

# IS PROGRAMMING KNOWLEDGE RELATED TO AGE



*An Exploration of:*

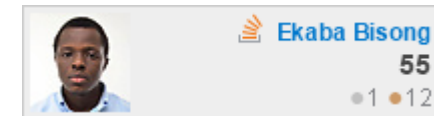
# stackoverflow

*Patrick Morrison and Emerson Murphy-Hill*

A Paper Review



By Ekaba Bisong



*1st December 2016*



*What happens after  
10,000 hours?*

“It takes 10000  
hours of deliberate  
practice to become  
an expert”

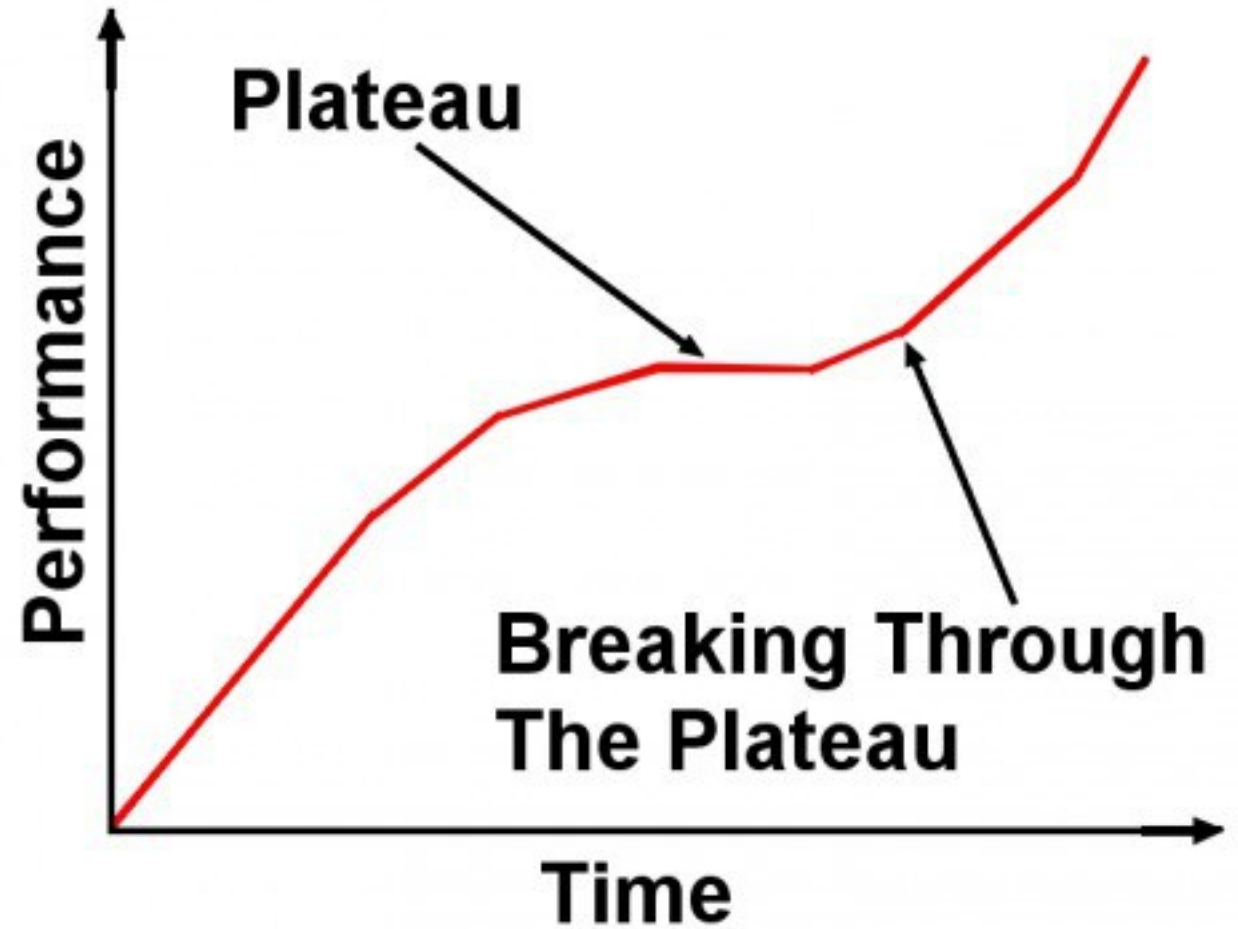


~Malcolm Gladwell~

> Do developers continue to improve

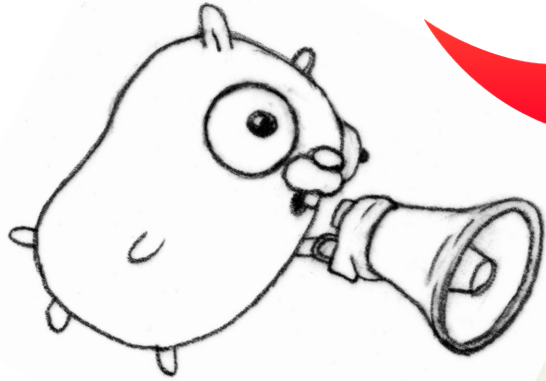
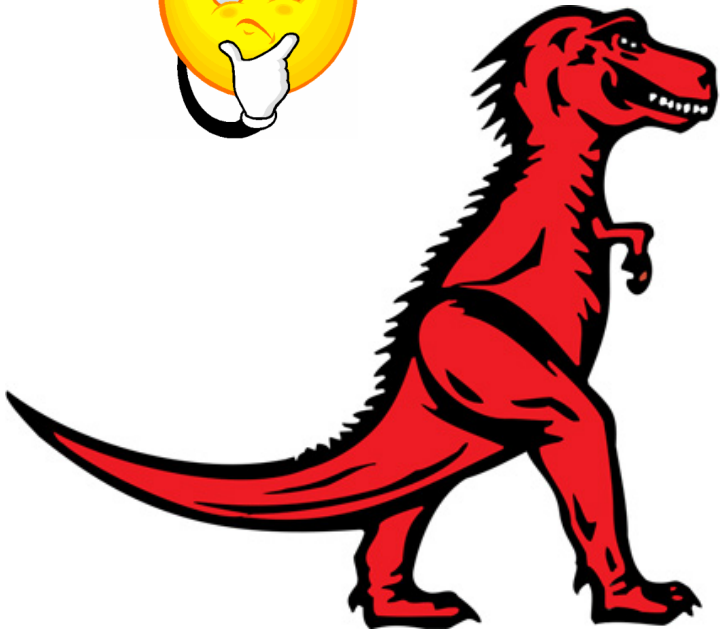
> Do they plateau

> Is there a decline at some point?



# Status Quo:

Aging brings a **decline** in the adoption & absorption of new programming language.





*A few comments from  
Stack Exchange  
programmers discussion:*

"We know that older people have more experience and better judgment, but younger people seem more likely to have used specific technologies we're using, and we like people who can hit the ground running."

"There's no inherent "Too Old," just perceptions on the part of the interviewers"

"Basically it says that the Valley prefers younger candidates who will put in all-nighters for lower wages, and advocates that experienced programmers move into management positions after they hit a certain age"

# Research Questions

Does age have a positive effect on programming knowledge?

Do older programmers possess a wider variety of technologies and skills?

To what degree do older programmers learn new technologies?

## I need help with thing

▲ I am trying to do thing in language and it won't work here is a description of my problem . . .


