

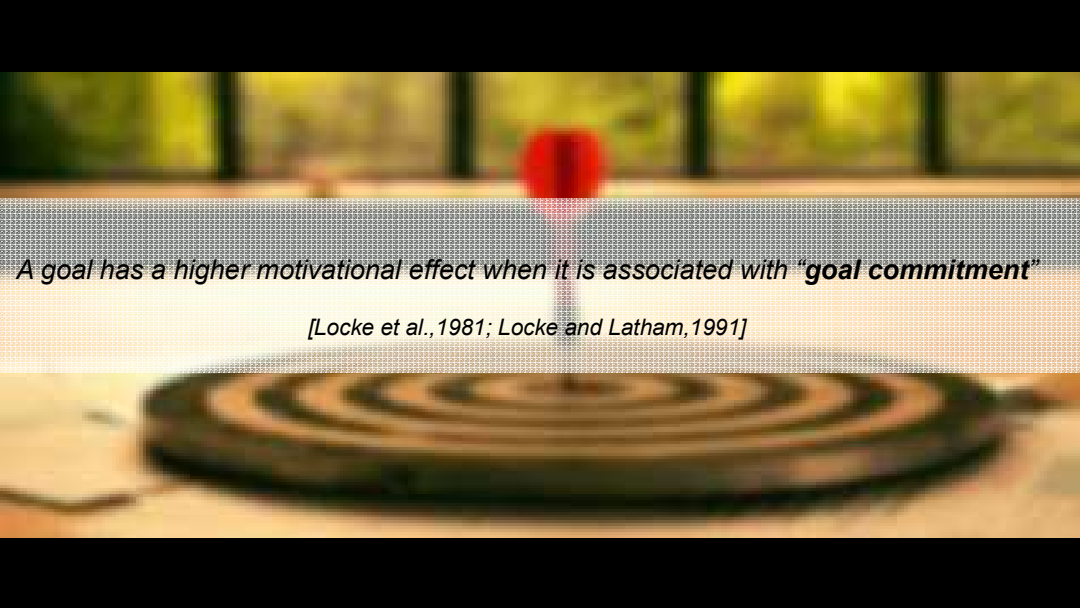


Sticky Goals: Understanding Goal Commitments for Behavior Changes in the Wild

Hyunsoo Lee¹, Auk Kim², Hwajung Hong³, Uichin Lee¹

¹ KAIST, ² Kangwon National University, ³ Seoul National University



A blurred background image of a red dart hitting the bullseye of a target on a dartboard. The dart is in the center, and the target is in the foreground. The background is out of focus, showing what appears to be a room with windows and greenery outside.

A goal has a higher motivational effect when it is associated with “goal commitment”

[Locke et al., 1981; Locke and Latham, 1991]

Previous Approaches: Reward-Based Tactics

- Leveraging “Contingent Reward”
 - Offering *financial incentives* upon successful goal achievements



Smoking Cessation
(Xavier et al., 2010)



Physical Activity
(Charness et al., 2009)



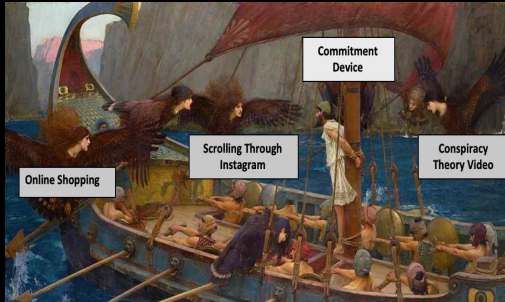
Productivity
(Mitra et al., 2015)



Dietary Behavior
(Wall et al., 2006)

Our Approach and Motivation: Penalty-Based Tactics

- Leveraging “**Commitment Device**”
 - Associating “*restriction*” or “*penalty*” with goal failure (Rogers et al., 2014)





Financial Commitment



Social Commitment

Limitations: Small Scale & No Mixed Commitment Design



Security
(Frik et al., 2019)



Productivity
(Ariely and Wertenbroch, 2002)

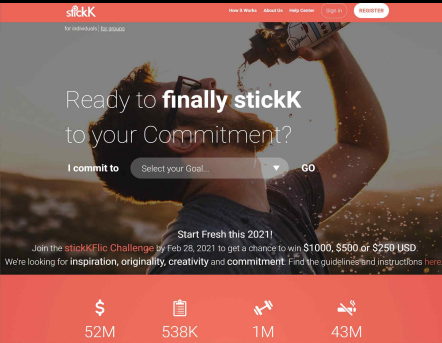


Money Saving
(Thaler and Benartzi, 2004)



Exercise
(Epstein et al., 1980)

Recent Online Behavior Change Support Systems



stickK

for individuals | for groups

How it Works About Us Help Center Sign In REGISTER

Ready to **finally stickK** to your Commitment?

