LOOKUP

How LookUp’s new Learning features are designed to help you improve your vocabulary

The design process and science behind LookUp's latest feature designed to build your vocabulary.

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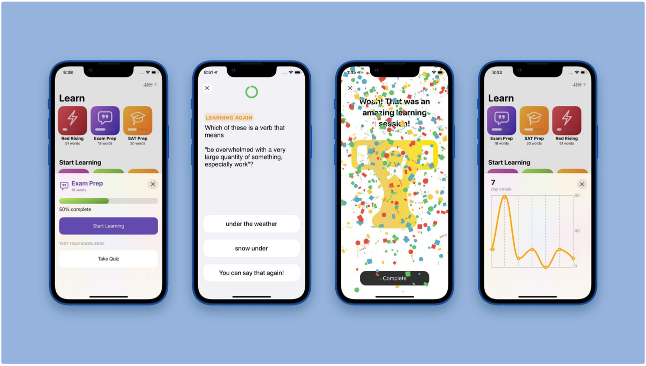

5:38
Learn
Red Rising
51 words
Exam Prep
18 words
SAT Prep
30 words
Start Learning
Exam Prep
18 words
50% complete
Start Learning
TEST YOUR KNOWLEDGE
Take Quiz
8:51
LEARNING AGAIN
under the weather
snow under
You can say that again!
1:45
Complete
5:43
Learn
Exam Prep
18 words
SAT Prep
30 words
Red Rising
51 words
Start Learning
7
day streak
80
40
0

Which of these is a verb that means

"be overwhelmed with a very large quantity of something, especially work"?

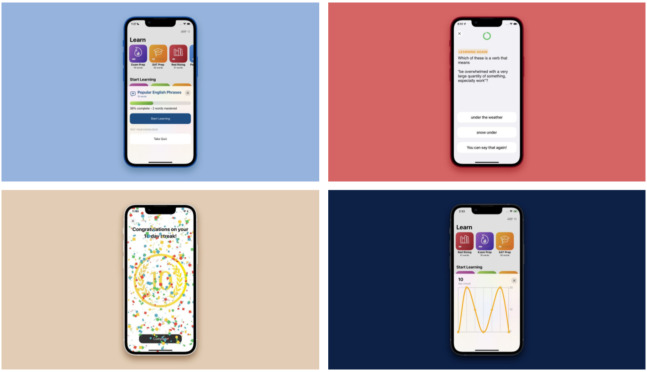
Woah! That was an amazing learning session!

What is LookUp Learn

Releasing with LookUp 8, is a new feature called “Learn”. The idea is to help users build their vocabulary using a simple but scientifically proven technique of spaced repetition. It’s an extension of the “Quiz” feature introduced in LookUp a couple of years ago.

Much like Quizzes, Learn too is tethered to a user’s Collections and presents a set of multiple choice questions in a learning session. But while Quizzes are a great way to *test* the user’s vocabulary, Learn is meant to build it.

How does it work?


Learn
Exam Prep
SAT Prep
Red Rising
Start Learning
Popular English Phrases
Start Learning
TEST YOUR KNOWLEDGE
Take Quiz
LEARNING AGAIN
Complete
10
day streak

38% complete - 2 words mastered

Which of these is a verb that means

"be overwhelmed with a very large quantity of something, especially work"?

under the weather

snow under

You can say that again!

Congratulations on your 10 day streak!

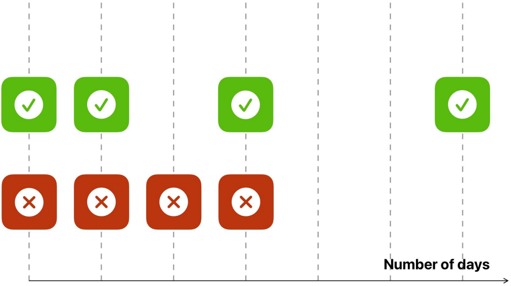
When you tap on the new learn tab in the app's UI, LookUp presents you with a set of collections, pick anyone you want to build your vocabulary from and start learning.