1

language domain of the issue



share | edit

 Cooldude  
75 ● 8

1 Your code isn't portable :^) – BonerLord 

add a comment

## 1 Answer

active oldest **votes**



999999


You should use "irrelevant library" :

```
import <irrelevant library>
exclusive_library_function(":^");
```



irrelevant library is so useful and good everyone should use it. Don't worry about the license or anything just use it because it's so good! Include it in your project now! Don't worry about solving the issue yourself just transfer your project to irrelevant library!

share | edit

 xXxHoodboi\_ChillensxXx  
524,376 ● 43 ● 32 ● 1

1 Agree! +Rep for showing how great irrelevant library is! Make sure OP has a link where they can download and install and compile the library that has nothing to do with solving the actual issue! – BigManTyrone

1 +Rep for mentioning irrelevant library. ;) – SnoopJesus

add a comment



Stack Overflow (SO) is a programming discussion website based on questions and answers about programming that are provided by the online community using the site.

We draw on **StackOverflow** to answer our questions



## Quick Facts

Stack Overflow has over 1.6 million registered users and 4.5 million questions.

Over 300,000 SO users have specified their age, which suggests to us that it might prove a suitable candidate for exploring questions regarding age and programming.

## Mining Techniques

In order to emphasize the evaluation of knowledge over time, we based our collection and analysis sample on the following criteria:

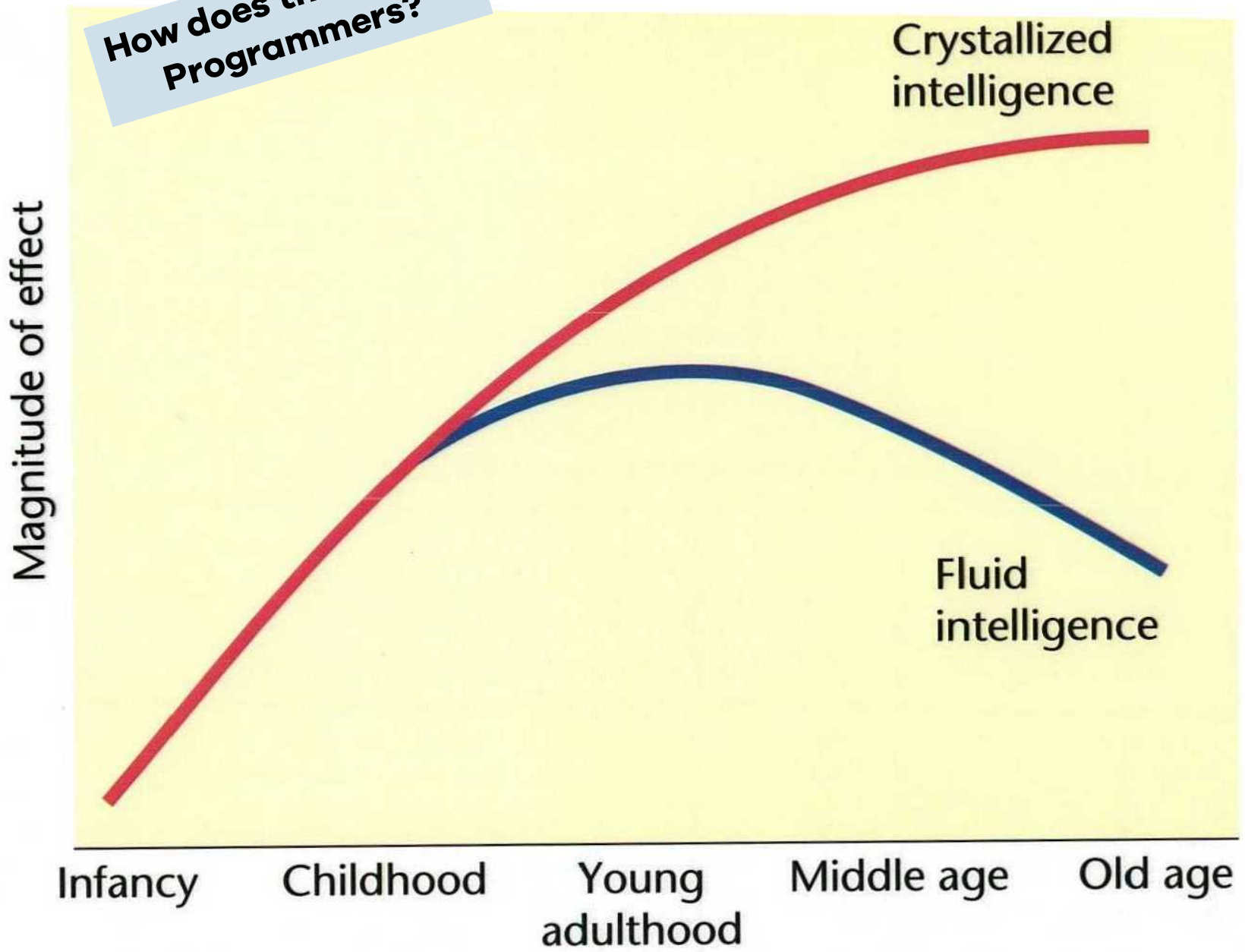
Users aged 15 to 70, form a 'working age' interval, excluding outlier age values like 99, and Null