I commit to GO

Start Fresh this 2021!

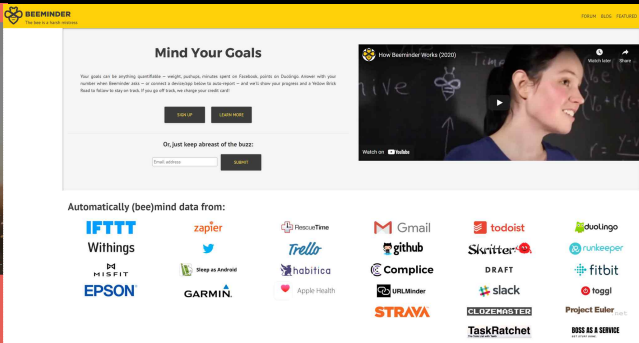
Join the **stickKFlic Challenge** by Feb 28, 2021 to get a chance to win \$1000, \$500 or \$250 USD. We're looking for inspiration, originality, creativity and commitment. Find the guidelines and instructions [here](#).

\$ 52M

📅 538K

🏋️ 1M

📌 43M



BEEMINDER

The bee in a hard hat

FORUM BLOG FEATURED

Mind Your Goals

Your goals can be anything quantifiable — weight, perhaps, minutes spent on Facebook, points on Duolingo. Answer with your number when Beeminder asks — or connect a device/app below to auto-report — and we'll show your progress and a Yellow Brick Road to follow to stay on track. If you go off track, we charge your credit card!

Or, just keep abreast of the buzz:

How Beeminder Works (2020)

Watch later 0 fans

Watch on YouTube

Automatically (bee)mind data from:

- IFTTT
- Withings
- MISFIT
- EPSON
- zapier
- Twitter
- Sleep as Android
- GARMIN
- RescueTime
- Trello
- habitica
- Apple Health
- Gmail
- github
- Complice
- URLMinder
- STRAVA
- todoist
- Skritter
- DRAFT
- slack
- CLOZEMASTER
- TaskRatchet
- duolingo
- runkeeper
- fitbit
- foggl
- Project Euler
- BOSS AS A SERVICE

The use of commitment device for persuasive technology design is still at an early age of the HCI research

Research Questions

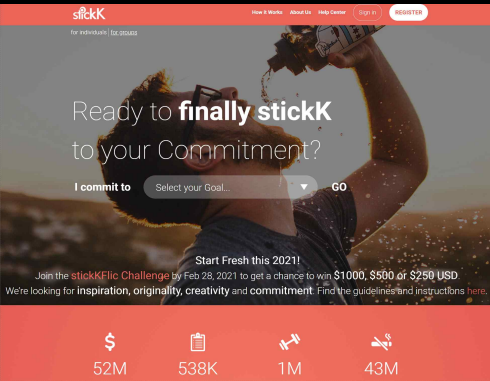
RQ1.

Major Goals and Commitment Device Usage in stickK

RQ2.

Variables related to goal achievements

About stickK



stickK
for individuals | for groups

How It Works About Us Help Center Sign in REGISTER

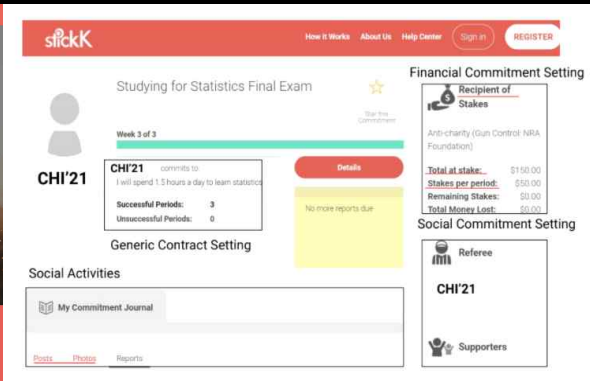
Ready to **finally stickK** to your Commitment?

I commit to GO

Start Fresh this 2021!

Join the [stickKFlic Challenge](#) by Feb 28, 2021 to get a chance to win \$1000, \$500 or \$250 USD. We're looking for **inspiration, originality, creativity** and **commitment**. Find the guidelines and instructions [here](#).

\$ 52M 📅 338K 🏋️ 1M 📶 43M



stickK

How It Works About Us Help Center Sign in REGISTER

Studying for Statistics Final Exam ★ Star this Commitment

Week 3 of 3

CHI'21 commits to:
I will spend 1.5 hours a day to learn statistics.

