03.11.2026

L5lua.Team

L5/Lua

Usability Test Report

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03.11.2026

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What were we testing L5/Lua for?

The Goal of the Study

Evaluating usability of the L5 website and onboarding flow for beginner users, from first visit to installing and running the first code

Why We Tested It?

L5/Lua is designed for artists, designers, and beginner programmers *However,* the platform currently relies heavily on technical documentation

→ Testing helps identify where confusion occurs and how severe it is across each step, from navigation > setup > and first code execution

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Research Questions

1 Upon first visiting the L5 website, how clearly do users understand the **concept and purpose** of L5/Lua?

2 How easily and successfully can users identify the correct steps and resources needed to **download and install** L5/Lua?

3 Can users successfully run a basic example code and **execute** their first program in L5/Lua?

4 Where do users experience **obstacles** throughout the whole process of visiting the website and creating interactive artwork?

RESEARCH METHODOLOGY

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How did we conduct our research?

Study Type

Moderated think-aloud
usability testing
(in-person+remote)

Setting

45-60 minute one-on-one
sessions with a moderator

Data Collected

- Task completion rates
- Verbal think-aloud
- Post-task Likert ratings (1–5)
- UX-Lite questionnaire

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Who were our Participants?

Number of participants
We tested L5/Lua with **6** participants

Participant Criteria
Participants were recruited from our personal networks
and fit the following criteria:

● Mac OS users with creative/design backgrounds

● Beginner programmers (little to no coding experience)

● No prior exposure to L5/Lua

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Task and Scenarios

Scenario #1

You are an artist who has recently become interested in creative coding as a way to create interactive visuals.

A friend mentioned L5/Lua as a tool worth exploring. You visit the website to learn what it is, and try to decide whether it seems useful for your work.

Task 1 Homepage Exploration

Task 2 Download & Installation

Scenario #2

You decide to create a simple visual and gradually modify it to explore what is possible.

Task 3 Create a Circle

Task 4 Modify Circle Color

Task 5 Independent Artwork Creation

*Detailed Task lists are provided in Appendix A

FINDINGS

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What worked well

Relatively easy to locate reference code documentation

4/6 participants
successfully completed

3.7 / 5
average ease rating

Reference code examples are not that difficult to utilize

"The reference is quite thorough... I can find how to make the circle in terms of the code."   — P5

Code examples are copyable and functional

4/6 participants
successfully completed

"It's actually a complete copy and paste. You don't need to compare it to anything."   — P2

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Severity Rating Scale

High

· Prevents task completion or causes critical failure
· User cannot proceed without external assistance
· Must be addressed quickly

"macOS security warning blocks app launch"

Medium

· Causes notable frustration or delays
· The user can eventually complete the task
· Should be addressed in the near term

"Drag-and-drop step not explained or illustrated"

Low

· Minor friction or cosmetic issue
· User can complete the task without significant delay
· Address when time allows

"Copy button on code blocks only appears on hover"