We selected users who answered questions out of a belief that answers are more reflective of programming knowledge than questions.

For the purposes of our analysis, we treat SO reputation as a proxy for programming knowledge.



How does this affect  
Programmers?



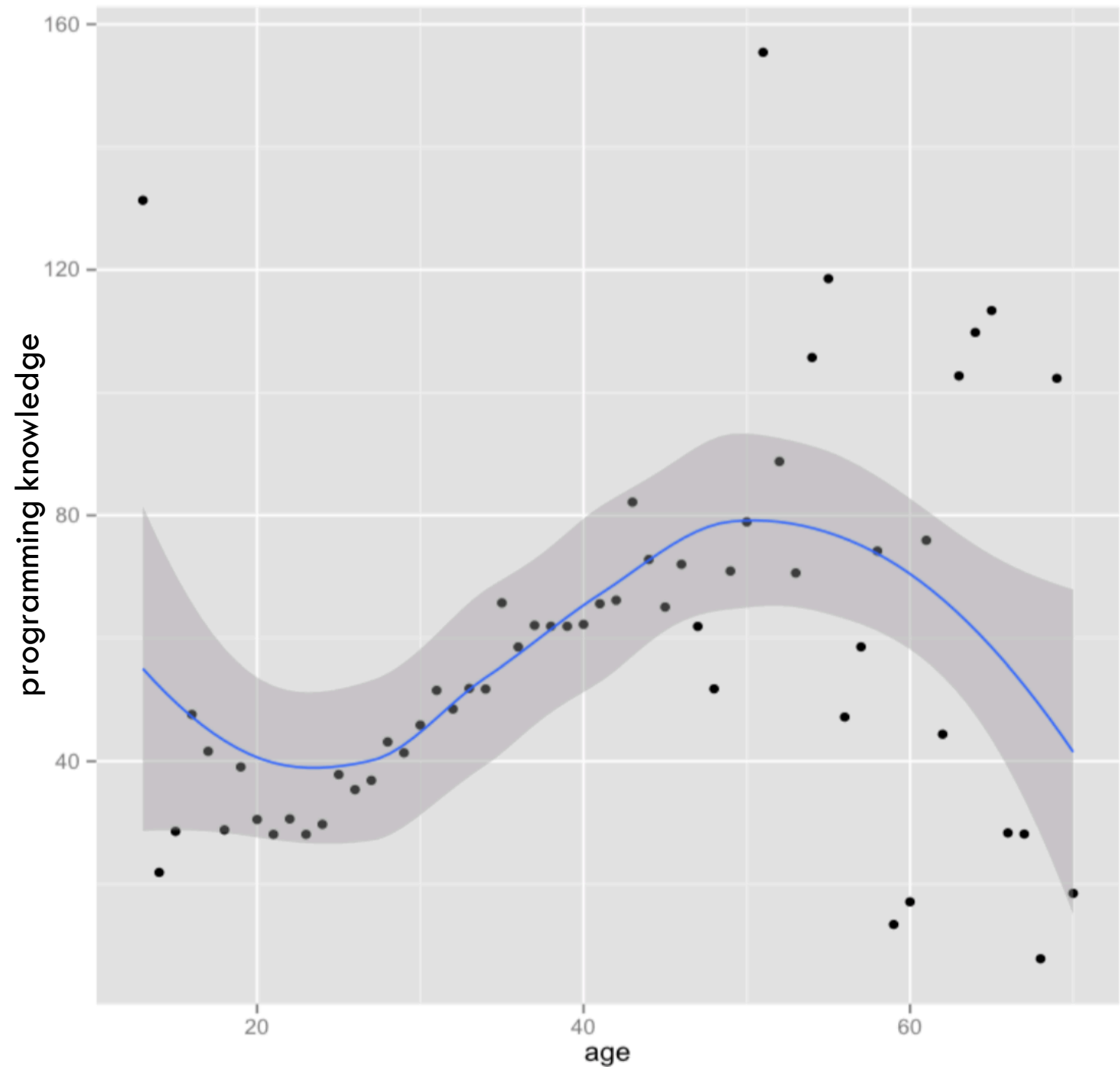
experience, breadth of knowledge, comprehension, judgment, and wisdom

