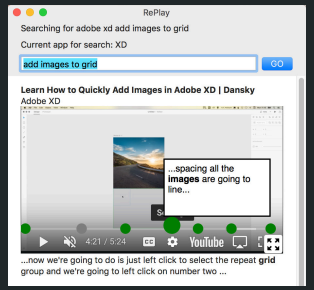
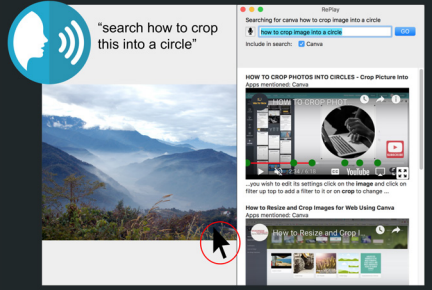
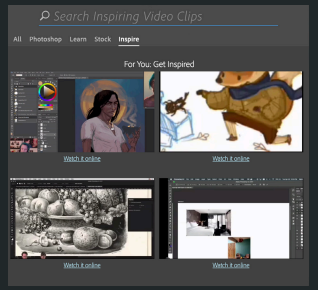
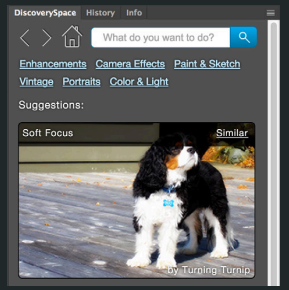
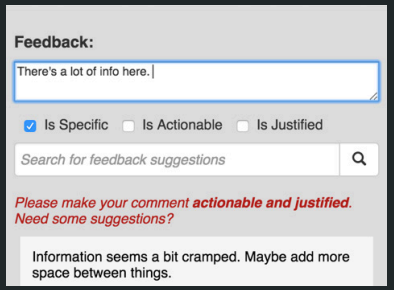
Contextually recommending expert help and demonstrations to improve creativity











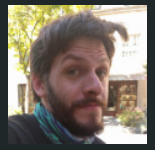
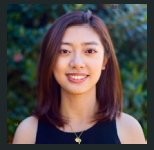
Ailie Fraser

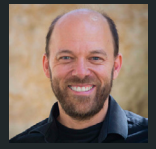
Thesis Defense

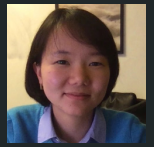
February 28, 2020

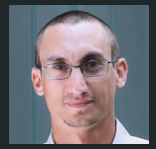
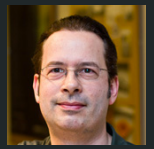
UC San Diego
The Design Lab

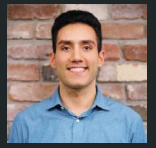
Thank you

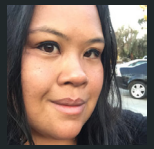
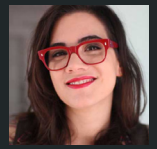
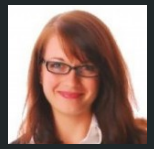


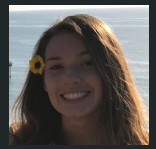


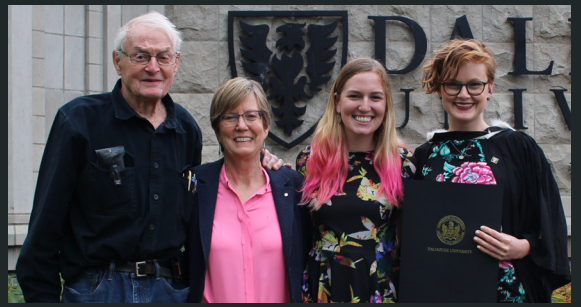



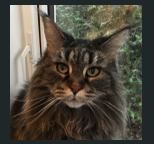


Design Lab Ops
CSE Student Affairs
GradWIC
Aerial Silks fam
Miracles
Friends & Family







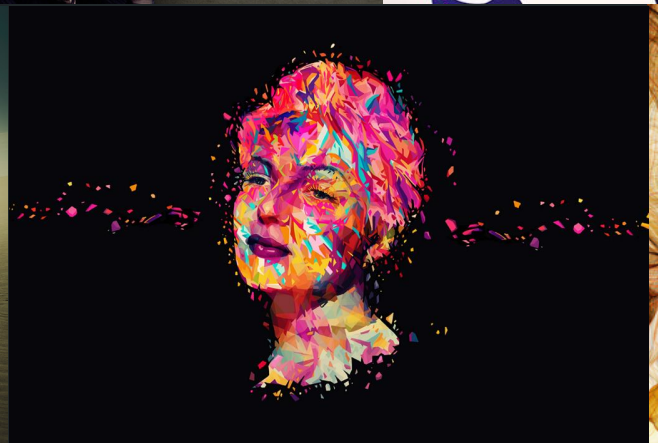
Adobe

NSERC CRSNG

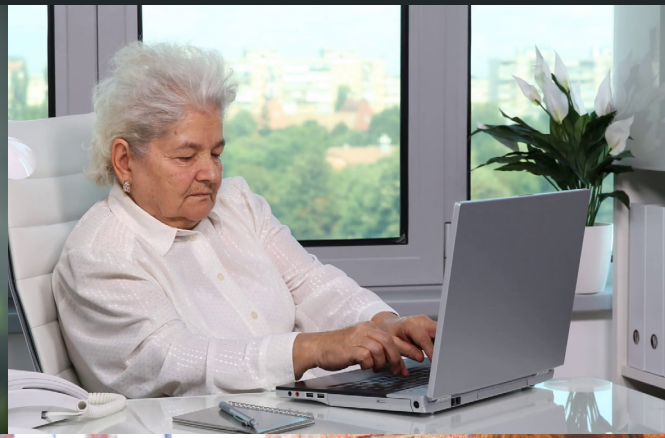
UCSDCSE Computer Science and Engineering

UC San Diego
The Design Lab

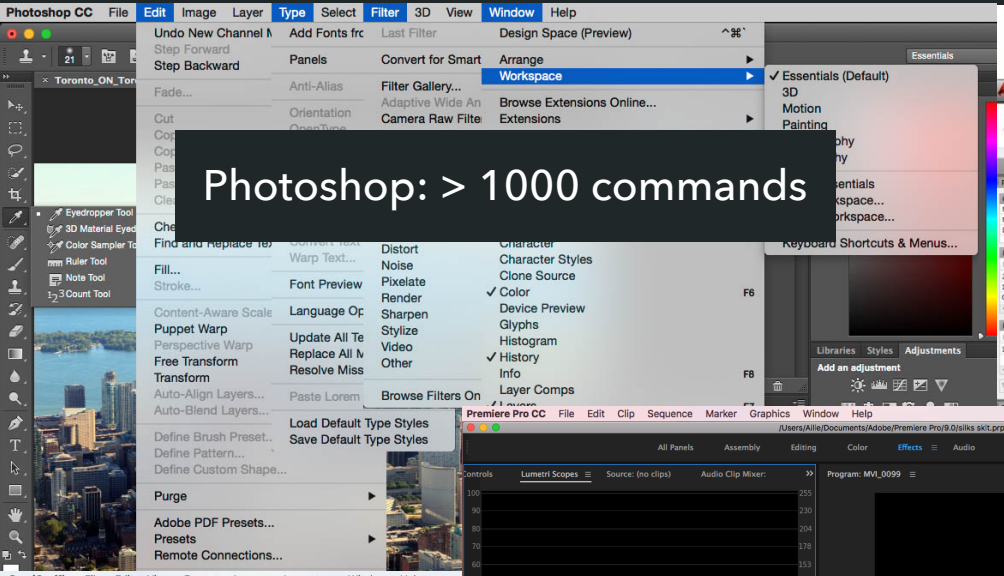
People are creative with powerful software

