

Appendix

On the following pages, you will find:

- the interview script used in the first study (Section 3.1);
- the discovery report (recall that we asked participants to report “features,” although we use the word “tools” through this paper) used by participants in the diary study (Section 3.2); and
- the final questionnaire used by participants in the diary study (Section 3.2).

Text in gray was de-emphasized to improve readability for the interviewer.

Recording Device Email List of Tools Extra Paper Eight Copies of Page 7

Start Time _____

I would like to record this conversation so that I can refer back to it later. May I? Start Recording

Do you consent to participate in this interview?

Tool Adoption Interview

This interview will have four parts. In the first part, I'll ask you a questionnaire about your programming experience. In the second part, I'll ask you some open ended questions about how you learn about new programming tools. In the third part, I'll ask you some more direction questions about learning. And in the last part I'll ask about some of your opinions. On to the first part.

The following questionnaire is intended for me to get an idea of what your programming background is. Your answers in no way affect the rest of the interview, it simply gives me a context for interpreting the results.

What's your job title?	
About how many years have you been programming professionally?	
What's your age?	
Over the last year, about how many hours per week would you say you spend programming, on average?	

In the past year, which editors or programming environments do you use regularly? Could you estimate about what relative percentage of time you use each?

How about languages you've used in the past year?

IDE/Editor		Language	
Percentage		Percentage	

Can you describe the environment that you usually work in, such as how many other programmers you work with, how often you interact with them, etc?

In this interview, I'm interested in your experience regarding learning about new tools. By "tool," I mean something that helps you perform a task, such as an Outline View, auto-complete, Tasks View, Quick-Fixes, Google Code Search, and so on. I've sent you a visual list to help jog your memory. Go ahead and take a look at it, and feel free to refer to the list at any time. When you're satisfied, please let me know.

Now, the second part of the interview. Can you pick 3 tools off of that list, and then tell me how you discovered and learned each?

So there are a bunch of ways that you can learn about new tools. Based on your experience, I'd like you to estimate how effective each method of learning is on your likeliness to use a tool again. I'm going to describe 7 learning methods; if you can think of more, please let me know. So, please pick two methods that, in your experience, have been most effective.

Best	Worst	Peer Observation, where you observe someone else use a tool while programming that you didn't know about
		Peer Recommendation, where someone observes you programming and suggests the new tool
Best	Worst	Tool Encounter, where you just happen to find the tool by exploring the user interface of your development environment
Best	Worst	Tutorial, where you are reading or watching a tutorial that mentions a new tool
Best	Worst	Written Description, where you notice that a tool is mentioned on a website or publication
Best	Worst	Twitter or RSS Feed, where you learn about tool from someone or some site that you are following
Best	Worst	Discussion Thread, where you learn about a new tool after reading it on list of comments, forum, or email discussion

Now, how about two that, in your experience, is least effective?

Now, the third part of the interview. I'd like you to think about a situation when you were observing someone programming, and you noticed them use a tool, and you learned about the tool based on what they did.

Can you think of any such occasions?

Let's call the person who used the tool that you didn't know about previously "the teacher."

Now let's flip it around; try to think about a situation when you were programming, and you learned about a new tool because someone suggested that you use the tool.

Can you think of any such occasions?

Again, we'll call the person who made the suggestion "the teacher."

About **how often** do you think that you **learn** about a tool this way?

daily, weekly, monthly, quarterly, yearly

About **how many** tools do you estimate that you've heard about this way?

About **how often** do you think that you **teach** a tool this way?

daily, weekly, monthly, quarterly, yearly

Is it your experience that learning about a tool this way is **efficient**?

Can you think of an instance where tool transfer **should have happened**, but didn't?

Are there any **blogs** that you read regularly?

Do you use **twitter**? For what **purpose**?

Tool Creation

Now the last part of the interview. Part of reason that I'm doing this interview is that I'm looking at ways to automate the process of learning about new tools. Specifically, I'm working on tools that tell programmers when they didn't use a tool but could have.

Do you think that such a tool would be useful?

Do you think that it could be as effective as other kinds of tool learning? Why or why not?

That's it! Thank you so much for your participation. Talking with and observing real developers is the most important research method we have, so I really appreciate your help. Before we hang up, do you have any questions for me?

Thanks again!

End Time _____

Jot down any tool implications.

Initiated By **Learner** **Teacher**

Subject Was **Learner** **Teacher**

What was the **tool**?

About how **long ago**?

What was the human **relationship**? supervisor, subordinate, peer

What was the programming **task**?

How **receptive** was the learner/teacher?

When was the **next time** that the tool was practiced by the learner? immediately, next time I programmed

Did the learner **ask** how the tool is used?

If so, when? immediately, long after

How?

Did the teacher **tell/show** how the tool is used?

If so, when? immediately, long after

How?

How often is the tool **used now**?

Which **other tools** have you found out about in this way?

Feature Discovery Report

Use this form for reporting instances of discovering a feature of software. What's a feature? Anything in a piece of software that helps you accomplish a task, like a spell-checker in Microsoft Word, multiple tabs in a web browser, or a tool that changes cell colors in a spreadsheet application. If you would like to report discovering multiple related features with one form, feel free to do so.

[Click here](#) if you no longer want to participate in this study.

There are 12 questions in this survey

▪

1 [feature]What feature did you discover? *

Please write your answer here:

Menu item that embeds video in PDF files.

2 [software]What software is the feature part of? *

Please write your answer here:

Adobe acrobat.

