Prestigious Dates

w241
4/14/2020
Lovejoy, MacLean, Petit


It's a Match!
You and Dale have liked each other.

Most popular way modern couples meet

39%
heterosexual couples

60%
same-sex couples

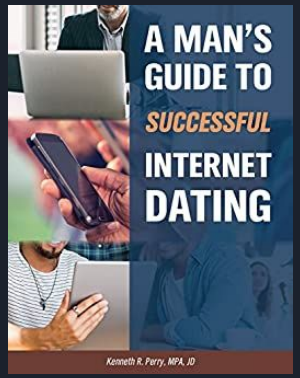
https://web.stanford.edu/~mrosenfe/Rosenfeld_et_al_Disintermediating_Friends.pdf

What makes a successful profile?

The ultimate online dating tips guide: Begin your online dating success now!

With 40 million Americans now using online dating services, the chances of finding love online are higher than ever. However, to make the most of this, you need to know how to play the game, which is where our online dating tips can help.

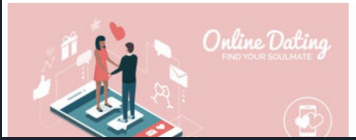
In order to help you along, EliteSingles has created the ultimate guide to online dating, which will ease you through the different stages of



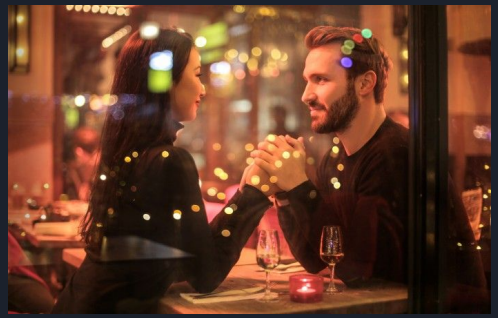
7 Steps to Being Successful in Online Dating

The process of online dating.

Posted Nov 23, 2018



Don't like being alone? Want a partner? Then online dating offers you the possibility of finding one. However, online



Experimental Questions

	Research Questions	Outcome Measures
Primary	Prestigious college	Match rate
Secondary	Impressive job	Match rate
Tertiary	Prosocial behavior	Match rate

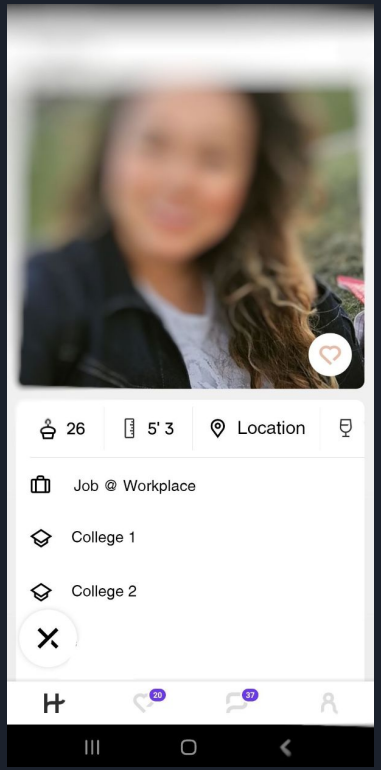
Hinge Overview

Why Hinge:

- Dating app for more serious relationship
- Subjects are likely exposed to treatments
- Large user-base in the Bay Area

How it works:

- Like someone's profile for a chance to match!



Profile Design

Profile Detail	Both Profiles
Name	Kevin Fuller
Age	27
Height	5’11”
City of Residence	San Francisco
Hometown	Columbia, South Carolina
Alcohol ok?	Sometimes
Smoking ok?	No
Prompt-Answer 1	A life goal of mine: Having a Wikipedia page
Prompt-Answer 2	Typical Sunday: Relaxing, going for a run and meal prep!

	Treatment Profile	Control Profile
College Attended	UC Berkeley	(blank)

	Varied Over Time	
Job Title	Data Engineer at Google	Waiter
Prompt-Answer 3	Social cause I care about: I counsel foster youth in SF weekly	I know the best spot in town for: Live music and a great DJ

Experimental Design

- Multifactor experiment - 2x2x2 design
- School treatment - across profiles
- Good job and counsel kids - varied over time

R	$X_{1,2,3}$	$X_{1,3}$	$X_{1,2}$	X_1	O
R		X_2	X_3	$X_{2,3}$	O

X_1 = School
X_2 = Good job
X_3 = Counsel kids

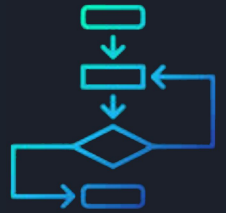
Randomization Engineering

Assignment process:

- Subjects assigned through ‘likes’
- Subjects exposed to set of active treatments
- 400 observations collected

Risks:

- Randomization procedure may fail
- Hinge algorithm may produce non-equivalent groups



Modeling Choices

Model (if covariate balance check **passed**)	Added Features (if covariate balance check **failed**)
1 $match = \beta_0 + \beta_1 prestigious\_college + \varepsilon$	$+ \beta_k college$ $+ \beta_{k+1} age$ $+ \beta_{k+2} height$ $+ \beta_{k+3} drink\_yes + \beta_{k+4} drink\_no$ $+ \beta_{k+5} smoke\_yes + \beta_{k+6} smoke\_no$ $+ \beta_{k+7} weed\_yes + \beta_{k+8} weed\_no$
2 $match = \beta_0 + \beta_1 high\_caliber\_job + \beta_2 prestigious\_college*high\_caliber\_job + \varepsilon$	
3 $match = \beta_0 + \beta_1 prosocial + \beta_2 prestigious\_college*prosocial + \varepsilon$	