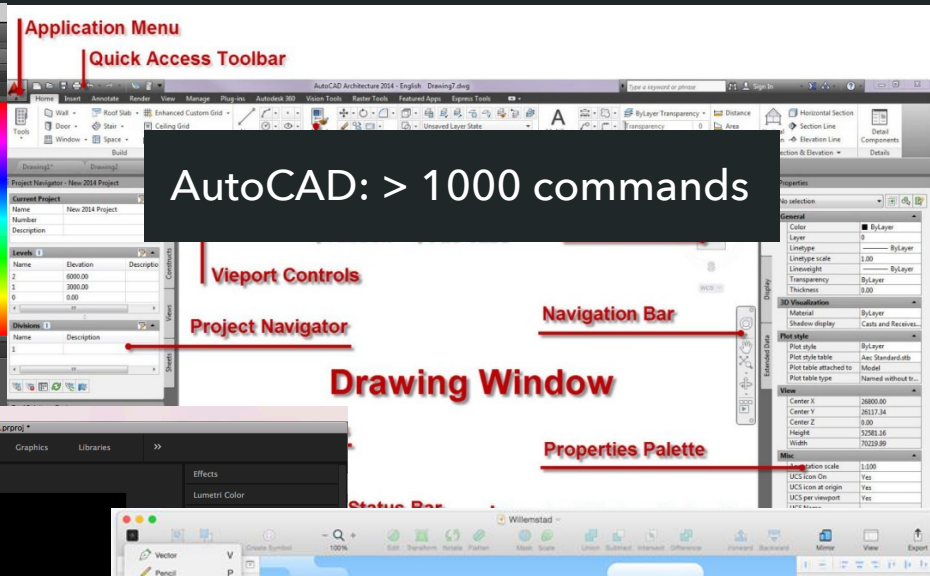


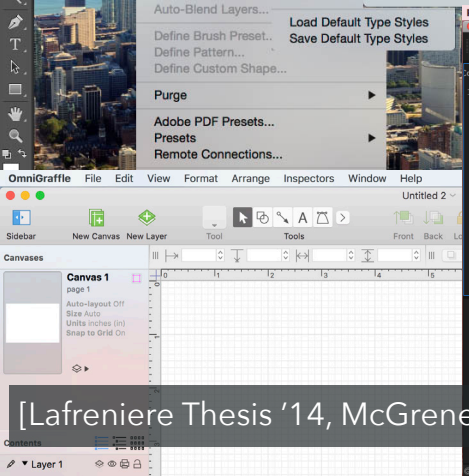
Non-professionals seek creative outlets too…

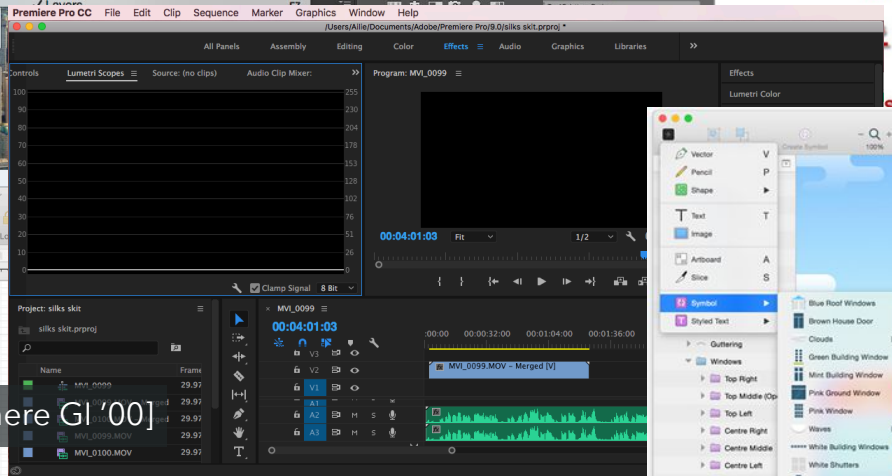


…but are thwarted by complex software







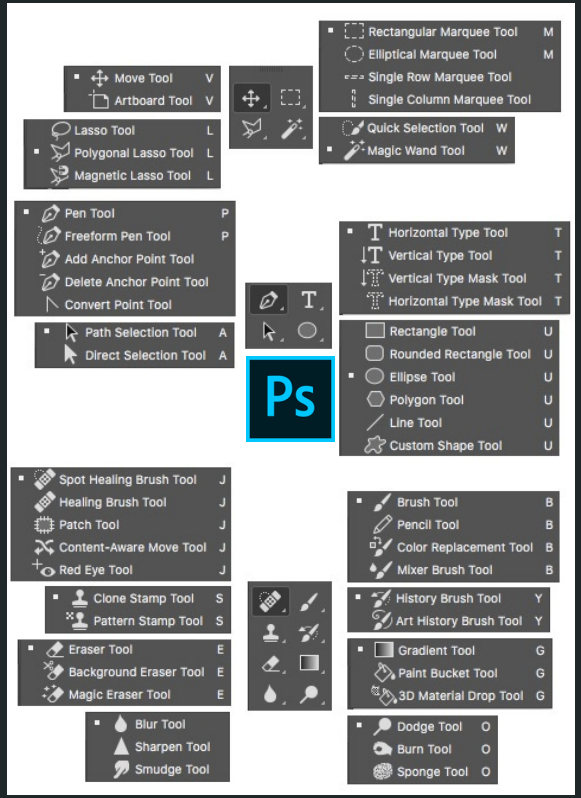


[Lafreniere Thesis ’14, McGrenere GI ’00]

…but are thwarted by complex software

PROBLEM

Complex software has a large gulf of execution



Hutchins, Hollan, & Norman 1985

PROBLEM

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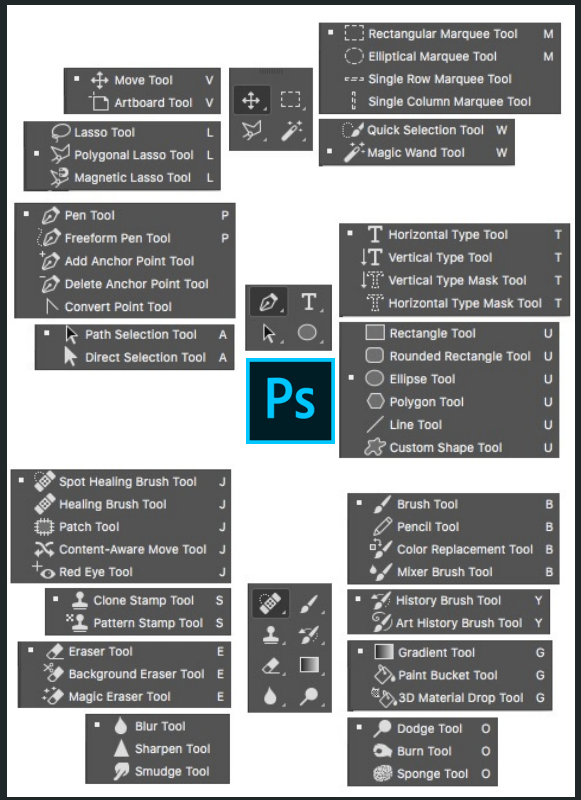
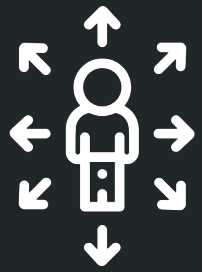


Hutchins, Hollan, & Norman 1985

PROBLEM

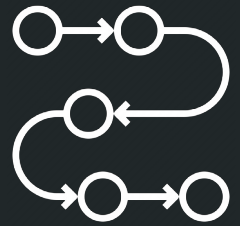
3 main challenges with creative software

Many options



Lack of vocabulary

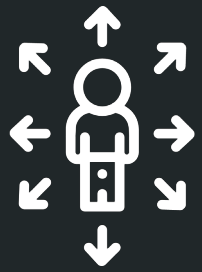
Multiple steps

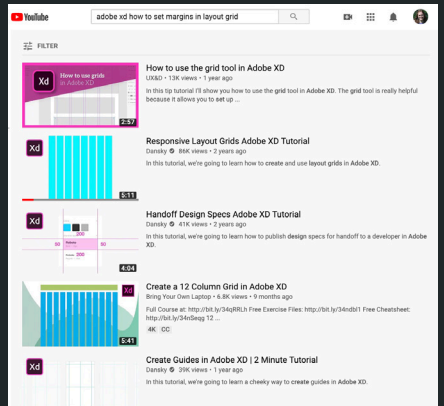


PROBLEM

3 main challenges with online resources

Many options





PROBLEM

3 main challenges with online resources

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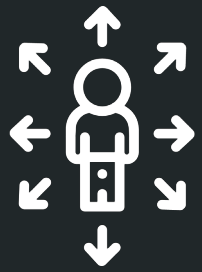