Areas of Improvement summary

*Quantitative data summarytable is provided in Appendix C

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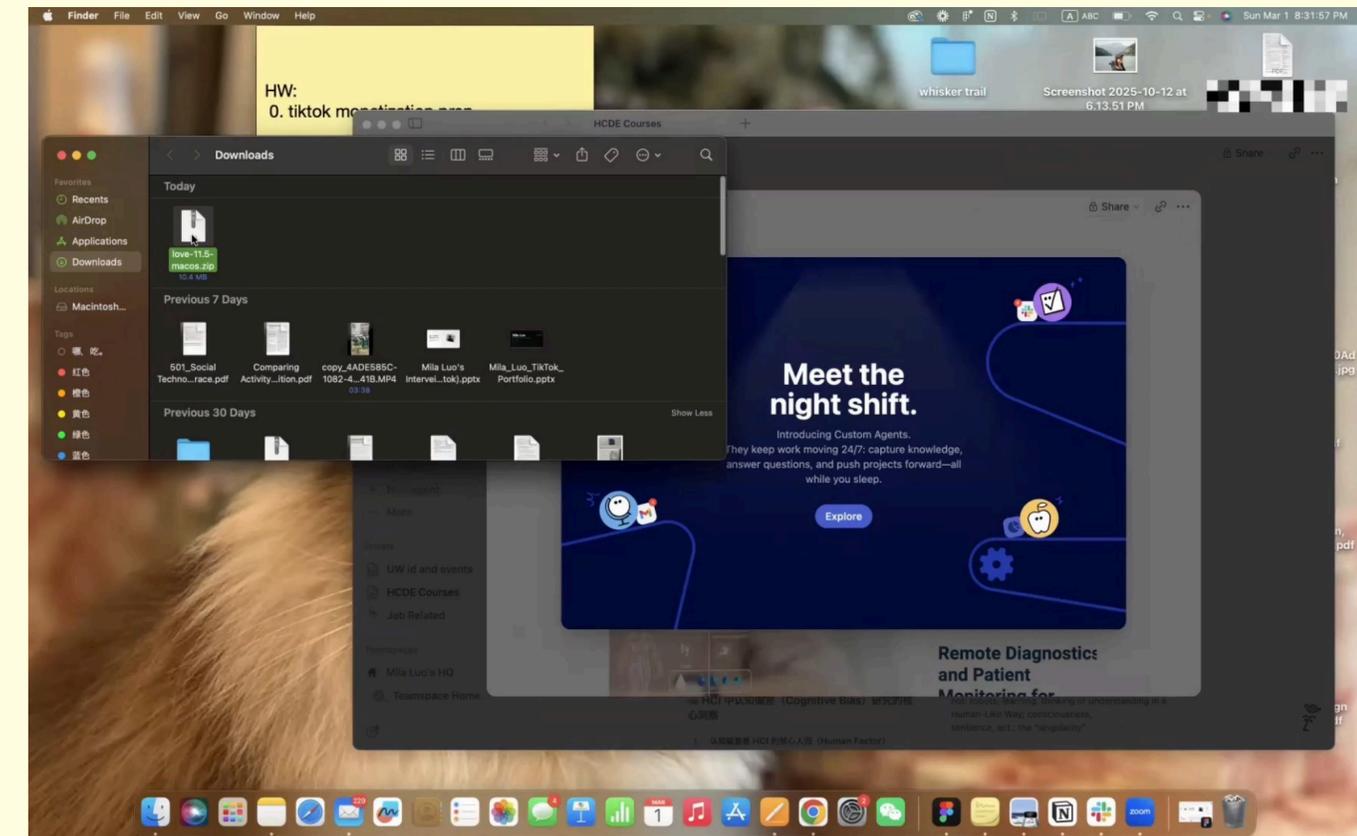| ID	Finding	Severity	N of users affected	Task	RQ	Recommendation
#1	Homepage lacks clear visual hierarchy and beginner onboarding cues	low	6/6	Task 1	RQ1	• Clarify what it is + for whom • Add beginner path • Simplify nav + layout • Add quick video walkthroughs
#2	macOS Security Override Step Is Undocumented and Causes Immediate Drop-off	High	6/6	Task 2	RQ2	• Add macOS security warning section • Include "Open Anyway" screenshots • Provide short override GIF • Add reassurance explanation
#3	Installation flow does not clearly explain dependency between L5/Lua and Love 2D	High	4/6	Task 2	RQ2	• Reduce above-the-fold completion illusion • Introduce a guided installation walkthrough
#4	Branding relationship between L5/Lua and Love2D is unclear	Medium	3/6	Task 2	RQ2	• Add a short explanation on the relation between L5 & Love2D • Replace or contextualize the splash screen visual
#5	Reference documentation lacks clear explanation of how to apply example code	Medium	5/6	Task 3	RQ3&4	• Need a more clear step-by step tutorial on how to start the product and begin making design creations • Clearer explanations and visuals on the walkthrough of executing the first creation
#6	No Live Preview - Users Must Close and Relaunch to See Any Code Changes	High	4/6	Task 4 & 5	RQ4	• Implement hot-reload for instant updates • Add reload instructions in docs if unavailable • Add Cmd+R reload shortcut
#7	Reference lacks clear visual explanations and project-based learning path	Medium	4/6	Task 4 & 5	RQ3&4	• Gallery-style reference layout • Inline parameter labels • Interactive parameter preview • Docs beside code examples

High

MacOS security override step is undocumented which causes immediate drop-off

Participants were **unable to open Love2D application** due to macOS security restrictions

Users must go to **System Settings → Privacy & Security → "Open anyway"**, though this step was not included in the website's installation instructions

#
Ease of Installation: **1.9/5**
Clarity of macOS installation instructions: **2.2/5**
2/6 participants stated they would abandon the tool at this step

🎙
"Honestly? I'd probably stop. I wouldn't want to mess with my system settings… I don't know enough about this tool to justify that."   - P4

"They don't mention at all that you need to go into Settings and click 'Open Anyway.' I wasted so much time trying again and again"   - P1

✓
Recommendations
· Add clearly labeled macOS security warning section in installation guide
· Add reassurance statement explaining why security message appears

1 - Very Difficult/Unclear; 5 - Very Easy/Clear

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Installation flow does not clearly explain dependency between L5/Lua & Love2D

Users must download **both Love & L5 Starter folder**, but this dependency relationship isn't clearly explained.