Vocabulary building is divided into different Learning Sessions, with the purpose of repeatedly showing words that the user gets incorrect more often. When the user makes a mistake in the sessions, the app understands that they need to learn it again. It also keeps track of that for the next time the user starts their session.

This way, over the course of multiple sessions spaced out over a few weeks (depending on the number of words in a collection), the feature helps users master words, so that they don't forget them. The collection's sessions are considered complete once all words are mastered.

The Science

How does spaced repetition work?


Number of days

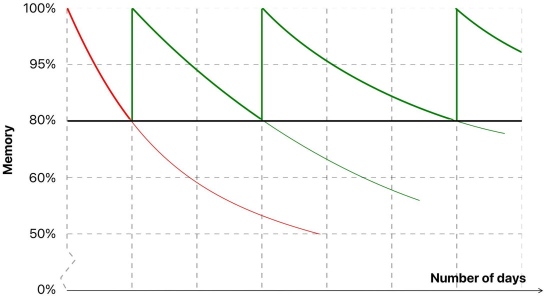
Words that the user gets right more often are asked less frequently and new words or words that the user gets wrong more often are asked more frequently

Learn is based on the technique of spaced repetition. Words that the user gets right more often are asked less frequently and new words or words that the user gets wrong more often are asked more frequently. Over time, the words get ingrained in the user's memory and they remember the definition for longer.

The idea with spaced repetition is to ask for information at the right time. There's little use of asking everything at once, which results in the users practically cramming words; or asking things after a very long period of time which results in users forgetting what they learnt in their previous session.

Forgetting curve

An area of research closely linked to Spaced Repetition is the Ebbinghaus' Forgetting Curve. The Forgetting curve theorises the speed at which we forget something shown to us.



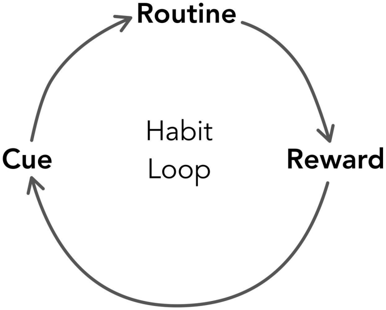
A conceptual representations of Ebbinghaus' Forgetting Curve

Ebbinghaus' curve further suggests that the rate at which we forget information can be slowed down (or the memory curve be flattened) by repeatedly learning the information.

The forgetting curve provides valuable insights into how sessions could be spaced so that the users best retain what they learn. LookUp uses the ideas behind this forgetting curve to time the learning sessions appropriately.

Habit Loops: How does one build a habit?

While spaced repetition is effective, it's also important to have users show up to learn just as frequently. Which presents another interesting question. What makes people come back to an app?


Routine
Cue
Habit
Loop
Reward

One of the ways that makes people come back is that the app ingrains a habit of performing a certain task. This technique is fairly common in a lot of apps right now from social media apps like Instagram and Twitter to language learning apps like Duolingo. The idea is to form a habit out of a certain task.

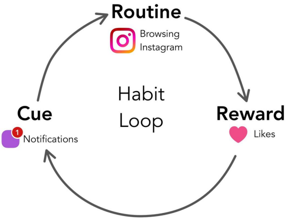
Habit forming involves a three step loop. A cue (or trigger) that starts the action, a routine i.e. the habit that we're trying to form, and a reward that encourages the user to come back again.

Designs that encourage bad habits create addiction

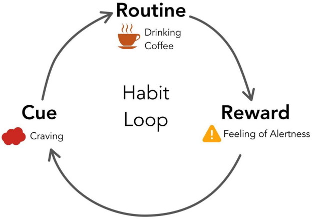
Habit forming is a double edged sword. On one hand, it drives engagement, makes people come back to your app more often, but on the other, it can lead to habits that aren't exactly healthy.

For example: Likes, and Retweets are a great way of making people check Twitter again and again, they serve as great triggers to form the habit of using twitter regularly. However, that habit can be a time sink and make people hooked onto to the momentary happiness they get from the likes.

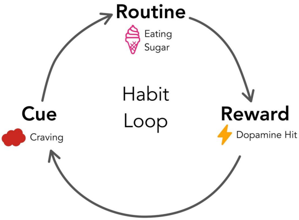
Such habit loops are elsewhere too including in real world scenarios.