Main Results - Prestigious College Effect

- Treatment has ***negative*** effect on match rate
- Fail to reject H_0
- Hypothesized effect of treatment: **busted**

```
t test of coefficients:

             Estimate Std. Error t value  Pr(>|t|)
(Intercept)  0.215000   0.029196  7.3641 1.035e-12 ***
treatment   -0.015000   0.040748 -0.3681     0.713
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

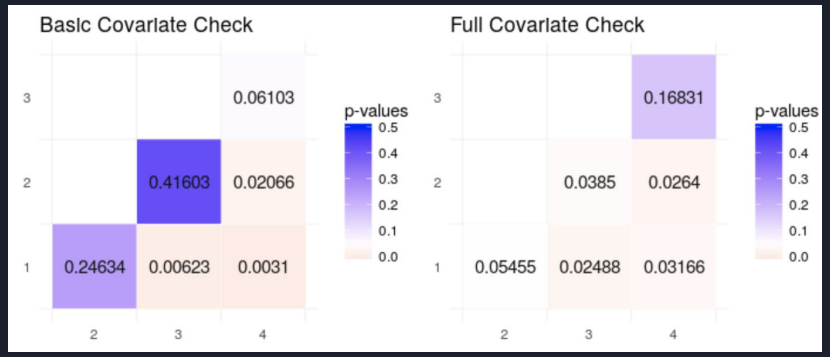
- **Passed** covariate balance check across treatment and control profiles
- Fail to reject null that covariates are jointly significant in predicting treatment

```
Analysis of Variance Table

Model 1: get(treat_var) ~ 1
Model 2: get(treat_var) ~ 1 + college + age + height + drink_yes + drink_no +
    smoke_yes + smoke_no + marijuana_yes + marijuana_no
  Res.Df     RSS Df Sum of Sq      F Pr(>F)
1    399 100.000
2    392  97.769  7    2.2314 1.2781 0.2597
```

Main Results - High-caliber Job Effect

- Using a few “basic” covariates, adjacent windows are comparable
- For “basic” or full covariate set, we reject null that covariates are jointly insignificant in predicting treatment window (**fail** covariate balance check)



- Model includes covariates and tests for heterogeneous treatment effects
- High-caliber job has ***positive*** effect on match rate; reject H_0
- Interaction of prestigious college and job has ***negative*** effect; reject H_0
- Hypothesized effect of treatment: **affirmed**

```
t test of coefficients:

                 Estimate Std. Error t value  Pr(>|t|)
(Intercept)   -1.4359990  0.5522406 -2.6003  0.009669 **
treatment      0.0875363  0.0517484  1.6916  0.091528 .
job            0.2218430  0.0547154  4.0545 6.071e-05 ***
college        0.0186271  0.0437028  0.4262  0.670182
age            0.0073687  0.0088052  0.8369  0.403186
height         0.0186525  0.0079028  2.3602  0.018756 *
drink_yes      0.0448674  0.0622980  0.7202  0.471830
drink_no       0.0475216  0.1333709  0.3563  0.721801
smoke_yes      0.2487345  0.1451980  1.7131  0.087496 .
smoke_no       0.1110754  0.0431462  2.5744  0.010411 *
treatment:job -0.1751247  0.0805451 -2.1742  0.030289 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Main Results - Prosocial Effect

- Model includes covariates and tests for heterogeneous treatment effects
- Prosocial behavior has ***negative*** effect on match rate; fail to reject H_0 at p=0.05.
- Interaction of prestigious college and prosocial has ***positive*** effect; fail to reject H_0
- Hypothesized effect of treatment: **busted**

```
t test of coefficients:

                    Estimate Std. Error t value Pr(>|t|)
(Intercept)       -0.9993213  0.5859654 -1.7054 0.088913 .
treatment         -0.0394588  0.0612341 -0.6444 0.519700
counsel           -0.1071644  0.0591767 -1.8109 0.070924 .
college            0.0015114  0.0451516  0.0335 0.973314
age                0.0046493  0.0088444  0.5257 0.599415
height             0.0158867  0.0082650  1.9222 0.055316 .
drink_yes          0.0295016  0.0611955  0.4821 0.630015
drink_no           0.0481286  0.1380372  0.3487 0.727530
smoke_yes          0.2703499  0.1529925  1.7671 0.077999 .
smoke_no           0.1235904  0.0434723  2.8430 0.004705 **
treatment:counsel  0.0605854  0.0841147  0.7203 0.471791
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Limitations

- Proxies for treatment effects of interest
- Excluded women who'd set filters
- Randomization a challenge to achieve on dating app
- Discrepancy between pilot and main experiment
- Small sample size
- Difficult to create many profiles
- Potential matches in the same city seeing two nearly identical profiles

What we would change

- More profiles (one maintained at control, female profile)
- More time to collect data over several weeks
- Explore changes to profile pics
- Collect some measure of profile “legitimacy” for likes
- Treatment effect across dating apps (Tinder vs Hinge)
- No CoVID