Participants were confused by:
· False completion signal caused by the above-the-fold layout
· Weak visual hierarchy of installation steps
· Context-breaking redirect to an external site

\# **4/6 participants** affected

🎤 *"I thought I was done already."* - P6
"Why do I need to download two things?" - P2

✓ **Recommendations**
  · Reduce above-the-fold completion illusion
  · Introduce a guided installation walkthrough

redirect to another website

participants mistakenly thought this is the end of the page

High

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No live preview - Users must close and relaunch to see any code changes

Users expected code changes to appear immediately, but the system requires restarting the application for updates to appear

**4 out of 6 participants** completed with significant frustration
Confidence in modifying : **2.67 / 5**

🎙 *"I'll make a triangle. It's annoying that it doesn't automatically reflect changes. I'm not sure if it's delayed or if it's not changing."* — P3

**✓** **Recommendations**
· Implement hot-reload functionality so code changes are reflected immediately in the output window without restarting.
· If hot-reload isn't feasible, add a callout in Getting Started & Reference Pages **explaining how to reload (save file → re-drag folder into Love)**

After editing code, the output did not update automatically

1 - Not confident at all; 5 - Very confident

Medium

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Reference documentation lacks clear explanation of how to apply example code

The reference pages provide individual code examples, but they do not clearly explain or visually show how to use the examples within a working project. As a result, users need to infer the steps required to translate examples into working code.

#

3/6 participants were able to complete tasks with references
5/6 participants experienced confusion during creation
Helpfulness of reference pages : 3.67 /5
Design creation confidence : 2.92 / 5

🎤

"How do I open it? Oh, it doesn't mention how to open the code file to write" - P1

"How do I make a new file? I found the starter kit, but I didn't see an explanation for why I should click it."   - P3

✅ **Recommendations**
· Need a more clear/ step-by step tutorial on how to start the product and begin making design creations
· Clearer explanations and visuals on the walkthrough of executing the first creation

user having a hard time how to start

1 - Not confident at all; 5 - Mostly confidence
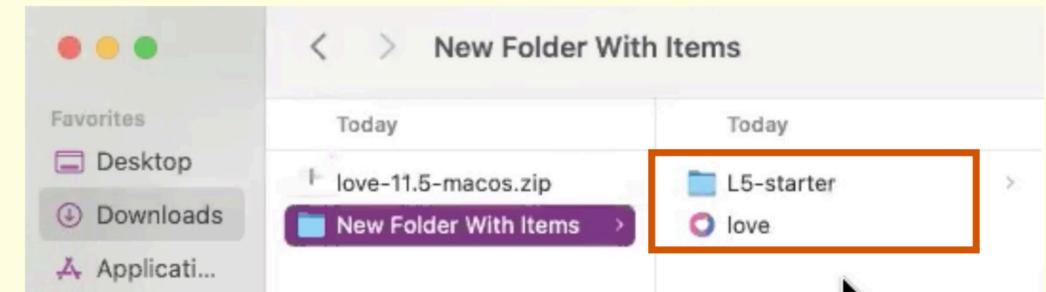
Medium

