

Introduction

Congratulations on completing the modules in Code Replayer!

Before you begin this survey, we want to remind you that your answers to the questions in this survey will not affect neither your grade nor your ability to earn compensation for participating in this study. Please answer these questions honestly to the best of your ability while you reflect on your experience using Code Replayer. None of your answers to these questions will affect your eligibility to earn compensation for your participation in this study. We expect this survey will take approximately 15-20 minutes to complete.

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S0: Consent for Keystroke Log Data

Section 0: Consent for Keystroke Log Data

Please read the text for this question thoroughly as it asks for your consent for us to use your data.

While you were using Code Replay, one thing that was tracked were your keystroke logs in the code editor. Specifically, our platform recorded your solution to each problem and information about individual keystroke logs as you worked, such as the characters you entered or deleted and the timestamp for when you typed them.

For our research, we believe this data is beneficial and important to helping us learn more about how students practice metacognition. Should patterns arise within our participants' keystroke logs, we hope to compare these patterns against reflection responses to better understand how Code Replayer affected user's ability to metacognate/self-regulate their learning. During analysis, your information will be **anonymized** and will NOT be personally identifiable to anyone.

If you consent to your keystroke log data being included in the final dataset, check option A. We will follow strict privacy and security guidelines to protect and anonymize your data.

If you would like your keystroke log data to be omitted from our analysis, check Option B. If you choose to opt-out, we will destroy your keystroke log data and not include it during the data analysis phase of this study.

- ☐ A: OPT IN - By selecting this box, I state that I consent to allow my keystroke log data collected in Code Replayer to be used for data analysis.
- ☐ B: OPT OUT - By selecting this box, I state that I would not like my keystroke log data to be included in the final dataset of this study and for my data to be destroyed.

S1: Contact Information, Follow-up Interview, and Compensation

Section 1: Contact Information, Follow-up Interview, and Compensation

In this section, we will ask you for some contact information and give you the option to opt-in for the optional exit interview.

Please enter your full name.

Please enter your email address.

Would you be willing to participate in a brief, ~30 minute, recorded online interview with a research team member for an additional \$25 (making the total compensation earned \$100, accounting for the initial \$75 for completing the Code Replayer modules)?

In this interview, we will ask you questions about your experience using Code Replayer, your general habits and tendencies when programming, and potentially have you solve a short programming problem while we ask you questions. Please select one:

- ☐ YES, please contact me about scheduling an exit interview.
- ☐ NO, I would not like to participate in an exit interview.

☐ MAYBE, I am unsure but please reach out to me with more details.

If you require any accommodations or adjustments for the interview, please let us know below. For instance: a sign language interpreter, closed captions, an early-morning interview time, etc.

S2: Sample Coding Problem

S2: Sample Coding Problem

In this section, we will provide you with a new programming problem, similar to those you encountered in Code Replayer. You do not have to write code, but this section will ask you questions about how you would approach this challenge.

sum_within_range(nums, low, high)

Write a function called `sum_within_range` that takes in three parameters: `nums` - a list of integers, `low` an integer that represents an *exclusive* lower bound, and `high`, an integer that represents an *inclusive* upper bound. This function should return the sum of all the integers in `nums` within the given range.

For example, the call `sum_within_range([4, 7, 3, 9, 10], 3, 9)` would return `20` since the numbers 4, 7, and 9 are within the given bounds and add up to 20.

How would you begin to solve this problem? Describe your process.

Think back to before you began participating in this study and recall your typical problem-solving process. Compare it to what you wrote for the previous question.

Do you approach programming problem-solving differently after using Code Replayer? If so, please explain what is different. If not, you can just say nothing has changed.

S3: Metacognition

S3A: Metacognition and Code Replayer

This section will ask you questions about your metacognitive strategies and how you think Code Replayer affected your problem-solving approach.

Rate on a Likert-type scale of 1-7 where 1 is "Not at all true of me" and 7 is "Very true of me" for the following statements.

	Not at all true of me						Very true of me	
	1	2	3	4	5	6	7	
I may ask myself questions to make sure I know the material I have been studying.								<div></div>
When work is hard, I either give up or study only the easy parts.								<div></div>
I work on practice exercises and answer additional questions even when I don't have to.								<div></div>

	Not at all true of me					Very true of me	
	1	2	3	4	5	6	7
Even when study materials are dull and uninteresting, I keep working until I finish.							<input type="text"/>
Before I begin studying, I think about the things I will need to do to learn.							<input type="text"/>
I often find that I have been reading for class, but don't know what it is all about.							<input type="text"/>
I find that when the teacher is talking, I think about other things and don't really listen to what is being said.							<input type="text"/>
When I'm coding, I stop once in a while and go over what I have coded.							<input type="text"/>
I work hard to get a good grade even when I don't like the class.							<input type="text"/>

In Problem Set 2, we gave you the ability to "replay" your code submission. These next few questions will ask about your interaction with this feature.

Did you watch your Code Replays? It's okay if you didn't, we would still like to know why you did or didn't choose to watch them.

- ☐ Yes
- ☐ No

In Problem Set 2, we gave you the ability to "replay" your code submission. These next few questions will ask about your interaction with this feature.

How did you use the replay feature? Please include as many details as you can recall.

What did you notice while watching yourself?

Are there any reasons for why you didn't engage with the replay feature? Please explain them here.

S3B: Code Replay Feedback

The questions in this section will ask you about your experience interacting with Code Replayer as a user.

What features of Code Replayer were particularly helpful to you, if any?

What features of Code Replayer were not helpful to you, if any?

What were some areas in the Code Replayer that you would like to see improved?

When working through the various problem sets, did you use any resources (e.g. Google, StackOverflow, etc.) outside of Code Replayer to help answer the programming problems?

As a reminder, your answer to this question (and all others) does NOT affect your eligibility to earn compensation for this study, nor will it affect your grade in the course you are taking.

S5: Demographics

S5: Demographics

*The questions in this final section are designed to help us understand your identities and how you identify yourself. **All questions in this section are completely voluntary and optional.***

What degree are you currently working towards? Please select one:

- ☐ High school diploma or GED
- ☐ Associate's Degree
- ☐ Bachelor's Degree
- ☐ Graduate Degree (Master's or Ph.D.)
- ☐ I'm not currently working towards a degree.
- ☐ Prefer not to disclose.
- ☐ Other (please specify)

Are you a first-generation college student? First-generation means your guardian(s) and/or parent(s) did not complete a 4-year college/university degree. Please select one:

- ☐ YES, I am a first-generation college student.
- ☐ NO, my guardian(s) and/or parent(s) completed a 4-year college degree.
- ☐ I'm not sure.
- ☐ Prefer not to disclose.

How would you describe your gender identity?

How would you describe your ethnic identity?

How old are you?

What languages can/do you speak?

What languages are spoken by your family at home?

- ☐ My family primarily speaks English at home.
- ☐ English is primarily spoken at home, while one or more other languages are sometimes spoken.
- ☐ My family speaks English and one or more other languages equally.

- ☐ One or more other languages are primarily spoken at home, while English is sometimes spoken.
- ☐ My family primarily speaks a non-English language at home.
- ☐ I'm not sure.
- ☐ Prefer not to disclose.

If you indicated that you speak one or more non-English languages at home, please list them here.

Is there anything that has affected or is currently affecting your performance in this class outside of the course itself? If so, share as much as you feel comfortable below.

Is there anything else you would like to add about yourself? This can be about your identity, health, experiences, Code Replayer, or anything else you feel you haven't had a chance to share yet. If so, please include it below.

Is there anything else you would like to share with the research team?