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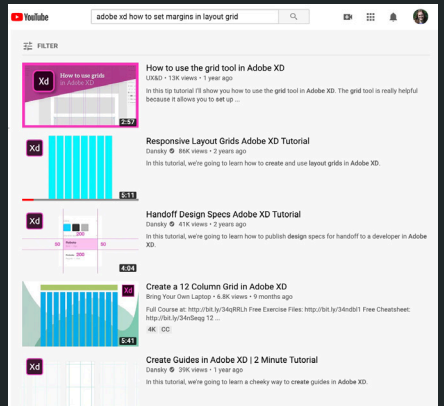

PROBLEM

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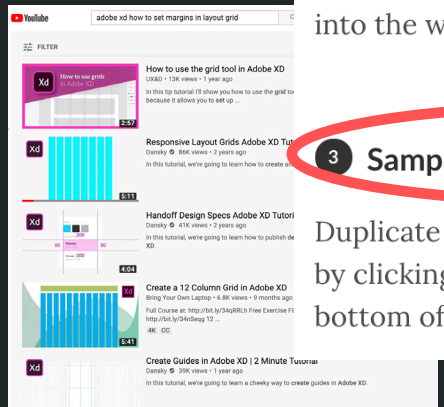


1 Download the Sample Images

DOWNLOAD

2 Open the Samples Images in Photoshop

First, place the how_to_create_a_dreamy_blurred_background_in_photoshop.jpg into Photoshop by going to File and Open... or by dragging and dropping the files into the workspace.

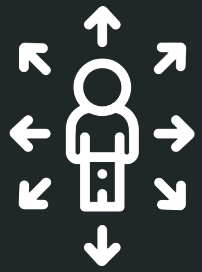
3 Sample Edit: Applying Gaussian Blur

Duplicate the Background layer by hitting CMD or CTRL + J on the keyboard or by clicking and dragging the Background layer to the New Layer symbol at that bottom of the Layers Panel to duplicate the layer.

PROBLEM

3 main challenges with online resources

Many options



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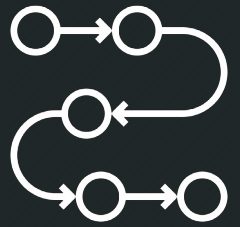

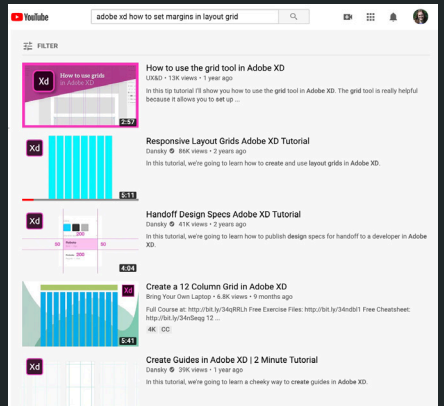

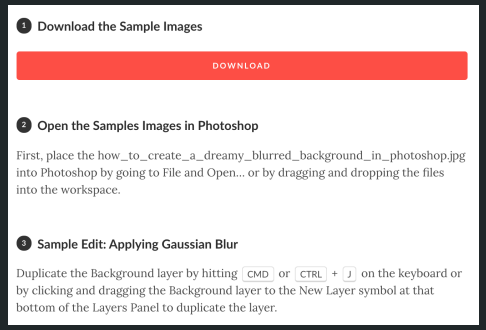

My dissertation introduces systems that address the…

3 main challenges with online resources

Many options

Lack of vocabulary

Multiple steps

…by:

- *curating expert help and demonstrations*
- *and presenting them in context*

Thesis Statement

- *Curating expert help and demonstrations*
- *and presenting them in context*

enables people to produce better work.

My focus: Creative work

Published Papers

2020 ACM CHI *Temporal Segmentation of Creative Live Streams.*
C. Ailie Fraser, Joy Kim, Valentina Shin, Joel Brandt, Mira Dontcheva

2019 ACM C&C *Sharing the Studio: How Creative Livestreaming can Inspire, Educate, and Engage.*
C. Ailie Fraser, Joy O. Kim, Alison Thornsberry, Scott Klemmer, Mira Dontcheva

2019 ACM CHI *RePlay: Contextually Presenting Learning Videos Across Software Applications.* Honourable Mention
C. Ailie Fraser, Tricia J. Ngoon, Mira Dontcheva, Scott Klemmer

2018 ACM CHI *Interactive Guidance Techniques for Improving Creative Feedback.* Honourable Mention
Tricia J. Ngoon, C. Ailie Fraser, Ariel S. Weingarten, Mira Dontcheva, Scott Klemmer

2017 ACM CHI *WeBuild: Automatically Distributing Assembly Tasks Among Collocated Workers to Improve Coordination.*
C. Ailie Fraser, Tovi Grossman, George Fitzmaurice

2016 ACM DIS *DiscoverySpace: Suggesting Actions in Complex Software.*
C. Ailie Fraser, Mira Dontcheva, Holger Winnemöller, Sheryl Ehrlich, Scott Klemmer

2016 ACM CHI *Framing Feedback: Choosing Review Environment Features that Support High Quality Peer Assessment.*
Catherine M. Hicks, Vineet Pandey, C. Ailie Fraser, Scott Klemmer

SOLUTION

Expert resources can help with…

“I need help accomplishing my goal”

“I don’t know what my end goal is”

“I have a goal and want it done”

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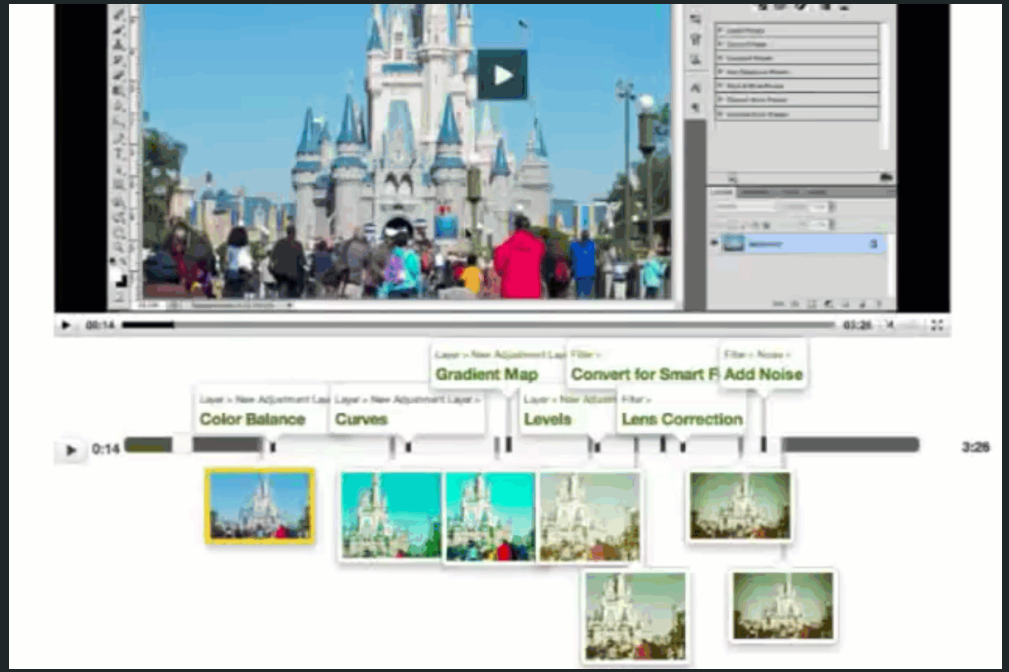
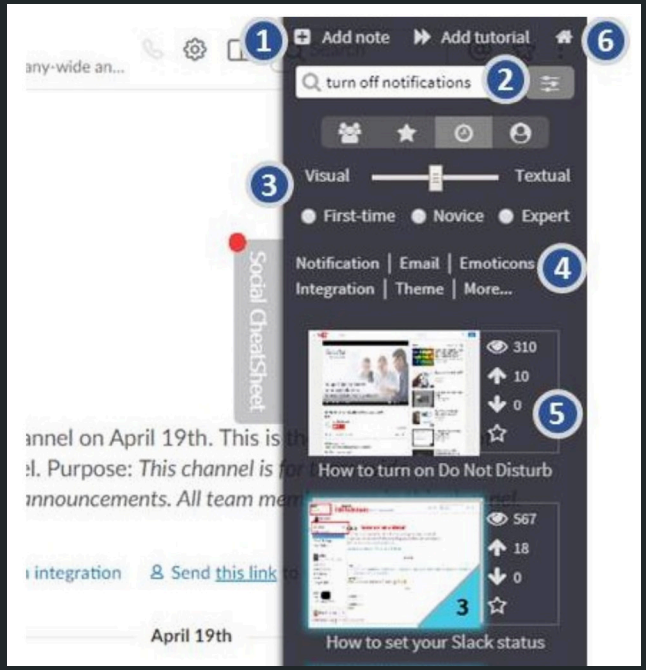
Segmenting tutorials & displaying them in context eases in-task use