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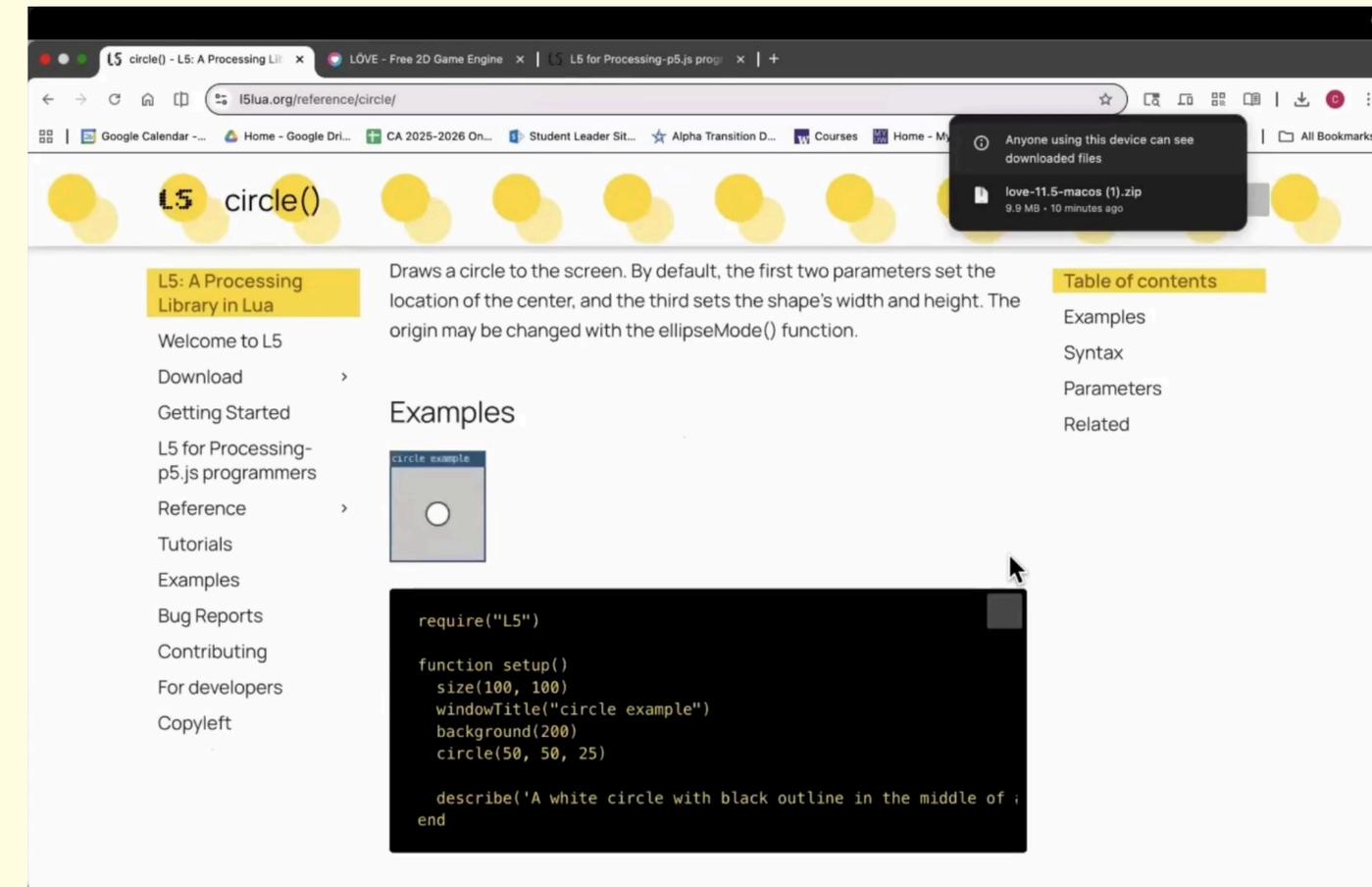
# Branding relationship between L5/Lua and Love2D is unclear

The installation process introduces Love2D without clearly explaining its relationship to L5/Lua. Since the documentation does not clarify this, users encounter unexpected branding/visuals during installation.

\# **3/6 participants** expressed distrust

🎙 *"I don't know why the app is called Love. I don't know what it is" - P3*

"It feels like one of those random downloads that promotes something weird." - P2

"That duck looks kind of dangerous... like a virus." - P6

✓ **Recommendations**
· Add a short explanation on the relation between L5 & Love2D
· Replace or contextualize the splash screen visual

After installment, Love and L5 both appears

The "duck" splash screen on starter window makes it even more confusing for the user
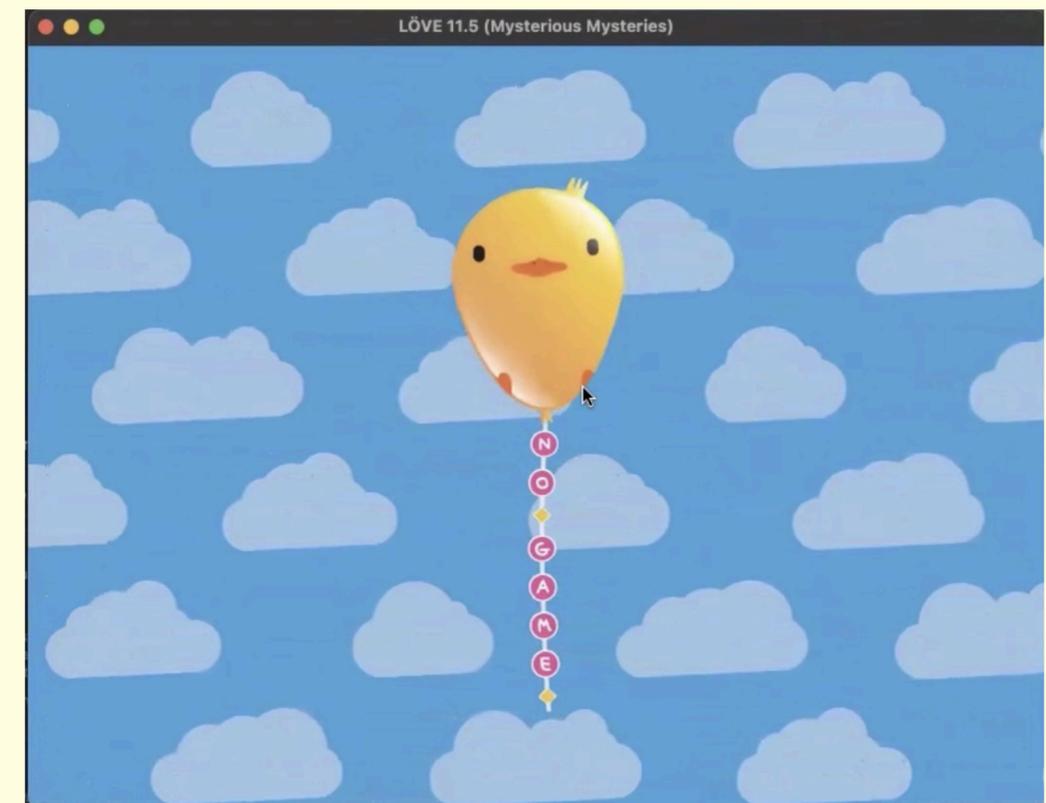
1 - Not confident at all; 5 - Very confident

