

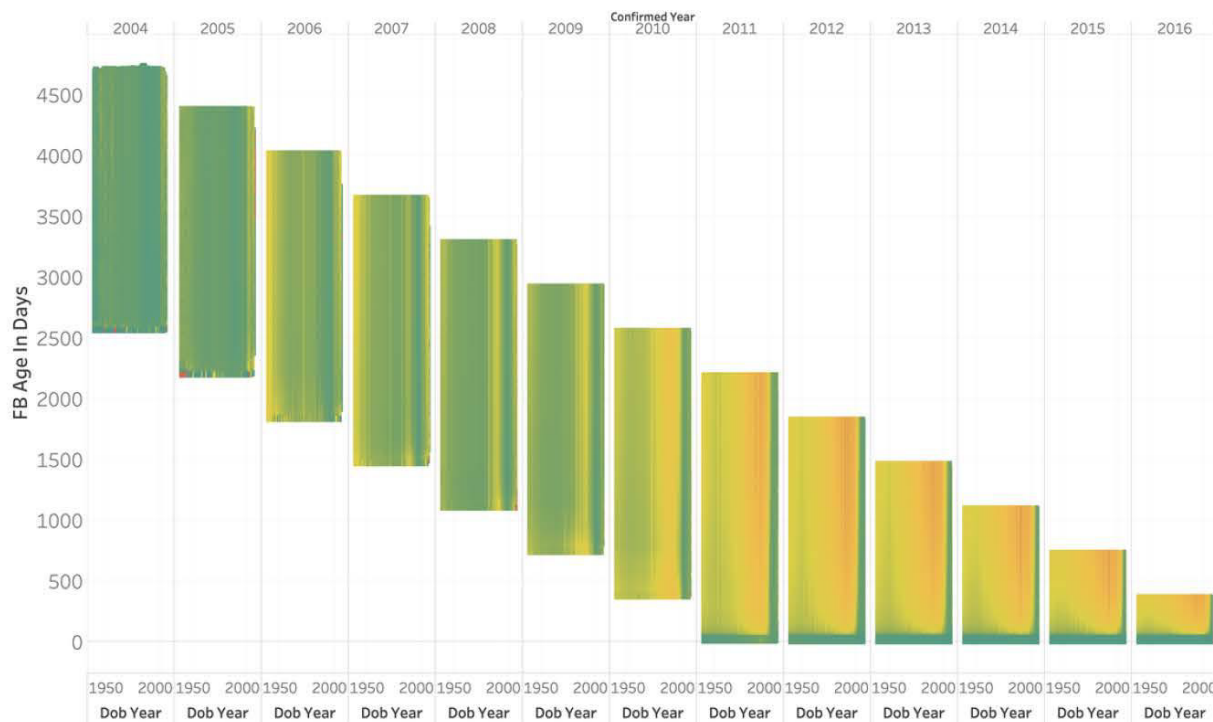
Exhibit 119

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Long Term Retention: The Young Ones are the Best Ones and Other Learnings

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(cover photo below)



TL;DR

We observe very stark differences in **long term retention** in the United States depending on (1) **Age at which you join Facebook** and (2) **Year in which you join Facebook**.

Establishing **long term retention as a standard metric** for Facebook to observe and analyze across our analytics and research teams, in addition to product teams more generally, is a major objective of this work. We see that year-of-birth/age and confirmation year are important dimensions through which to understand how different people are using Facebook over time.

Our three major findings and associated implications are below.

1. Tweens (approximate age 10-12) are special. People who join Facebook as tweens have the highest long term retention out of all age groups.

a. Observations

- i. As an example, for people who joined Facebook in 2016, 12 year-olds (born in 2004) have long term retention (LTR) MAP_28 of 72% at an FB age of 365. 32 year-olds (born in 1984) have long term retention of 25% at the same FB age. This is a **3x difference** for a 12 y/o versus a 32 y/o! The difference is similar in magnitude across multiple confirmation years.
- ii. You can also see this very clearly in the Chart 2 below. There is a green band (indicating high retention) on the right in every confirmation year. The exceptions are in the very early days of Facebook (2004 and 2005) when high schoolers did not have access to Facebook.
- iii. Caveat: These findings rely on the Age Affinity model, and while it is the best we have for age, there are biases in the model which may influence the results.

b. Implications

- i. **ACTION:** Given that tweens have long term retention multiple times (~3X) more than adults, understand why this is the case.
 - 1. Facebook as a whole should consider investing more heavily in bringing in larger volumes of tweens.
 - 2. For the Youth Team, **prioritize tweens over all other age groups.**
- ii. **ACTION:** Track down the former tweens who have incredibly high retention on Facebook and find out why they joined Facebook when they did and what keeps them on Facebook till this day. Can we replicate some of those conditions so that we have a greater number of highly retentive tweens in our pipeline?

2. The earlier the confirmation year (the year in which a user joined Facebook), the higher the long term retention.

a. Observations

- i. For example, for somebody who was born in 1953, this user's long term retention is markedly higher the earlier the user joined Facebook
 - 1. Joined 2009: 76% at Day 1,800
 - 2. Joined 2011: 54% at Day 1,800
 - 3. Joined 2013: Projected ~47% at Day 1,800 (48% at Day 1,400)
 - 4. Joined 2015: Projected ~35% at Day 1,800 (42% at Day 700)
- ii. You can also see this clearly in the Chart 2 below. The early confirmation years are much greener (LTR closer to 100%) than the latter confirmation years despite the early confirmation years despite having users who are of much greater Facebook age.

b. Implications

- i. Facebook's long term retention deteriorates with each passing year. This is unsustainable, and we need to find out why it deteriorates.
 - 1. Discovering why will lead to different product changes. Some hypotheses:
 - a. Competition: Other social services are better and better