ToolScape. Kim CHI ‘14



Social CheatSheet. Vermette CSCW ‘17



[Kim CHI EA ‘13, Banovic UIST ‘12, Chi UIST ‘12, Matejka CHI ‘11, Nguyen CHI ‘15, Vermette GI ‘15, Chilana CHI ‘12, Ichinco CHI ‘17, Kelleher CHI ‘05, Lafreniere OzCHI ‘14]

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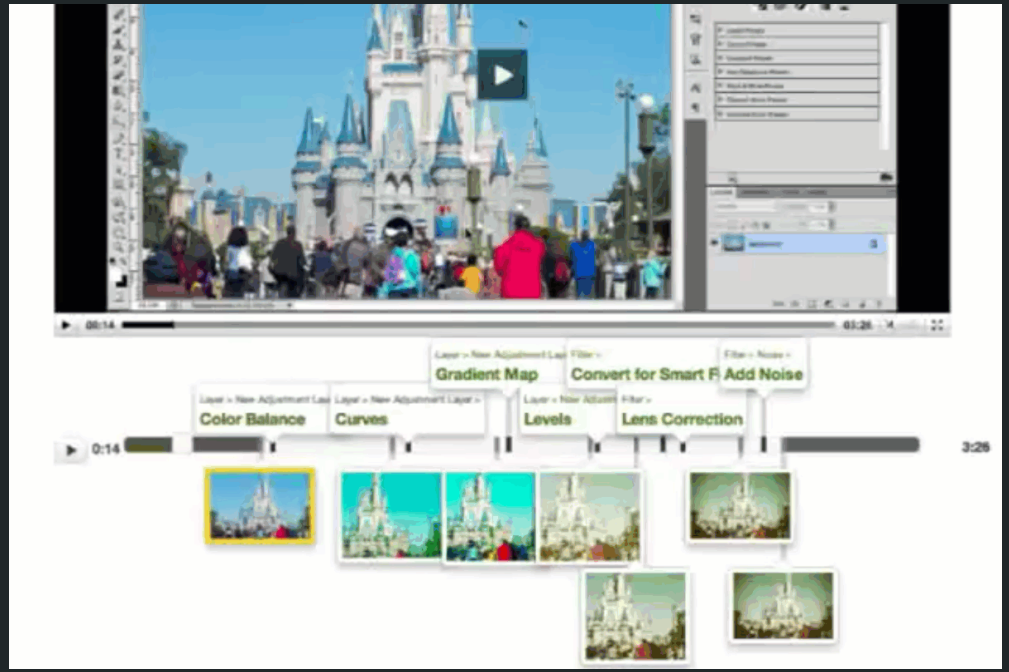

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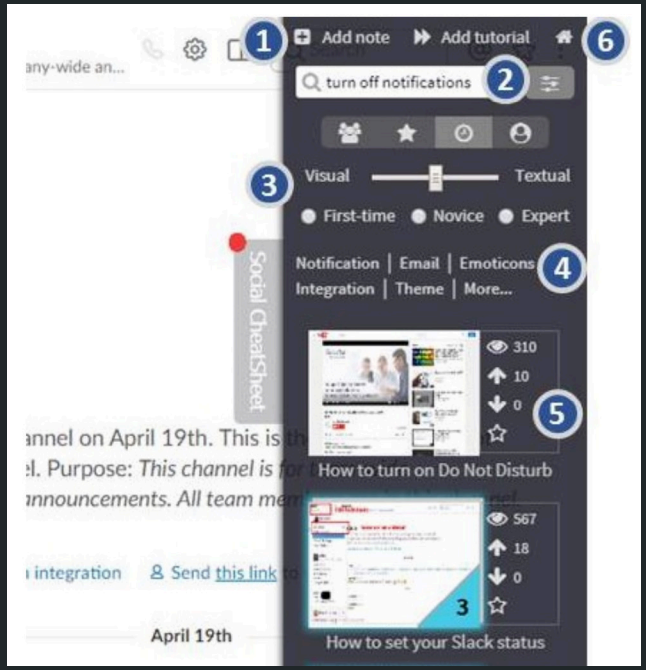

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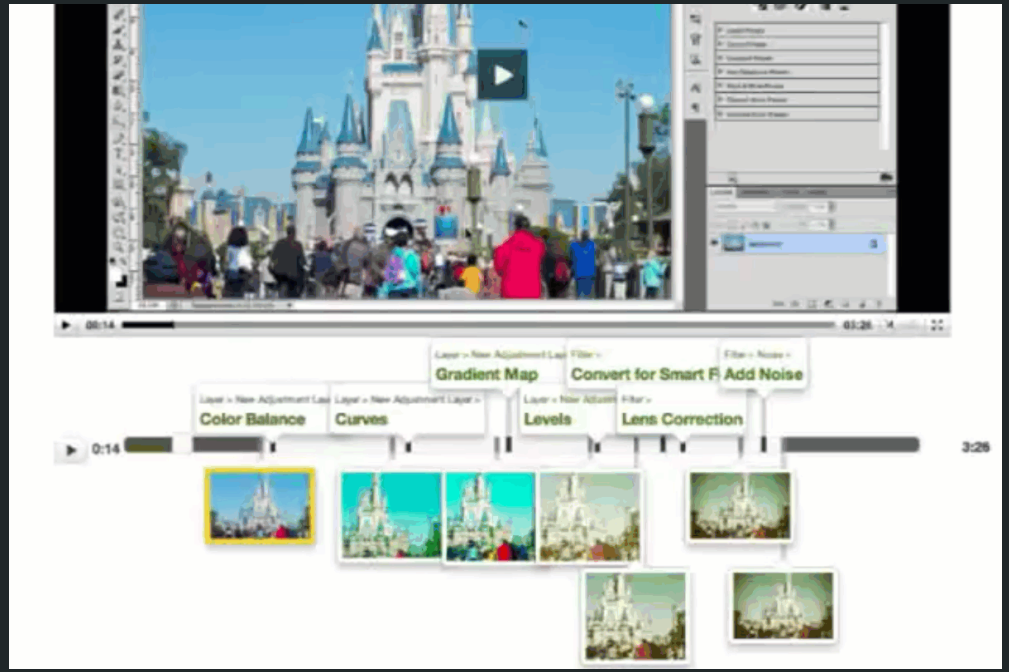

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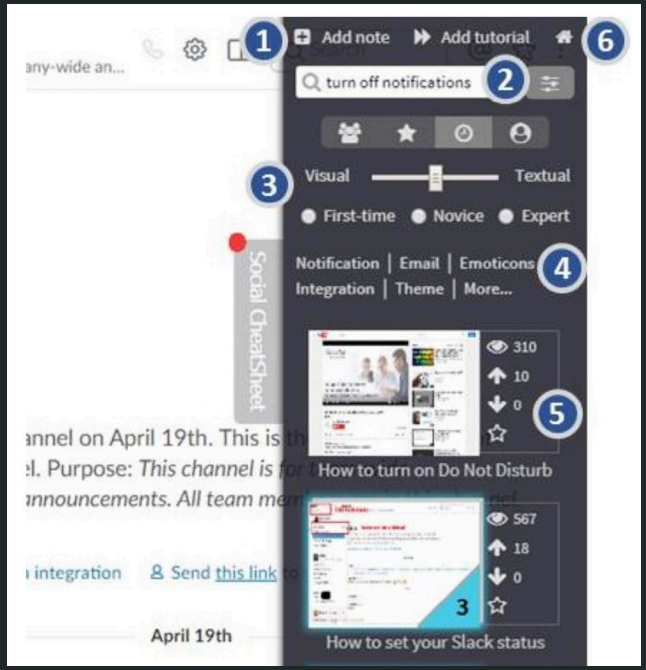