Medium

Reference lacks clear visual explanations and project-based learning path

The reference pages provide helpful code examples, but do not clearly explain how they fit into working projects, or where the code should be written & executed.

(#) **4/6 participants** completed tasks, but felt confused about some instructions
Independent creation confidence: average **2.25 / 5**
Reference sufficiency for independent creation: No (N=3)

(🎤) *"The meaning of the 3rd or 4th numbers following each function — the height, the width — it's unclear."   - P1*

(✓) **Recommendations**
- Add 2–3 **project-based tutorials** (e.g., a generative wallpaper)
- Add inline **parameter labels in code examples** (e.g., circle (x, y, radius) with clear annotations)
- Redesign to use **gallery-style layout with visual previews** rather than plain text

1 - Not confident at all; 5 - Very confident

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Without step-by-step tutorial
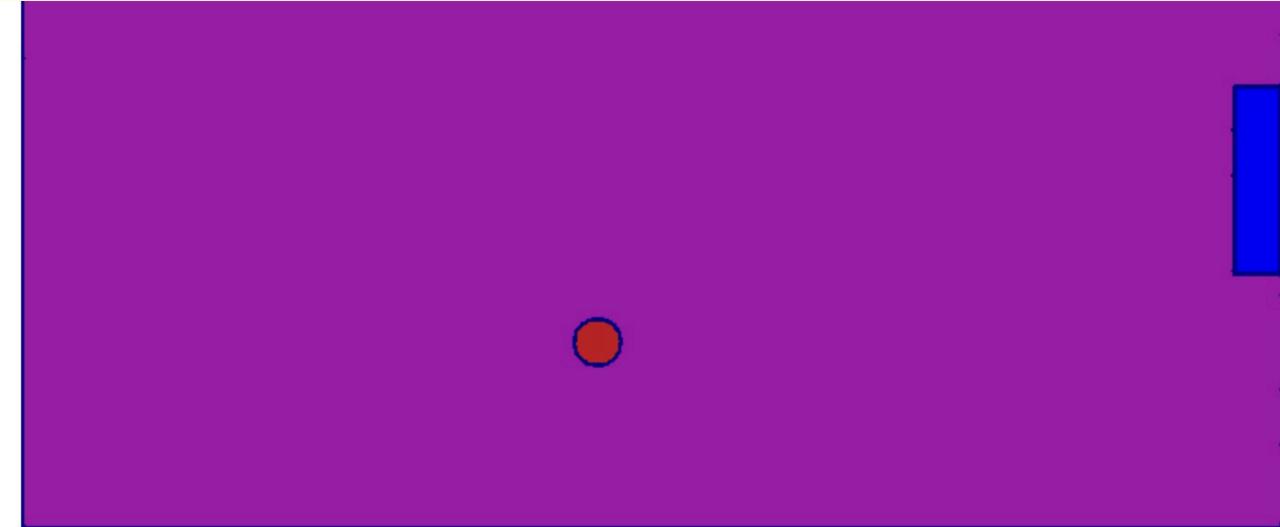

```
require("L5")

function setup()
  size(800,600)
  windowTitle("Pong")
  rectMode(CENTER)

  -- Global variables
  p1 = { -- Player 1 (left, controlled by mouse)
    x = 15,
    y = height/2,
    w = 30,
    h = 120,
    score = 0
  }
```

Low

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Homepage lacks clear visual hierarchy and beginner onboarding cues