Routine
Browsing
Instagram
Cue
1
Notifications
Habit
Loop
Reward
Likes

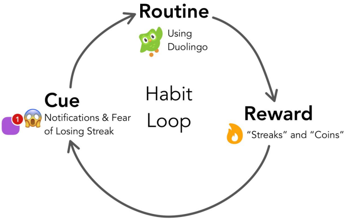
Instagram and Social Media apps often use "Likes" to drive engagment, in turn creating a habit loop amongst users which makes them addicted to their service.


Routine
Drinking Coffee
Habit Loop
Cue
Craving
Reward
Feeling of Alertness

Caffeine addiction is one of the most common examples of habit loops. Drinking coffee makes you feel alert and less sleepy. So when you're tired, the brain tells you to look for caffeine because that's what helped you last time, eventually creating a loop where the craving for coffee is itself a trigger to drink it.


Routine
Eating Sugar
Habit Loop
Cue
Craving
Reward
Dopamine Hit

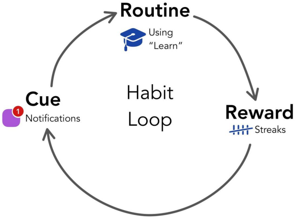
Sugar addiction is a similar well known example. The dopamine hit from Sugar makes you feel better, and over time you develop a craving for having it more often. Some studies say that Sugar could be just as addictive as cocaine.


Routine
Using Duolingo
Habit Loop
Cue
1
Notifications & Fear of Losing Streak
Reward
"Streaks" and "Coins"

Duolingo encourages the habit of learning by creating a habit loop out of streaks, coins and virtual achievements, the user starts using duolingo and feels the urge to maintain that streak. Eventually the act of maintaining the streak turns into a fear of losing it, and that itself is a powerful trigger to keep using the app.

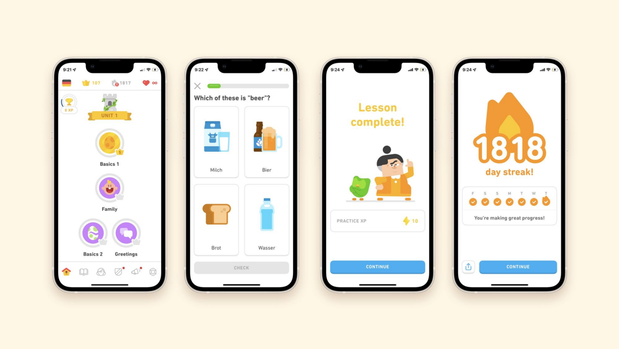
Streak based learning: A bad habit loop?

A draft of the habit loop design for LookUp's learn feature looks like this.

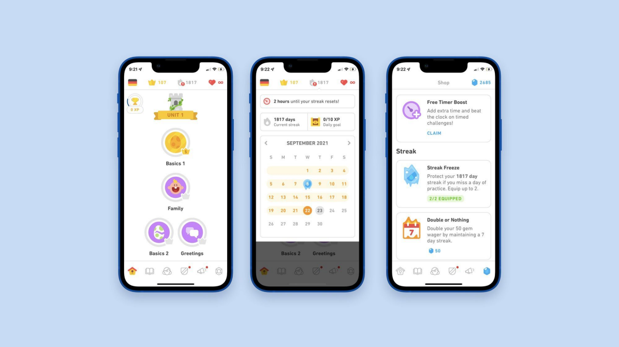

Routine
Using "Learn"
Cue
Notifications
Habit Loop
Reward
Streaks

As you can see, Duolingo's design pattern has an influence on this feature. It's using the same streaks based methodology. So during the course of designing the feature, I paid a closer look at how Duolingo's design of streaks works.

What I observed was, that the trigger in Duolingo's case eventually becomes the fear of losing the streak. If you have an 1800 day streak like me, you're probably looking to answer the quiz just in time so that you don't lose it. That fear in turn creates a trigger of answering the quickest, most easily accessible session in that layout.