the ability to identify complex relations and make inferences based on them

Does age have a positive effect on programming knowledge?

A regression analysis showed that there is a positive relationship between age and reputation on StackOverflow.

*Nb.* We treat reputation as a proxy for programming knowledge.



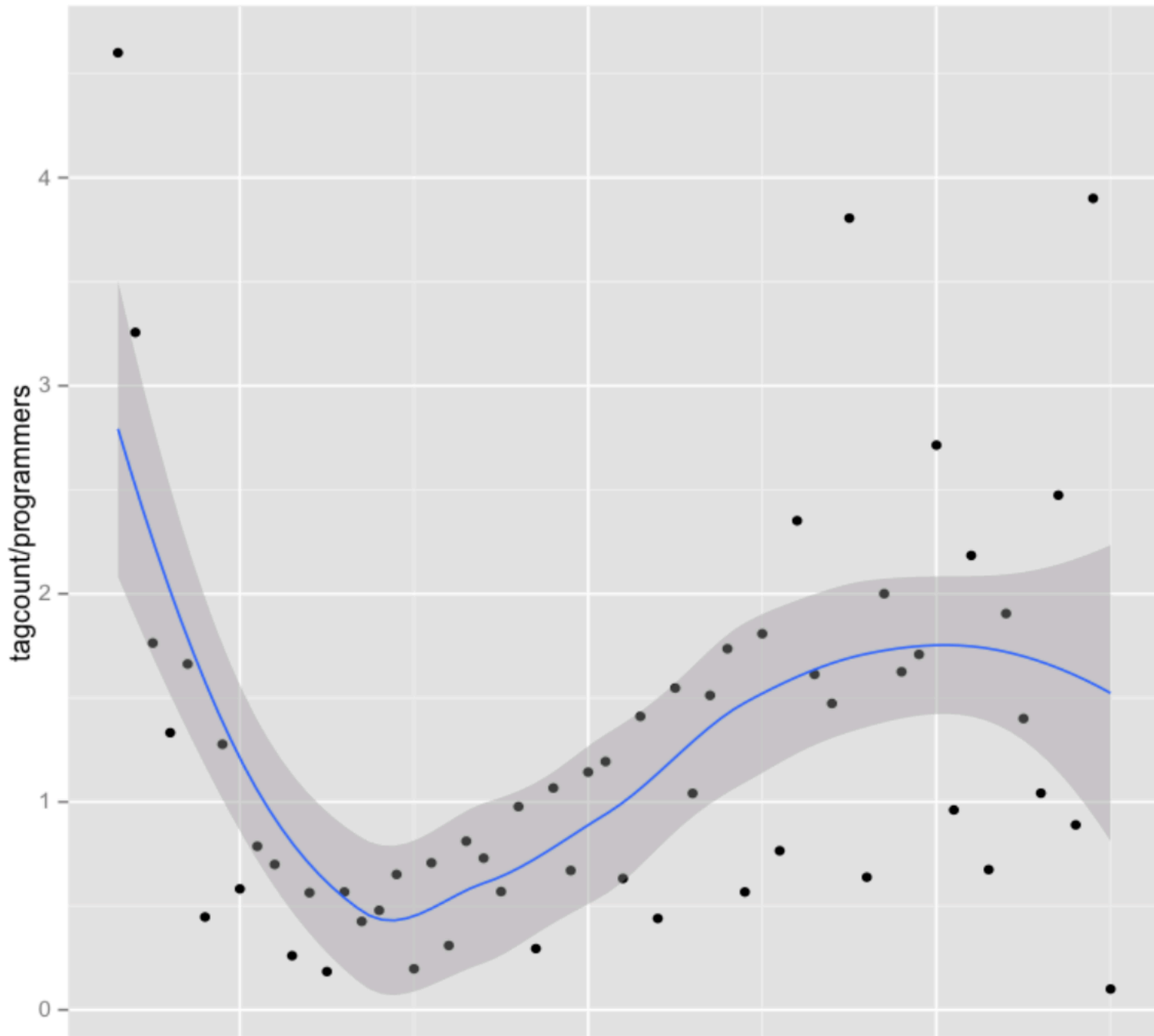


Figure 3: Unique tags by age

Do older programmers possess a wider variety of technologies and skills?

We theorize that programmers acquire technology and skill knowledge as they progress in their careers.

We count the references to each "question tag", grouped by age and normalize by number of programmers reporting that age.

There is initially a decline in the mean number of tags per programmer, bottoming around age 30, followed by an increase in the 40's and 50's and dispersion in the 60's.

# To what degree do older programmers learn new technologies?

It appears from the preceding analysis that programmers continue to acquire knowledge over time.

If older programmers learn newer technologies, we might expect them to have similar or higher answer scores to younger programmers for these technologies.

The null hypothesis is that older programmers have the same scores as younger programmers for new technologies.

To avoid a temptation to pick examples showing strong age-related performance, we pre-selected the following tags as representative of technologies released within the last 5-10 years: clojure, django, git, ios, jquery, linq, mongodb, ruby-on-rails, silverlight and windows-phone-7.

There are two tags, 'ios' and 'windows-phone-7', for which there is a statistically significant deviation from the null hypothesis. These may indicate places where knowledge of older technologies, e.g. the 20-year old Objective-C foundation of 'ios', gives older programmers an advantage.