The L5/Lua homepage shows a large amount of dense text with limited visual hierarchy or clear onboarding guidance for beginner users. Key information such as what the tool is, how to use it, and where beginners should start is not visually emphasized.
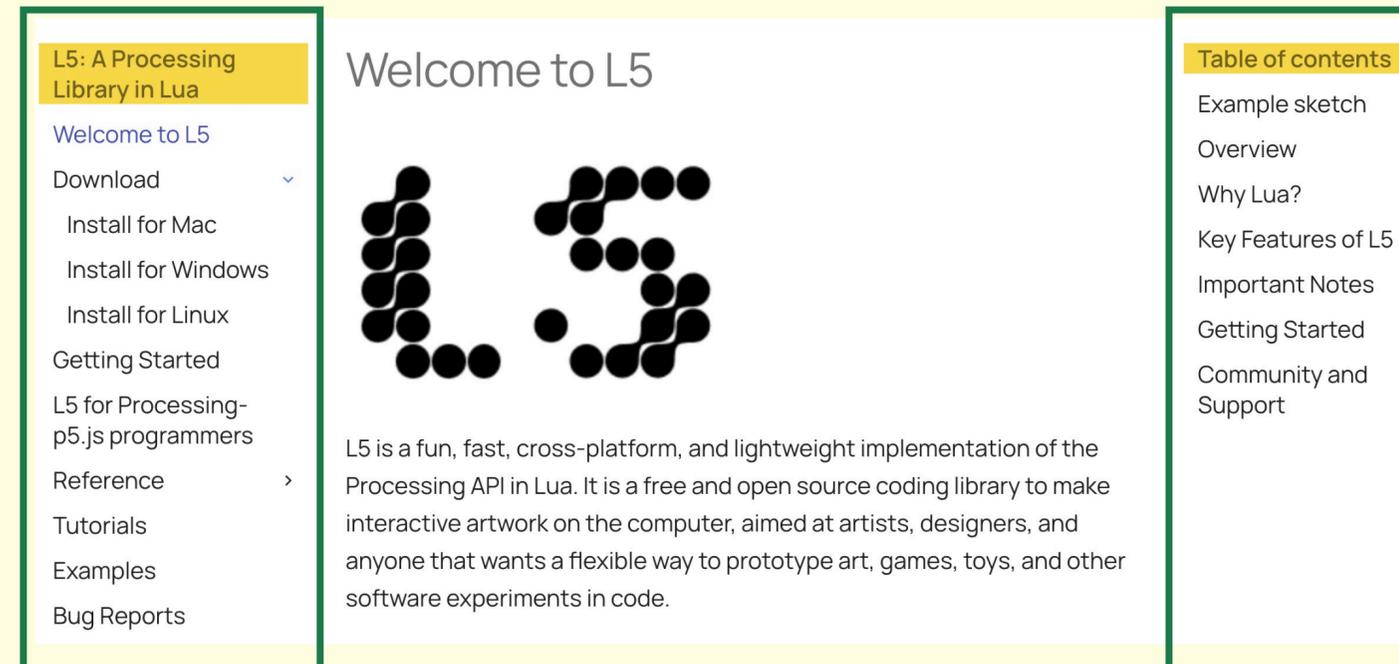
\# Although **6/6 participants** successfully completed the task, the homepage scored **3/5** for ease of understanding

🎤 *"There's a lot of written description, and it's hard to quickly understand how to get started." - P1*

"I understand it logically, but it doesn't feel intuitive and it's really dense." - P4

✔ **Recommendations**
- Introduce a **visually distinct starting point** for beginners
- Clarify/visually **differentiate navigation menus** to reduce confusion
- Improve visual hierarchy using headings, spacing, visual grouping
- Simplify homepage content and reduce dense text

1 - Very Difficult; 5 - Very Easy

confusing dual navigation menus

L5: A Processing Library in Lua

Welcome to L5
Download
  Install for Mac
  Install for Windows
  Install for Linux
Getting Started
L5 for Processing-p5.js programmers
Reference
Tutorials
Examples
Bug Reports

Welcome to L5

L5

L5 is a fun, fast, cross-platform, and lightweight implementation of the Processing API in Lua. It is a free and open source coding library to make interactive artwork on the computer, aimed at artists, designers, and anyone that wants a flexible way to prototype art, games, toys, and other software experiments in code.

Table of contents
Example sketch
Overview
Why Lua?
Key Features of L5
Important Notes
Getting Started
Community and Support

Post-Test Evaluation UX-Lite Questionnaire

After completing all the tasks, participants were asked to complete the UX-Lite questionnaire which helped measure the ease of use and usefulness using two five-point Likert items

Sample size
N = 6 participants

Scoring method
Responses were converted to a 0-100 scale using the transformation (rating - 1) x 25

