Google

Informal Teachers and the pivotal role they play for New Internet Users

Research with the Next Billion Users

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Think back to your first brush with the internet. Perhaps it was decades ago. How did you learn to use it? Now imagine if you entered the world wide web as a brand new user *today*.

By 2025, more than 1.2 billion people will experience the internet for the first time across regions like Latin America, South & Southeast Asia, and Sub-saharan Africa, primarily with smartphones.

Google's Next Billion User initiative, which prioritizes building for emerging markets, has spent the last three years researching a specific population called New Internet Users. New Internet Users will make up a significant portion of the next billion people to use the internet.

New Internet Users are rapidly diversifying the landscape of the online population. Here's what makes them distinct:

- More peri-urban and rural (meaning patchy connectivity)
- More gender and age diversity (less male youth dominated)
- Lower income
- Low literacy, less time spent in formal education
- Limited prior exposure to digital technology
- Low digital literacy
- Low digital confidence
- Learns by instruction, not by exploring[1]

One of the most salient differences is how New Internet Users prefer to learn. In the past, users tended to learn by exploring their smartphones on their own. But New Internet Users tend to learn by instruction.

In our research, we spoke with 200 New Internet Users across 5 countries and kept in touch with more than 70 for a year while they learned to use their first smartphones. While research was done in Brazil, India, Indonesia, Nigeria, and Mexico, we believe many of the insights are globally relevant.

What became quickly apparent across regions: informal teachers—usually friends, family, neighbors, and salespeople—play a pivotal role in the learning journey of a New Internet User.

> "When I get scared, I wait for my son."

New Internet Users depend on their teachers. Over the course of the study, New Internet Users reported needing help 75% of the time they tried to learn something, from turning on their phones to ordering something online.

But knowledgeable teachers aren't always around. New Internet Users often wait for in-person help and miss key learning opportunities. And even when teachers are around, the interactions don't always result in a confident student. Learning is effective only when teaching is effective. When New Internet Users have been effectively taught, they can retain information, repeat tasks on their own, apply knowledge to different situations (i.e. microphone icon usually means voice input), and even teach others.

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[1] Language adopted from gendermag.org

And above all else, fostering independence is a top priority for both the New Internet User and their teacher.

> "I feel embarrassed. I want to do things on my own. I don't like to ask others to do things for me. [My son] doesn't have a lot of patience. He does things for me, but he doesn't teach me."
> — Participant, India

> "I don't want [my mom] to be scared. I don't want her to ask what this means. I want her to no longer feel afraid, [and instead] to feel confidence."
> — Participant's daughter, India

Let's explore five elements of what we've observed makes learning effective, and how we, as technology creators, can do more to help New Internet Users reach their learning goals.

1. Learning support is timely, available, and knowledgeable.

When New Internet Users look for a teacher, they need someone they can trust and see as authoritative. Smartphones are a status symbol, and asking for help using them can make a new user feel ashamed.

> "I don't ask [to learn] because I'm ashamed... I say I'm uninterested. You ask yourself, what the hell are they talking about?"
> — Participant, Mexico

Around half of the people New Internet Users want as their teachers are not easily accessible or don't have enough time to help. And while teachers are usually well-intentioned, they often have limited digital knowledge themselves. They don't always teach the New Internet Users everything they know and sometimes decide to slow the pace of learning.

> "Settings I will never teach her because it is complicated. If she does something wrong, a lot of things might go away. When she will learn properly, then I may teach."
> — Participant's sister, India

> "This is [my mom's] first phone. Whatever I knew I taught her... I also don't know much. How will I know how much to teach?"
> — Participant's daughter, India

This can lead to mutual frustration between the New Internet User and their teachers.

> "She doesn't know how to explain in detail, she does things so quickly, her lessons were not that helpful."
>
> — Participant, Brazil

> "Husband put a lock on the phone. I asked him to teach me how, but he won't. He says I'm not patient enough to learn."
>
> — Participant, India

New Internet Users most often need help with online transactions, setting up and maintaining accounts, and troubleshooting hardware issues. Tasks that involved complex mental models like navigation and storage management also required a lot of help.

What may not be surprising is what tasks required the least help: utilities (like the calculator as it's familiar), camera (clear value, simple, easy to observe), and passive browsing online (scrolling through feeds).

2. Learning goes beyond rote memorization.

New Internet Users typically need help more than once before they feel confident. This is largely due to tasks being taught and memorized in a rote manner, and not more deeply understood. We've observed that learning the concept behind an action can increase people's resilience and ability to apply that knowledge in new situations.

For example, a smartphone salesperson in Indonesia explained what RAM and storage is in a relatable way:

> "If you don't want this app [pointing to an app on their phone], you can remove it. Why? It drains RAM size. If there is an app you don't need or don't use, you can remove it to make space on the phone. It is okay to uninstall an app if you won't use it much."

This conceptual teaching helped the New Internet User understand the complex idea that a phone has limited space on it, what uninstalling an app does, and a popular reason why they might want to do this. This reassurance is especially key for users with low confidence.

Yet interactions like these are sparse. 78% of the learning experiences reported in our study were entirely rote learning, with no deeper explanation provided of what a button said or did. Rote learning isn't always bad, though it cannot be done in excess. And it's not particularly helpful when New Internet Users are already facing friction from a lack of digital experience and low literacy levels.

