.0129 < 0.05
Significant at 95% level

For college students, they encounter scams or misleading information more through email than social media such as Facebook, Twitter, Instagram.

Compare students below graduate and above on reporting scams or not

Chi square test

X^2=5.416 p=0.067 > 0.05
Not significant at 95% level

There is no correlation between education level and reporting scam at 95% significance level.

Count of report	Column Labels		
Row Labels	Below and Graduate	Mater and PHD	Grand Total
Did not report	37	21	58
Report to police	5	2	7
Report to the platform	9	15	24
Grand Total	51	38	89

Count of report	Column Labels		
Row Labels	Below and Graduate	Mater and PHD	Grand Total
Did not report	33.23595506	24.76404494	58
Report to police	4.011235955	2.988764045	7
Report to the platform	13.75280899	10.24719101	24
Grand Total	51	38	89

deg freedom for table	2
pvalue	0.06666371
chi sq	5.416189116

Correlation Between

Confidence level and action frequency

	confidence	other security measures to protect online accounts	public Wi-Fi to access sensitive information	regularly updated passwords	regularly check bank statements and credit reports	purchase a product online from unfamiliar websites
confidence	1					
other security measures to protect online accounts	0.027926	1				
public Wi-Fi to access sensitive information	-0.22861	0.087784	1			
regularly updated passwords	-0.08889	0.614724	0.244435	1		
regularly check bank statements and credit reports	0.080221	0.376822	0.011465	0.495195	1	
purchase a product online from unfamiliar websites	-0.1529	0.40607	0.425818	0.673377	0.512778	1

Correlation Between

Platform frequency of scams or misleading information and lost money

	Social media	Email	Messaging app	Job board	Dating app	Online Shopping	How much money did you lose
Social media such as Facebook, Twitter, Instagram	1						
Email	0.361302197	1					
Messaging app such as WhatsApp, WeChat, Telegram,TextMessage	0.385865028	0.59533775	1				
Job board such as LinkedIn, Indeed	0.515977508	0.52333677	0.484290178	1			
Dating app such as Tinder, Bumble, Hinge	0.422614711	0.36438247	0.226931698	0.50176822	1		
Online Shopping such as Amazon,Target,Weee!	0.692093012	0.35218756	0.509351025	0.59451693	0.53951734	1	
How much money did you lose during the scam?	0.181436881	0.10043621	0.284472432	0.19711704	0.31096485	0.34089847	1

Regression:SLR

a regression of the frequency (the Y variable) you encounter scams or misleading information through online shopping against the frequency of purchasing from unfamiliar websites(the X variables).

Conclusion

The frequency of purchasing a product online from unfamiliar websites is a marginally significant predictor of the frequency of facing misleading info via shopping app (b = 0.57, p<0.05, R^2=0.426)

Regression Statistics	
Multiple R	0.652604396
R Square	0.425892498
Adjusted R Square	0.419293561
Standard Error	0.796112125
Observations	89

ANOVA

	df	SS	MS	F	Significance F
Regression	1	40.904821	40.904821	64.539563	4.228E-12
Residual	87	55.1401228	0.63379451		
Total	88	96.0449438			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.662513543	0.16100222	4.1149342	8.7713E-05	0.3425042	0.98252289	0.3425042	0.98252289
rate how often you take those actions. - purchase a product online from unfamiliar websites	0.573311665	0.07136377	8.03365191	4.228E-12	0.43146845	0.71515488	0.43146845	0.71515488

Regression:MLR

a regression of the frequency (the Y variable) of updated passwords for online accounts against frequency you encounter scams or misleading information in different platforms(the X variables).

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.722279
R Square	0.521687
Adjusted R Square	0.504806
Standard Error	0.781601
Observations	89

ANOVA

	df	SS	MS	F	Significance F
Regression	3	56.63532	18.87844	30.90268	1.32E-13
Residual	85	51.92648	0.6109		
Total	88	108.5618			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.265482	0.177515	1.495542	0.138477	-0.08747	0.618429	-0.08747	0.618429
Job board	0.314557	0.08743	3.59779	0.000538	0.140721	0.488392	0.140721	0.488392
Dating app	0.162178	0.090415	1.793703	0.076417	-0.01759	0.341947	-0.01759	0.341947
Online Shopping	0.359482	0.105748	3.399425	0.00103	0.149227	0.569737	0.149227	0.569737

Conclusion

The frequency you encounter scams or misleading information on Job board is a significant predictor of the frequency of updated passwords for online accounts.(b=0.314, p=0.000538, R^2=0.52)

The frequency you encounter scams or misleading information through Online shopping is a significant predictor of the frequency of updated passwords for online accounts.(b=0.359, p=0.00103, R^2=0.52)

05

Conclusion

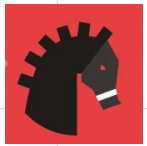
Main findings

- The findings suggest that education level and age may not be significant factors in determining susceptibility to digital scams, but other variables such as online behavior and the type of platform where scams occur can have an impact on vulnerability. The study also highlights the importance of password security and the need for continued efforts to educate individuals about digital scams and how to prevent them.

- Another interesting point to note is that, although the awareness and the ways to counter scams are widely used, the scams that students encounter is still at large but, they are just a lot more cautious.

Limitations of sampling method

- **Limited Generalizability:** since it is limited to students of Brandeis University
- **Homogeneity of Sample:** Unique characteristics of group of students because of shared background
- **Self-selection Bias:** Not representative of the entire population
- **Limited Sample size:** does not capture the diversity or experiences of students
- **Potential for response bias:** providing socially desirable responses leading to inflated results



Recommendations to prevent scams

- Use Strong Passwords
- Verify Requests for Information or Funds
- Keep Software Up-to-Date
- Check URLs and Domain Names
- Be Cautious of Unsolicited Emails and Messages
- Monitor Bank and Credit Card Statements
- Use Two-Factor Authentication

Thanks!

Q&A