1 L5Lua was easy to use   **2.00/5**

2 L5Lua's feature meet my needs   **2.42/5**

Overall UX-Lite score   **30.25**

score vs. metric
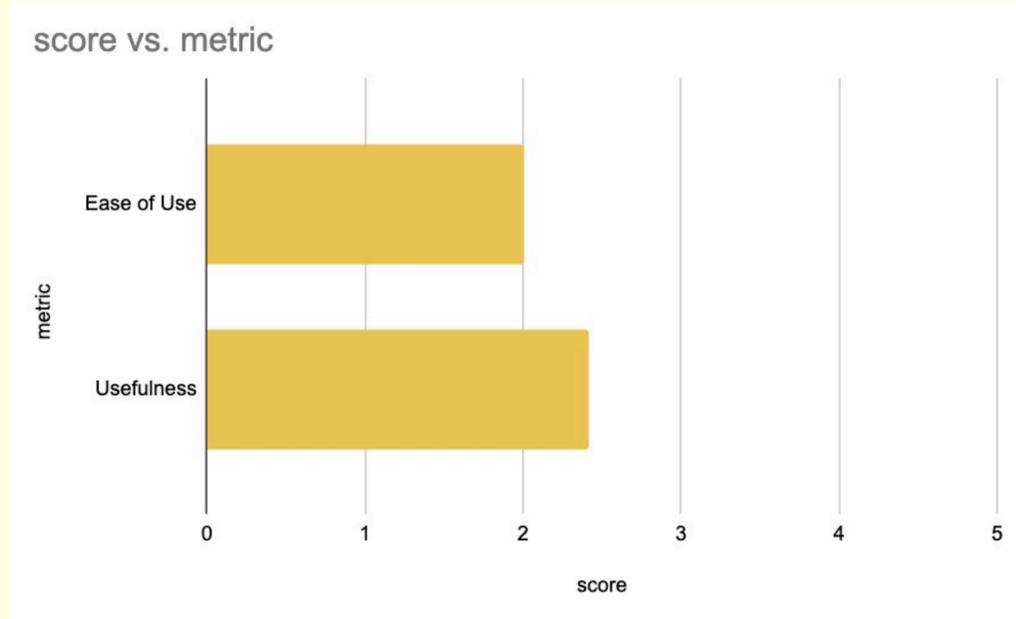
Participants rated both ease of use and usefulness relatively low, consistent with our observations

1 - Strongly disagree; 5 - Strongly agree

APPENDIX

Task List / Scenarios

Each session followed the same structured sequence of five tasks, designed to mirror the real onboarding journey from first visit through independent creative work.

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Scenario #1: You are an artist who has recently become interested in creative coding. A friend mentioned L5/Lua as a tool worth exploring. You visit the website to learn what it is, and try to decide whether it seems useful for your work.

Task #	Task	Testing goal	Starting state	What success looks like
1	Explore the L5/Lua homepage. After reviewing it, explain: what you think L5/Lua is, who it is intended for, the difference between the left and right menus, and the difference between the reference, tutorial and example sections.	Assess whether first time users can form an accurate mental model of the tool and understand site resources and navigation.	Participant is on the L5/Lua homepage.	Participant provides a clear explanation of L5/Lua's purpose and distinguishes between the navigation sections accurately.
2	Using the website, install L5/Lua on the Mac.	Evaluate whether users can locate installation instructions and complete setup independently.	Participant is on the L5/Lua website homepage.	Participant successfully downloads, installs, and opens L5/Lua program without moderator assistance.

Scenario #2: You decide to create a simple visual and gradually modify it to explore what is possible.

Task #	Task	Testing goal	Starting state	What success looks like
3	Using the website resources, create a circle on the screen.	Test whether users can locate documentation and apply it to execute a basic coding task.	L5/Lua is installed and open. The website remains accessible.	Participant is able to make a circle appear in the program without assistance from moderators.
4	Modify the circle so it appears red.	Assess whether users can interpret documentation to modify existing code.	A circle is successfully displayed on the screen.	The participant is able to change the circle color to red without moderator assistance.
5	Create a different shape or visual of your choice using what you have learned.	Measure knowledge transfer and ability to apply learned concepts without step by step instruction.	Participant has successfully created and modified a circle.	A new shape or visual appears that is different from the original circle, and is created without step by step guidance.

Participant Information

Six participants were recruited for this study. All participants were Mac OS users and represented the target audience of the platform: designers and artists with limited to moderate creative coding experience.