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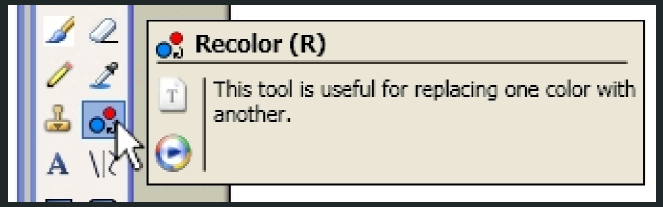
In-situ examples support learning & inspiration

ToolClips. Grossman CHI ’10



Herring CHI ’09

[Dontcheva CHI ’14, Matejka UIST ’09, Matejka CHI ’11, Bawden J. Inf. Sci ’86, Kulkarni DTR ’14, Siangliulue C&C ’15]

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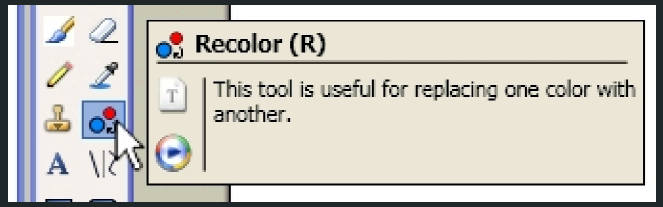

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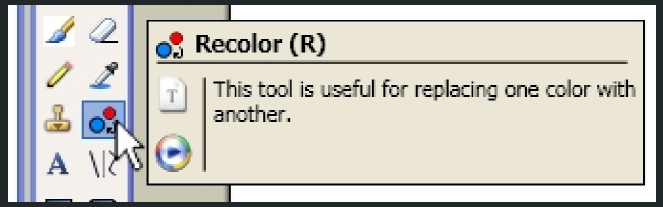
In-situ examples support learning & inspiration

ToolClips. Grossman CHI ’10



Herring CHI ’09

[Dontcheva CHI ’14, Matejka UIST ’09, Matejka CHI ’11, Bawden J. Inf. Sci ’86, Kulkarni DTR ’14, Siangliulue C&C ’15]

SOLUTION

Expert resources can help with…

“I need help accomplishing my goal”

→ segment tutorials & display in context

“I don’t know what my end goal is”

→ suggest example demonstrations

“I have a goal and want it done”

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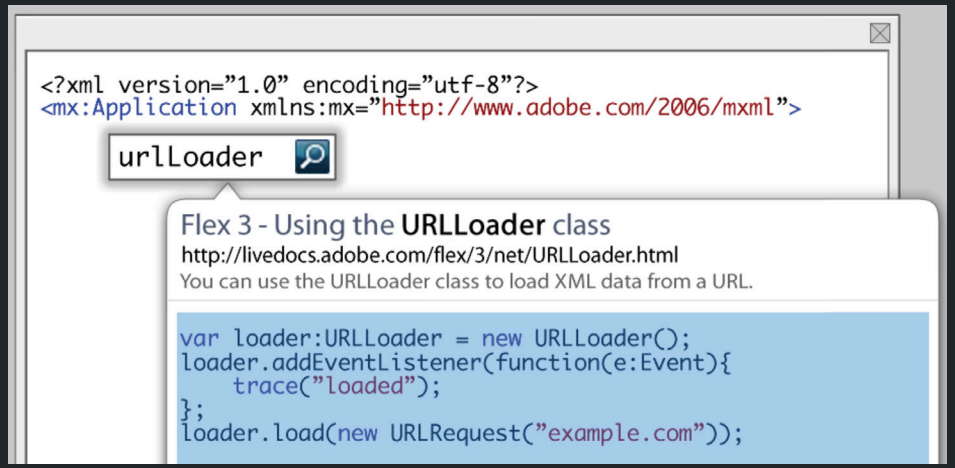
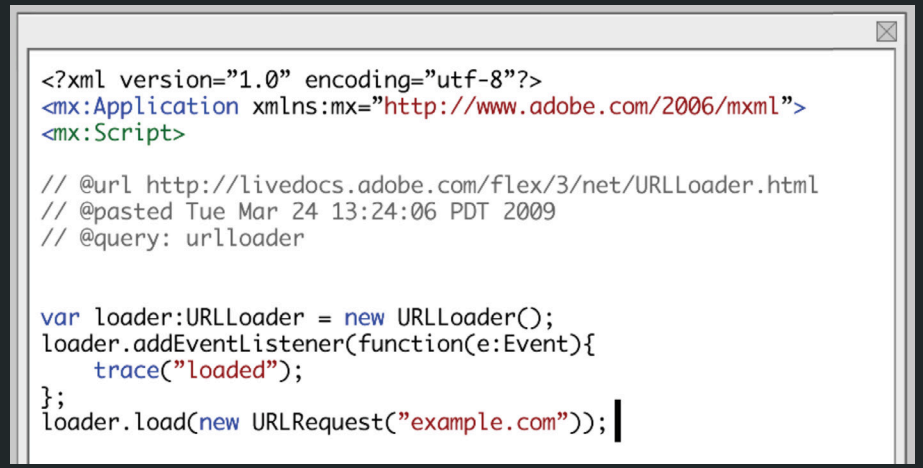
Contextual solutions & operations help accomplish tasks faster

Blueprint. Brandt CHI ’10





[Adar UIST ’14, Chilana CHI ’12, Hartmann CHI ’10, Kandel CHI ’11]

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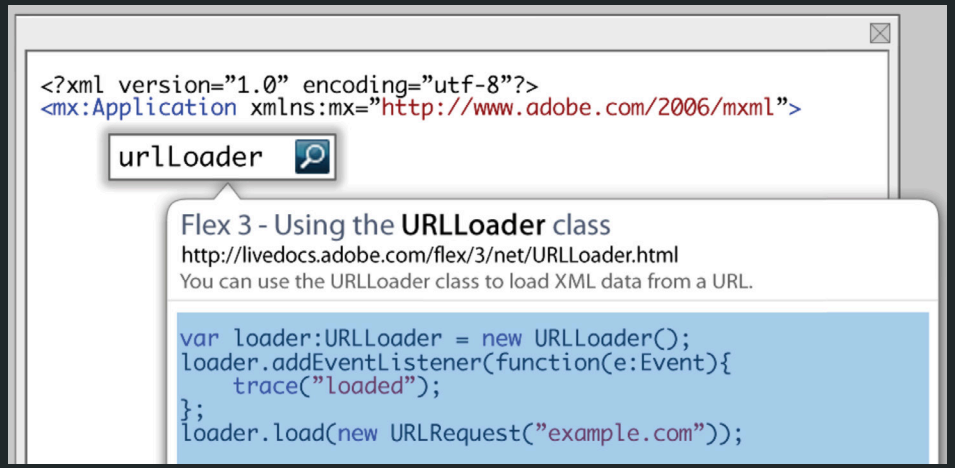
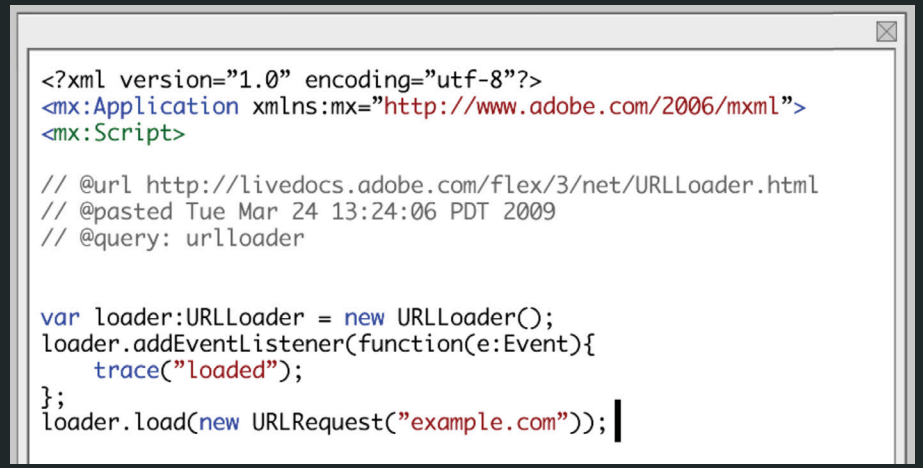
Blueprint. Brandt CHI ’10