Successful Periods: 3
Unsuccessful Periods: 0

Details

No more reports due

Generic Contract Setting

Social Activities

My Commitment Journal

[Posts](#) [Photos](#) [Reports](#)

Financial Commitment Setting

Recipient of Stakes

Anti-charity (Gun Control: NRA Foundation)

Total at stake: \$150.00
Stakes per period: \$50.00
Remaining Stakes: \$0.00
Total Money Lost: \$0.00

Social Commitment Setting

Referee

CHI'21

Supporters

How stickK works

1. Financial Commitment (optional)



FAIL



Charity



Anti-Charity



Friend

Put money for a goal

How stickK works

2. Social Commitment & Social Support



Referee: Self vs. Friend

Your Goal Progress



Supporter (O/X)

Data Collection

- Crawled publicly available commitment pages ($n = 75,828$) in stickK (Nov, 2013 ~ Feb, 2018)

The screenshot shows a user profile for 'CHI'21' on the stickK platform. The user is currently committed to 'Studying for Statistics Final Exam', which is in its third week. The commitment details state: 'CHI'21 commits to: I will spend 1.5 hours a day to learn statistics'. The user has 3 successful periods and 0 unsuccessful periods. A 'Details' button is visible. The page also features sections for 'Financial Commitment Setting' (Recipient of Stakes: Anti-charity (Gun Control NRA Foundation), Total at stake: \$150.00, Stakes per period: \$50.00, Remaining Stakes: \$0.00, Total Money Lost: \$0.00), 'Social Activities' (My Commitment Journal), and 'Social Commitment Setting' (Referee: CHI'21, Supporters).

stickK How It Works About Us Help Center Sign in REGISTER

CHI'21 Studying for Statistics Final Exam [Star this Commitment](#)

Week 3 of 3

CHI'21 commits to:
I will spend 1.5 hours a day to learn statistics

Successful Periods: 3
Unsuccessful Periods: 0

[Details](#)

No more reports due

Generic Contract Setting

Social Activities

My Commitment Journal

[Posts](#) [Photos](#) [Reports](#)

Financial Commitment Setting

Recipient of Stakes

Anti-charity (Gun Control NRA Foundation)

Total at stake: \$150.00
Stakes per period: \$50.00
Remaining Stakes: \$0.00
Total Money Lost: \$0.00

Social Commitment Setting

Referee

CHI'21

Supporters

Research Questions

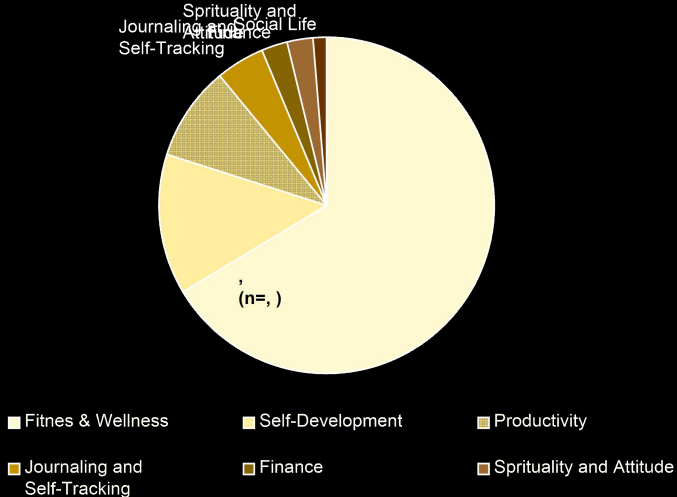
RQ1.

Major Goals and Commitment Device Usage in stickK

RQ2.

Variables related to goal achievements

RQ 1-1. Major Goals: Fitness & Wellness



RQ 1-2. Popular Choices: Anti-Charity / Self-referee & No Supporter

- Stake recipient
 - **Anti-charity** was the most popular option
- Referee
 - **Self-referee** > Friend-referee
- Supporter
 - **No supporter** (93%)

Research Questions

RQ1.

Major Goals and Commitment Device Usage in stickK

RQ2.

Variables related to goal achievements

RQ2. Money Talks!!



Total stake ($<.001$)



Anti-charity ($<.001$)



Friend-referee ($<.001$)



Supporter ($<.001$)

Takeaway messages

1. Financial commitment positively influences goal achievement
2. Amplifying a sense of penalty (e.g., anti-charity) increases goal commitment
3. Social commitment (i.e., accountability) and social support in a mixed commitment setting positively influence goal achievement

➔ Further exploration on mixed commitment system design is required!