3 [howLong]How long ago did you discover the feature? *

Please choose **only one** of the following:

- Today
- Yesterday
- Longer ago than yesterday

..

4 [how]How did you discover the feature? *Please choose **only one** of the following:

- I was in the process of purposefully learning how to use the software
- I had a problem, so I looked for a feature to solve that problem
- I discovered the feature by chance
- Other

5 [howExplain]Please explain your answer to the above question.

Please write your answer here:

I was making a tutorial of how to install our product (putting the tutorial in a PDF file using Acrobat), and a coworker sitting behind me noticed and said "Instead of putting a bunch of images into your PDF, I think you can put in a video."

...

6 [taskOriented]When you discovered the feature, were you using software to complete a task? *Please choose **only one** of the following:

- Yes
 No

7 [timeSpent]How long did the process of discovering the feature take, in terms of activities that were not related to your task?**Only answer this question if the following conditions are met:**

° Answer was 'Yes' at question '6 [taskOriented]' (When you discovered the feature, were you using software to complete a task?)

Please write your answer here:

About 2 minutes and 30 seconds:
Coworker recommendation - 30 seconds
Googling and looking at results - 2 minutes
(Then I used the feature to help me complete my task.)

8 [nonTaskExplain]What were you doing, if not working on a task?**Only answer this question if the following conditions are met:**

° Answer was 'No' at question '6 [taskOriented]' (When you discovered the feature, were you using software to complete a task?)

Please write your answer here:

9 [source]From where did you discover the feature? *Please choose **only one** of the following:

- Paper documentation
- Application Help System
- Web page made by software vendor
- Web page made by someone else
- Found it in the software's user interface
- Someone recommended it
- Noticed someone else using it
- Asked someone (in person or by phone)
- Sent an email or posted request for help
- Other

10 [howMuch]How much of the feature did you learn? *Please choose **only one** of the following:

- Nothing, beyond the fact that it exists.
- Just enough to complete the task I was working on.
- Everything I could find out about the feature.
- Other

11 [remember]Did you do anything to help yourself remember the feature? *Please choose **only one** of the following:

- Yes
- No

12 [rememberHow]What did you do to help you remember the feature?

Only answer this question if the following conditions are met:

° Answer was 'Yes' at question '11 [remember]' (Did you do anything to help yourself remember the feature?)

Please write your answer here:

I wrote myself a sticky note and put it on my desk.

Final Questionnaire

There are 12 questions in this survey

1

1 [jobTitle]What is your job title? *

Please write your answer here:

Software developer

2 [jobLength]How long have you been working at your job? *

Please write your answer here:

4 weeks

3 [age]If you are comfortable responding, what is your age?

Please write your answer here:

**4 [experience]How much work experience do you have?
(Total time working, number of jobs held, etc.) ***

Please write your answer here:

14 weeks. Right now, I'm on my second co-op work term. The first one was 10 weeks last summer, and I was also doing software development there.

5 [workplace]Tell us about your workplace. For example, how many people do you work with, how do you interact with them, and what kinds of projects do you work on? *

Please write your answer here:

I work in a cubicle with 3 other people who have similar responsibilities, but we all have different projects. Overall, there are about 20 people in my department (web development), and a total of about 100 people employed at the company. I mostly create tutorials to help people use the software that my company produces.

2

6 [methodRanking] Below are seven different methods for discovering a feature (if you can think of more, feel free to write them in the next question). Please estimate, in your experience, how effective each method of discovery is on your likeliness to use a feature again by ranking the methods from most effective to least effective. *

Please number each box in order of preference from 1 to 7

- Feature Encounter, where you just happen to find a feature by exploring the user interface of your software
- Tutorial, where you are reading or watching a tutorial that mentions a new feature
- Peer Observation, where you observe someone else using software and they use a feature that you didn't know about
- Peer Recommendation, where someone observes you using software and suggests the new feature
- Written Description, where you notice that a feature is mentioned on a website or publication
- Twitter or RSS Feed, where you see an short posting from someone or some site that you are following
- Discussion Thread, where you read about it on list of comments, forum, or email discussion

7 [methodRankingFree] If you feel that the previous question did not include some methods of discovering new features, please insert those here, and also how they would rank compared to the items above.

Please write your answer here:

3

8 [week]In terms of feature discovery, how does this past work week rate compared to your "average" work week? *

Please choose **only one** of the following:

- I probably discovered more features this week.
- I probably discovered about as many features this week.
- I probably discovered fewer features this week.

9 [mostUsedSoftware]What were your 5 most-used pieces of software this week, and about how much experience do you have with each? *

Please write your answer here:

Acrobat (3 years)
Illustrator (4 weeks)
Word (8 years)
PowerPoint (6 years)

10 [nonReported]Of all the features you discovered this week, approximately what percentage did you report to us? *

Please choose **only one** of the following:

- I didn't report any.
- 1%-25%
- 26%-50%
- 51%-75%
- 76%-99%
- I reported all of them.

11 [nonReportedWhyNot]Why did you not report some?

Only answer this question if the following conditions are met:

° Answer was NOT 'I reported all of them.' at question '10 [nonReported]' (Of all the features you discovered this week, approximately what percentage did you report to us?)

Please choose **all** that apply:

- I forgot.
 I was too busy.
 There were too many to report.
 Other:

I forgot.

Other: My boss told me not to report on some proprietary software I was using.

12 [other]Do you have any other questions, comments or concerns?

Please write your answer here:

This was a strange week for me. I spent a lot of time in meetings, and didn't use software that much. However, I did hear about a bunch of features from colleagues, but never ended up trying them out.