[Adar UIST ’14, Chilana CHI ’12, Hartmann CHI ’10, Kandel CHI ’11]

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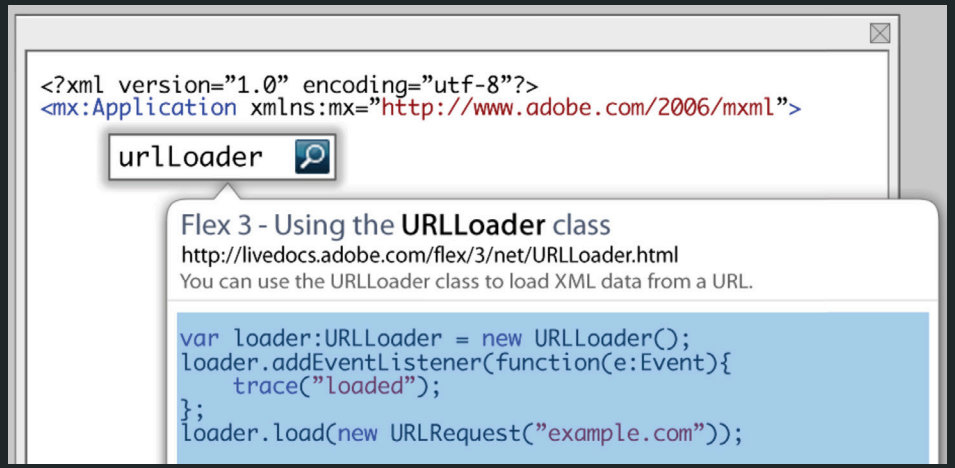

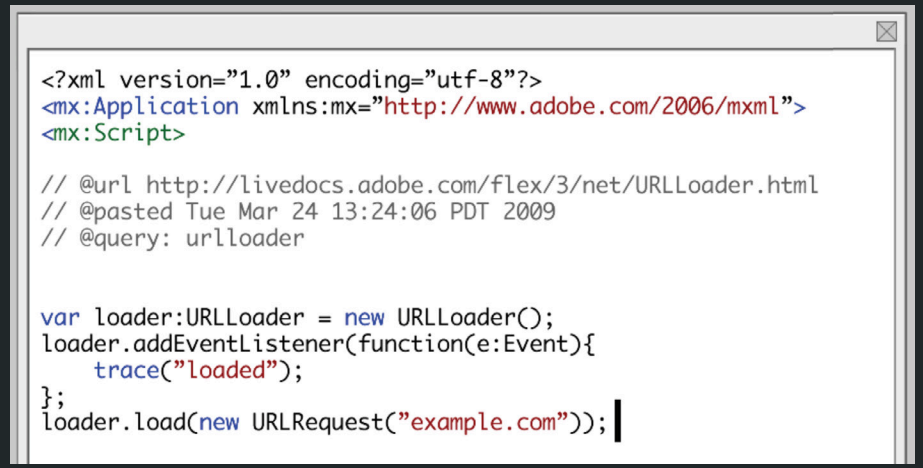

[Adar UIST ’14, Chilana CHI ’12, Hartmann CHI ’10, Kandel CHI ’11]

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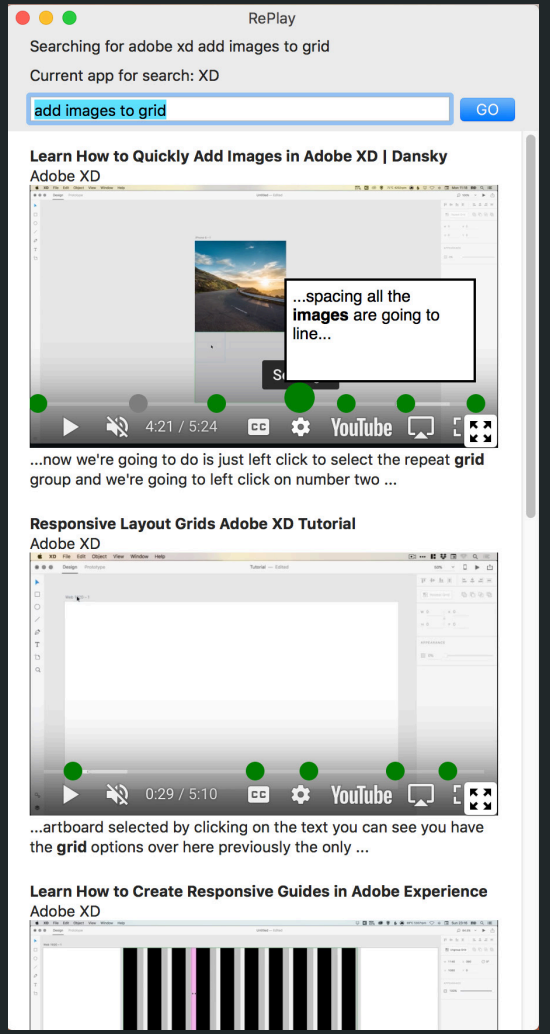
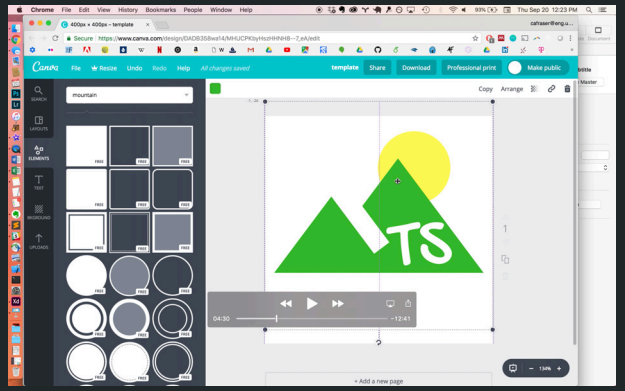
RePlay: Contextually Presenting Learning Videos Across Applications

Ailie Fraser, Tricia Ngoon, Mira Dontcheva, Scott Klemmer

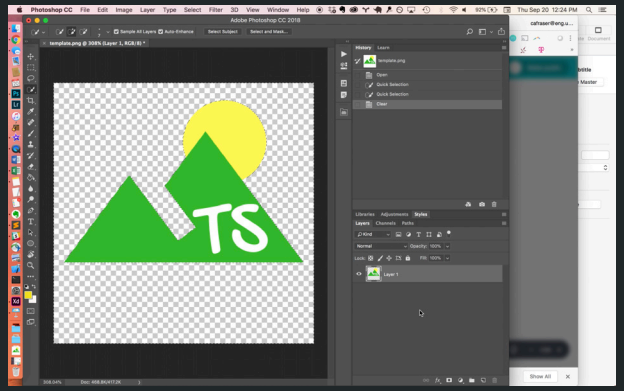
Proceedings of CHI 2019 - Honourable Mention 🏅



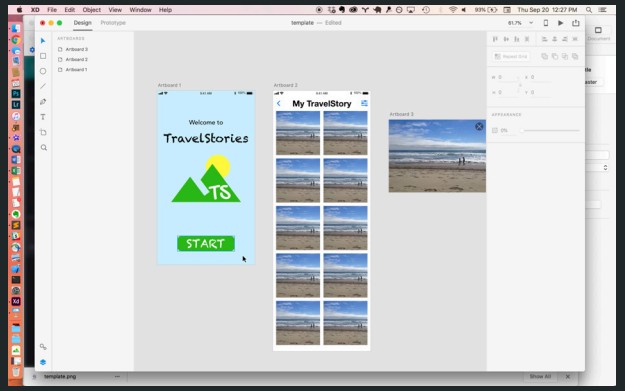
Complex activities often comprise multiple applications