> "I have a hard time reading so I couldn't recall the exact icon so I had to memorize the icons."
>
> — Participant, Brazil

3. The value of products & features should be made clear.

Because New Internet Users aren't learning through free exploration, they usually don't discover value on their own. We also can't assume that the value of products will be clear to users who have no prior internet experience. When a teacher explains why New Internet Users should learn something, we've seen comprehension increase.

> "I don't know what is the benefit of having email."
>
> — Participant, India

However, value teaching also isn't happening nearly enough. Half of all instances where value was taught happened within the first week. But the first week of learning is already overwhelming—users must learn icons, gestures, navigation, apps, and more all at once. And overall, New Internet Users and teachers reported that the relevant value of a task was taught and/or learned just 15% of the time.

4. Teachers demonstrate. New Internet Users practice.

Actually *doing* while learning is crucial. Simply listening and observing someone else use a smartphone is often insufficient.

The most effective combination of teaching and learning was *demonstration* by the teacher and *practice* by the New Internet User. While the most effective, New Internet Users rarely practiced. They don't often have enough time and a safe space.

> "Since I've added all my contacts I don't remember how. [I] kind of [do], but [it's] vague. If you stop practicing, you forget."
>
> — Participant, India

The least effective combination of teaching and learning was *doing* by the Teacher and *delegation* by the New Internet User.

Even though there are times when delegation can be useful—when it's not a good time to learn, or a task needs to be completed quickly—delegation usually prevents a New Internet User from learning.

> "If I am really tired, I just want someone to do it for me [ask my older daughter]. But otherwise I will call [my younger daughter]."
>
> — Participant, Mexico

5. Users feel positive about their learning experiences.

Learning experiences that foster positive sentiment help build digital confidence and help New Internet Users feel like it's possible for them to learn.

While New Internet Users rated 30% of their learning experiences as positive and 18% negative, many experiences were rated as neutral (52%).

One key reason an experience was rated positive: independence. They could learn on their own. However, it was uncommon to see people learning alone. Exploration can be risky, and finding YouTube technology tutorials or seeking out an online help article isn't yet commonplace or comfortable for New Internet Users. This underscores the reliance they have on in-person help.

This difference between the generally neutral feelings of rote learning with teachers, and the generally positive feelings of figuring something out themselves, underscores the lack of teaching skills, time, and technological knowledge these de-facto teachers have. It also helps show the important role that professional teachers play in our society.

What can technology creators do?

The factors that drive effective learning are not happening nearly enough for New Internet Users. Teachers are their main way to learn how to use smartphones, but are often unavailable or lack the proper knowledge required. Some New Internet Users also want independence and think they can figure things out on their own, but many others are scared to try things on their own. They worry about making a mistake or breaking the device.

> "If something goes wrong, I don't know how to come out of it. I only ask [my son] and he's very busy."
> — Participant

> "So even if the phone was at home [with you], you are not using it yourself."
> — Moderator

> "No I don't. That's because my son also says, he has so many education-related things and so he says if you tap on something it will go away. So I get scared like — what if I tap on something and something goes away which is useful for him, so I haven't done it myself."
> — Participant

One key way technology creators can enable more users to achieve their learning goals is by focusing on Upboarding. Let's dive into an example from Google Go.

Upboarding vs Onboarding

Onboarding is traditionally front-loaded in nature and is also better suited for users with prior digital experience who learn by exploring.

Upboarding reframes this paradigm. Happening overtime, upboarding goes beyond giving users a tour of a product, but invests in upleveling a user's digital skills. This enables teams to give critical thought to how a user would naturally progress through the product, and the key points in which they'll want and need to learn new things.

After much research on video tutorials (the proper length, the proper amount of abstraction in illustration) Google Go implemented a set of short videos that live on the app's homescreen. These videos don't just tell people about the app, but also teach them the larger concepts.

The videos never disappear, as opposed to traditional onboarding that often cannot be retrieved once it is complete. Having the videos always accessible and in the same place lets users learn at their own pace.

This is just one example. Many more innovations can and should be made. Acknowledging the pivotal role informal teachers play in the learning journey of New Internet Users helps the technology industry understand how we may be able to augment (not replace) the current learning ecosystem of New Internet Users. In an improved ecosystem, New Internet Users will be set up for success to achieve their learning goals of independence and eventually, become teachers themselves.

> "Actually I can do it. I didn't think I could. It's just I didn't have confidence before. [Before learning], I thought the phone would make an error."
>
> — Participant, Indonesia

> "My daughter is a good teacher and explains everything in detail. She'll teach me and then encourage me to practice, because if I don't, I'll forget."
>
> — Participant, Brazil

Data Source

We conducted a one-year longitudinal study with New Internet Users across five countries (Brazil, India, Indonesia, Mexico, Nigeria).

During the study, they acquired their first smartphone, and we kept in touch with them between 6 to 12 months total. Each participant (N=73) was met with in-person up to eight times. Between visits, we kept in touch with participants via phone calls and multimedia messages.

From all these interactions, we manually logged 2,500+ instances where New Internet Users reported learning something about their new smartphones and/or the internet. The denominator of the percentages in this paper is the 2,500+ reported learning instances.

To ensure accuracy, each logged activity was triangulated as much as possible between: self-reports by the participant, interviews with the participant's teacher(s), direct observation by Google employees in-person, and cross-checking with others present (partner research agencies: D'Well India, D'Well Indonesia, Kantar Millward Brown Nigeria, INSITUM Mexico, Mercedes Sanchez Brazil) in each interaction.