107
1817
UNIT 1
Basics 1
Family
Basics 2
Greetings
Which of these is "beer"?
Milch
Bier
Brot
Wasser
CHECK
Lesson complete!
PRACTICE XP
10
CONTINUE
1818
day streak!
F S S M T W T
You're making great progress!
CONTINUE

The process of earning a streak in Duolingo.


107
1817
UNIT 1
Basics 1
Family
Basics 2
Greetings
SEPTEMBER 2021
Shop
2685
CLAIM
2/2 EQUIPPED
50

2 hours until your streak resets!

1817 days Current streak

0/10 XP Daily goal

Free Timer Boost

Add extra time and beat the clock on timed challenges!

Streak

Streak Freeze

Protect your 1817 day streak if you miss a day of practice. Equip up to 2.

Double or Nothing

Double your 50 gem wager by maintaining a 7 day streak.

Skipping a day of learning is a perfect monetisation opportunity for Duolingo which uses it to sell you Streak Freezes that would require you to buy "gems" if you don't have enough of them.

If the user misses a day, Duolingo sells them a streak freeze through it's "virtual coins". Don't have enough coins? Pay Duolingo a small sum to get them. Missed getting a coin? Subscribe to their Pro features to keep retaining the streak. By designing streaks this way, the app creates a perfect monetization opportunity. It knows there will be days when people miss learning and uses that as a way to sell its digital coins.

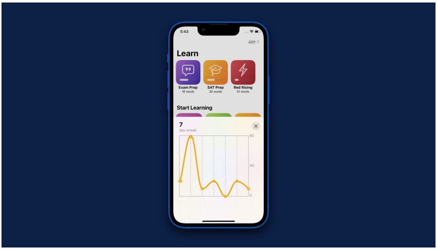
How LookUp is designed to be different

I wasn't particularly fond of the way Duolingo's streak systems work. Design doesn't just end at getting people to use the app, it's also how it impacts users long term.

Habits formed out of the fear of something are not positive habits. They are a great way to get you hooked on to using the app every day, but the long term impacts of fear based learning aren't good.

Design is how it impacts you long term. The goal is to learn, not engagement.

The end goal with LookUp is to learn and build vocabulary, it's not "engagement". So LookUp's streaks are designed differently.


5:43
7
Learn
Exam Prep
18 words
SAT Prep
30 words
Red Rising
51 words
Start Learning
7
day streak
80
40
0

It's ok to miss a day or two. The app understands that there will be days you don't feel like learning words.

If the user misses the learning sessions for a particular day in LookUp, the app intelligently takes into account their current streak and past trends to automatically "freeze" the streak. This way, the "fear of losing a streak" is no longer is no longer the part of the habit loop.

Another area where LookUp does things differently than some of its counterparts is the size of the learning session. Learning sessions in Lookup have small chunks of 15 or fewer words, as opposed to packing in everything. This makes it easier to learn words, rather than cram them all at once.

Learning in small chunks is important for a stress free learning

experience.

Smaller chunks also create a less stressful experience. Large sessions can be mentally draining, especially for people who have just started to learn the language, whereas small sessions are great motivators to learn.

Conclusion

LookUp Learn is one of the most ambitious features I've designed on LookUp. It's built on top of months of research into techniques that have shown strong scientific evidence of improving vocabulary in learner's of the language.

But more importantly it's designed with the intent of creating a stress free learning experience, one that's not trying to get you hooked or addicted to the app and really focusing on learning.

More Reading:

The Psychology of Study: CA Mace: https://psycnet.apa.org/record/1933-02633-000

Ebbinghaus Forgetting Curve:

Memory; a contribution to experimental psychology : Ebbinghaus, Hermann, 1850-1909 : Free Download, Borrow, and Streaming : Internet Archive

Translation of Uber dea Gedächtnis

Internet Archive ·

Habit Loops:

Habit Loop: What It Is and How to Break It

The habit loop is a useful way to think about the way habits form and break. Learn about the different components, find…

Healthline Media ·

Dr. Jud Brewer: Habit Loops and Every day Addictions:

Habit Loops & Everyday Addictions | Dr. Jud

Habits are our brain's way to conserve energy. Everyday addictions are just runaway habits. Dr. Jud discusses what…

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