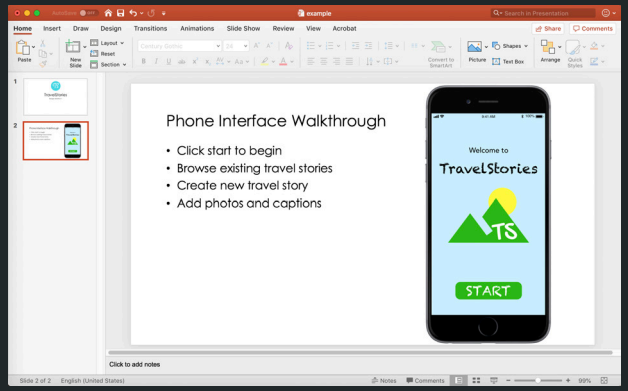
Canva



Photoshop

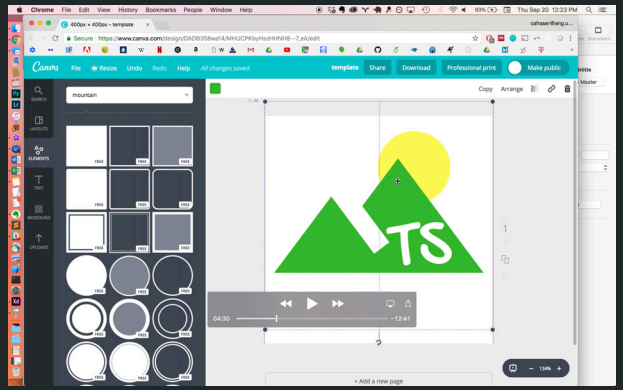


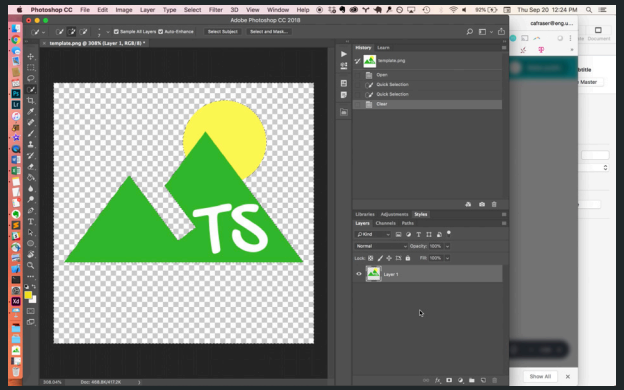
Adobe XD

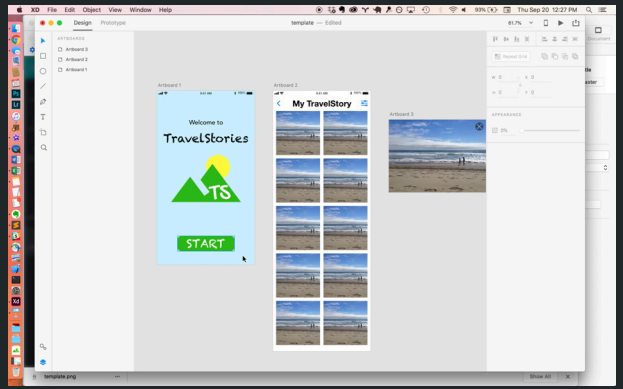


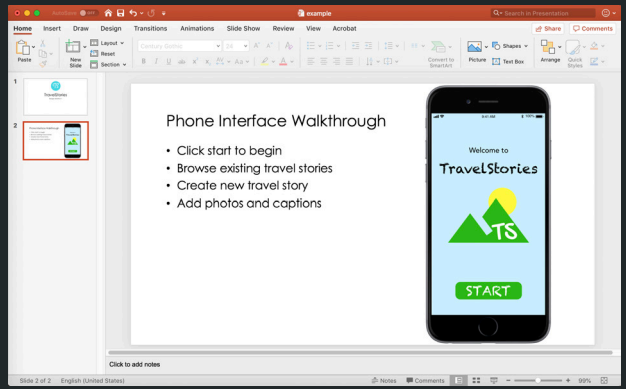
Powerpoint

Applications are walled gardens





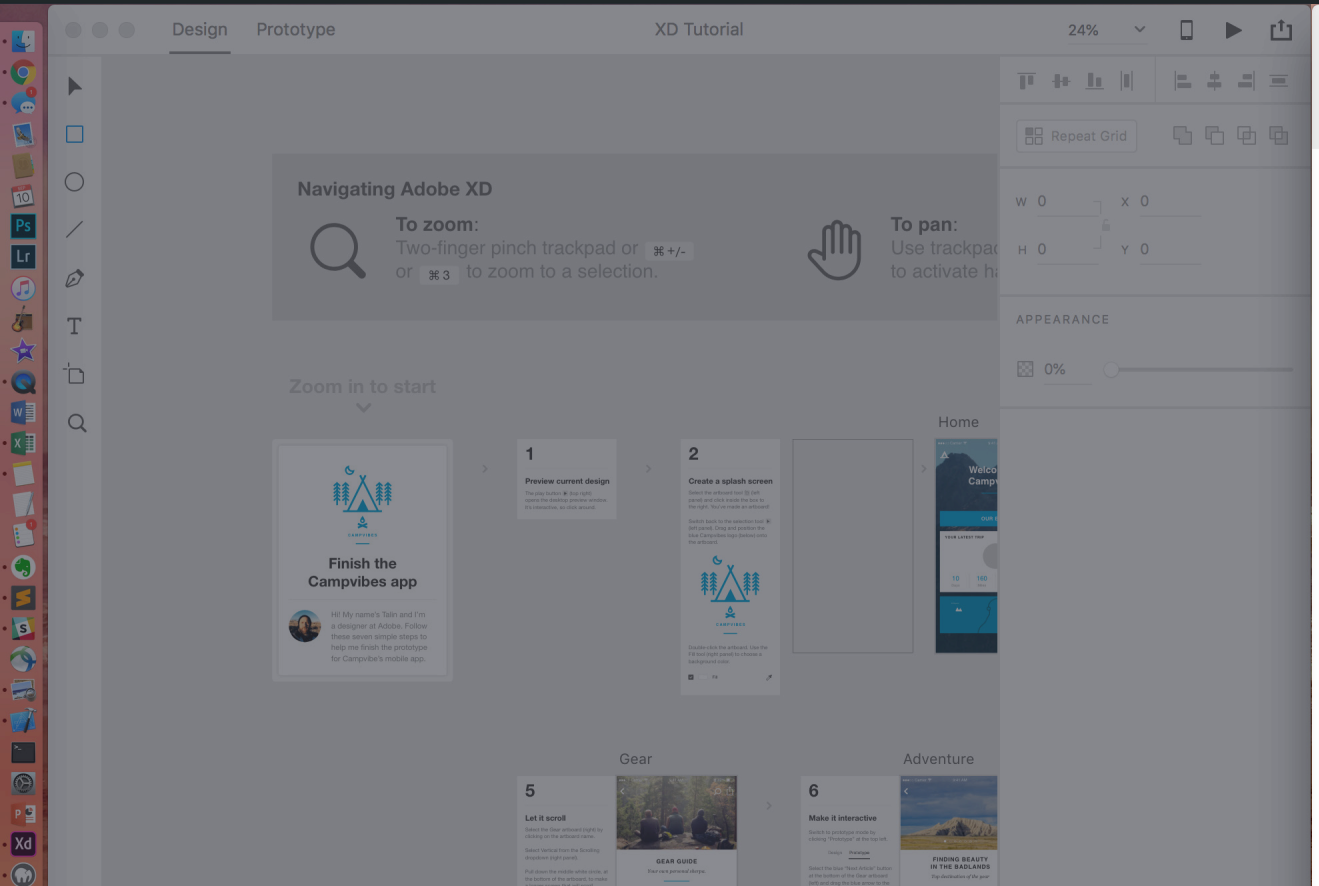


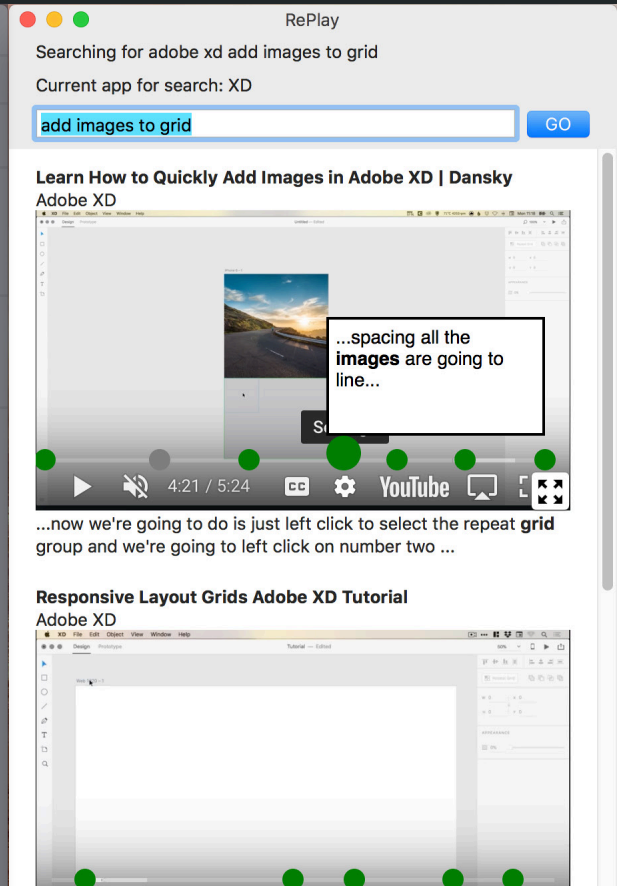


Research Questions

- How might we provide contextual assistance across multiple applications?
- Does contextual assistance help people find what they need more quickly?