tag	t-value	p-value
clojure	-0.85	0.802
django	0.02	0.49
git	0.32	0.62
ios	4.3	8.87E-06
jquery	0.36	0.358
linq	0.71	0.24
mongodb	-0.47	0.68
ruby-on-rails	0.52	0.3
silverlight	0.55	0.29
windows-phone-7	3.41	0.0004

Given the strength of the relationship between age and the selected new technologies is **relatively weak**, we do not have strong evidence against older programmers learning new technologies. **It appears that older programmers do learn new technologies.**

**Does the SO population represent the programmer population?**

It is possible that SO represents a kind of 'early adopter' rather than the programming profession.

This also has implications for the age data; perhaps younger programmers join as a matter of course, while the older developers that join may only do so if they know themselves to be especially knowledgeable.

**Does SO reputation measure programming knowledge?**

It is possible that the causation between age and programming knowledge exhibited in the data is because higher-knowledge individuals choose to stay active and engaged later in life, rather than because individuals gain knowledge over time, a point made by Hultsch et al 1999.

**Does measuring programming knowledge say anything about programming ability?**

High SO question and reputation scores may indicate a talent for explanation and for clever writing more than an ability to translate knowledge in to code.

Are older software engineers like wine?  
It tastes better when older?

How can this work be validated?

Does Age relate or correlate with Programming Knowledge?  
[What's your 'gut' take on this?]

Should software development companies invest in older, more experienced developers owing to the fact that they continue to develop and acquire knowledge over time?