ID	Session Date	Background	Previous Experience
P1	Feb. 09, 2026	Architecture designer, no pure coding background	Rhino, Grasshopper
P2	Feb. 18, 2026	Landscape designer, no pure coding background	Rhino + Grasshopper (parametric plugin)
P3	Feb. 20, 2026	Design student (P5.js coursework), limited coding background	P5.js, AI debugging tools
P4	Feb. 25, 2026	MS HCDE student, no pure coding background	Limited knowledge in HTML, CSS; Working knowledge of Figma, other creative tools
P5	Feb. 26, 2026	MS HCDE student, limited coding background	Some comp sci courses in undergrad; Limited knowledge in HTML, CSS, Java/Javascript
P6	Mar. 1, 2026	Design student (media arts), limited coding background	P5.js, HTML, CSS, C#, C++, Unity

Quantitative Data Summarytable #1

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Table 1: Post-Task Likert Scale Ratings

Metric	P1	P2	P3	P4	P5	P6	Mean
Scenario 1: Homepage Navigation							
Homepage clarity	4	3	3	2	3	3	**3.00**
Scenario 2: Download & Installation							
Installation ease	1	4	1	1	2	1.5	**1.75**
Mac instructions clarity	2	4	1	2	2	2	**2.17**
Scenario 3: Code Creation (Circle)							
Find circle info ease	4	4.5	1	4	4	3	**3.42**
Reference helpfulness	4	5	2	5	2	4	**3.67**
Scenario 4: Code Modification (Red)							
Color modify ease	5	3	5	3	3	2	**3.50**
Confidence modifying	4	4	4	1	1	2	**2.67**
Scenario 5: Independent Art Creation							
Independent creation ease	2	4.5	2	3	1	1	**2.25**
Post-Test: UX-Lite Questionnaire							
Easy to use	2	3	2	2	2	1	**2.00**
Features meet my needs	3	4	2	1	1	3.5	**2.42**

Note: Ratings on a 1–5 scale. 1 = Very Difficult / Strongly Disagree / Not Helpful / Not Confident. 5 = Very Easy / Strongly Agree / Very Helpful / Very Confident.

Table 2: Task Completion Rates

Task	P1	P2	P3	P4	P5	P6	Success %
T1: Homepage	Success	Success w/ frustration	Success w/ frustration	Success w/ frustration	Success w/ frustration	Success w/ frustration	**6/6 (100%)**
T2: Install	Partial	Success	Success	Partial	Partial	Success w/ frustration	**2/6 (33%)**
T3: Circle	Partial	Success	Success w/ frustration	Unsuccessful	Unsuccessful	Success	**3/6 (50%)**
T4: Red Color	Partial	Success	Success	Unsuccessful	Unsuccessful	Success w/ frustration	**3/6 (50%)**
T5: Independent	Unsuccessful	Success	Success w/ frustration	Unsuccessful	Unsuccessful	Partial	**1/6 (17%)**

Legend: Green = Successful | Orange = Successful with frustration | Yellow = Partial (required hints) | Red = Unsuccessful | a*Success % counts only fully independent, unfrustrated completions.*

Quantitative Data Summarytable #2

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Table 3: Key Metrics at a Glance

Metric	Value
Total participants	6
Likert Scale Ratings (Mean, 1–5)	
Homepage clarity	3.00 / 5
Installation ease	**1.75 / 5**
Mac instructions clarity	**2.17 / 5**
Find circle info ease	3.42 / 5
Reference helpfulness	3.67 / 5
Confidence in modifying visuals	2.67 / 5
Independent creation ease	**2.25 / 5**
UX-Lite: Easy to use	**2.00 / 5**
UX-Lite: Meets my needs	**2.42 / 5**
Task Completion (unassisted success rate)	
T1: Homepage navigation	100% (6 of 6)
T2: Download & installation	**33% (2 of 6)**
T3: Create a circle	50% (3 of 6)
T4: Modify circle to red	50% (3 of 6)
T5: Independent creation	**17% (1 of 6)**
Binary / Categorical Questions	
Understood how to run code?	33% Yes (2/6) | 17% Somewhat (1/6) | 50% No (3/6)
Reference pages sufficient for independent work?	0% Yes | 33% Somewhat (2/6) | 67% No (4/6)

Values highlighted in red indicate critical metrics that fall below the acceptable threshold (below 2.5/5 or below 50% success rate).

Table 4: Biggest Barrier to Getting Started (Open-Ended)

Participant	Response
P1	Wordy website, no images for imagination
P2	Don't know where to find useful information
P3	Downloading and launching — even from the start I felt stuck
P4	Downloading — initially downloaded Windows app instead of Mac; would have quit entirely
P5	Not being able to properly download without help
P6	The error message and suspicious duck icon when downloading

5 of 6 participants identified the download/installation process as their biggest barrier.

Table 5: Additional Resources Requested by Participants

Resource Requested	# of Participants
Video tutorials / YouTube walkthroughs	5 of 6 (83%)
Step-by-step guided onboarding	4 of 6 (67%)
Visual aids (GIFs, annotated screenshots, diagrams)	4 of 6 (67%)
Community forum / discussion board / Q&A	2 of 6 (33%)
Templates / example projects to build from	2 of 6 (33%)

EOD