RePlay: an application-independent approach





1. Help users create better search queries

Edit View Insert Format Tools Data Window Help — 93% — Thu 1:35 PM

mturk_data_full — Search Sheet

Draw Page Layout Formulas Data Review View — Share

Calibri (Body) 11 — Conditional Formatting — Format as Table — Cell Styles — Number — Cells — Editing

=SUM(AZ3:CT3)

DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DN
llscore	testallacc	testoldscore	testoldacc	testnearscore	testnearacc	testfarscore	testfaracc	analogyacc	change		
20	0.83333333	11	0.91666667	5	0.83333333	4	0.66666667	0.56666667	0.11111111		
21	0.875	10	0.83333333	6	1	5	0.83333333	0.7	0.59722222		
14	0.58333333	7	0.58333333	4	0.66666667	3	0.5	0.86666667	0.02777778		
20	0.83333333	11	0.91666667	5	0.83333333	4	0.66666667	0.86666667	0.44444444		
14	0.58333333	7	0.58333333	3	0.5	4	0.66666667	0.6	0.36111111		
24	1	12	1	6	1	6	1	0.5	0.5		
12	0.5	7	0.58333333	4	0.66666667	1	0.16666667	0.63333333	0.44444444		
12	0.5	6	0.5	4	0.66666667	2	0.33333333	0.63333333	0.38888889		
20	0.83333333	11	0.91666667	6	1	3	0.5	0.76666667	0.55555556		
24	1	12	1	6	1	6	1	0.83333333	0.33333333		
17	0.70833333	9	0.75	3	0.5	5	0.83333333	0.83333333	0.375		
18	0.75	8	0.66666667	5	0.83333333	5	0.83333333	0.56666667	0.41666667		
23	0.95833333	12	1	6	1	5	0.83333333	0.63333333	0.625		
23	0.95833333	11	0.91666667	6	1	6	1	0.43333333	0.625		
22	0.91666667	10	0.83333333	6	1	6	1	0.36666667	0.36111111		
11	0.45833333	6	0.5	2	0.33333333	3	0.5	0.8	0.40277778		
15	0.625	7	0.58333333	4	0.66666667	4	0.66666667	0.83333333	0.29166667		
17	0.70833333	8	0.66666667	5	0.83333333	4	0.66666667	0.46666667	0.70833333		
11	0.45833333	5	0.41666667	4	0.66666667	2	0.33333333	0.5	0.45833333		
15	0.625	9	0.75	4	0.66666667	2	0.33333333	0.43333333	0.45833333		
14	0.58333333	8	0.66666667	3	0.5	3	0.5	0.56666667	0.47222222		
15	0.625	7	0.58333333	4	0.66666667	4	0.66666667	0.83333333	0.56944444		
21	0.875	10	0.83333333	5	0.83333333	6	1	0.56666667	0.59722222		
15	0.625	8	0.66666667	4	0.66666667	3	0.5	0.4	0.125		

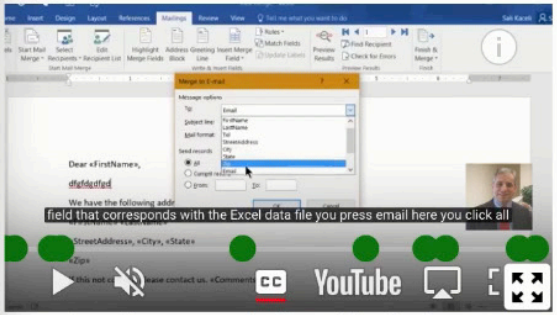
RePlay

You clicked **Home.**

Current app for search: Microsoft Excel

Home GO

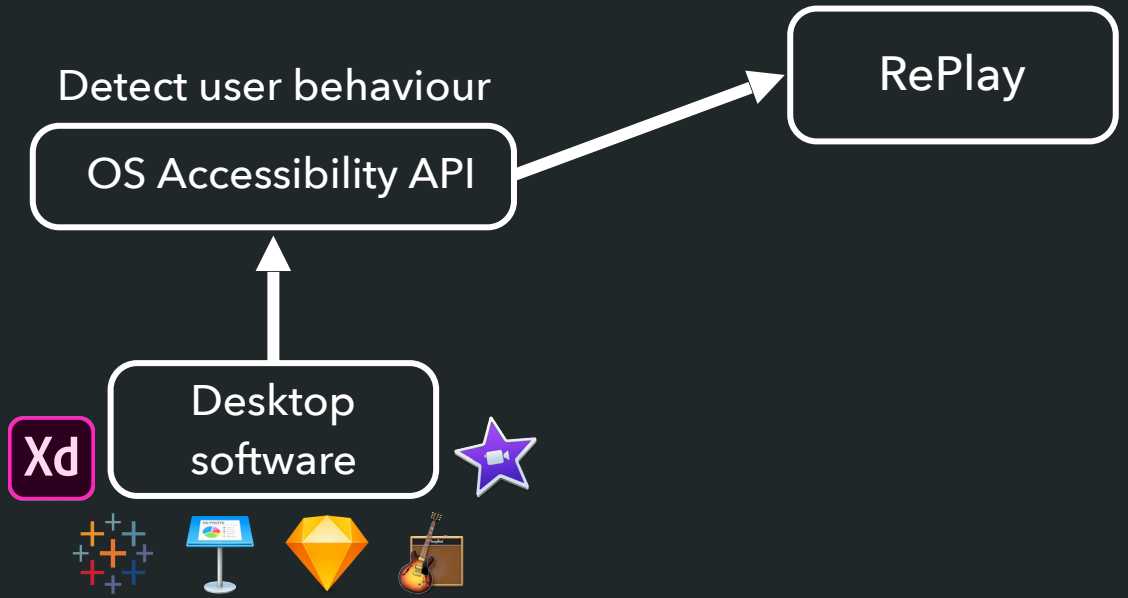
Excel Tutorial: Learn Excel in 30 Minutes - Just Excel

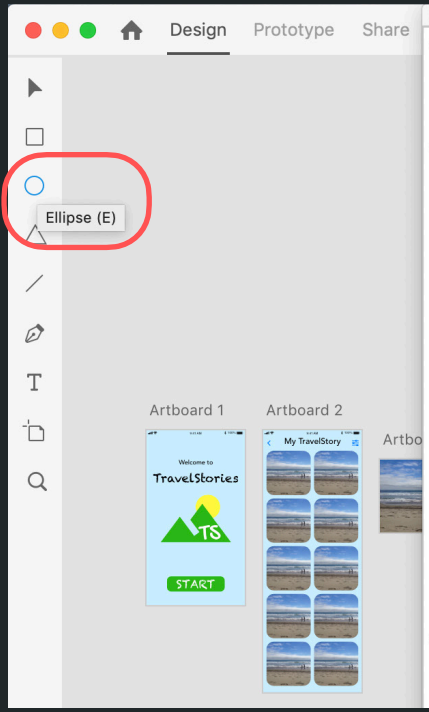


...send email messages for the subject in here and then the to field that is the field that corresponds with

The Beginner's Guide to Excel - Excel Basics Excel

1. Help users create better search queries



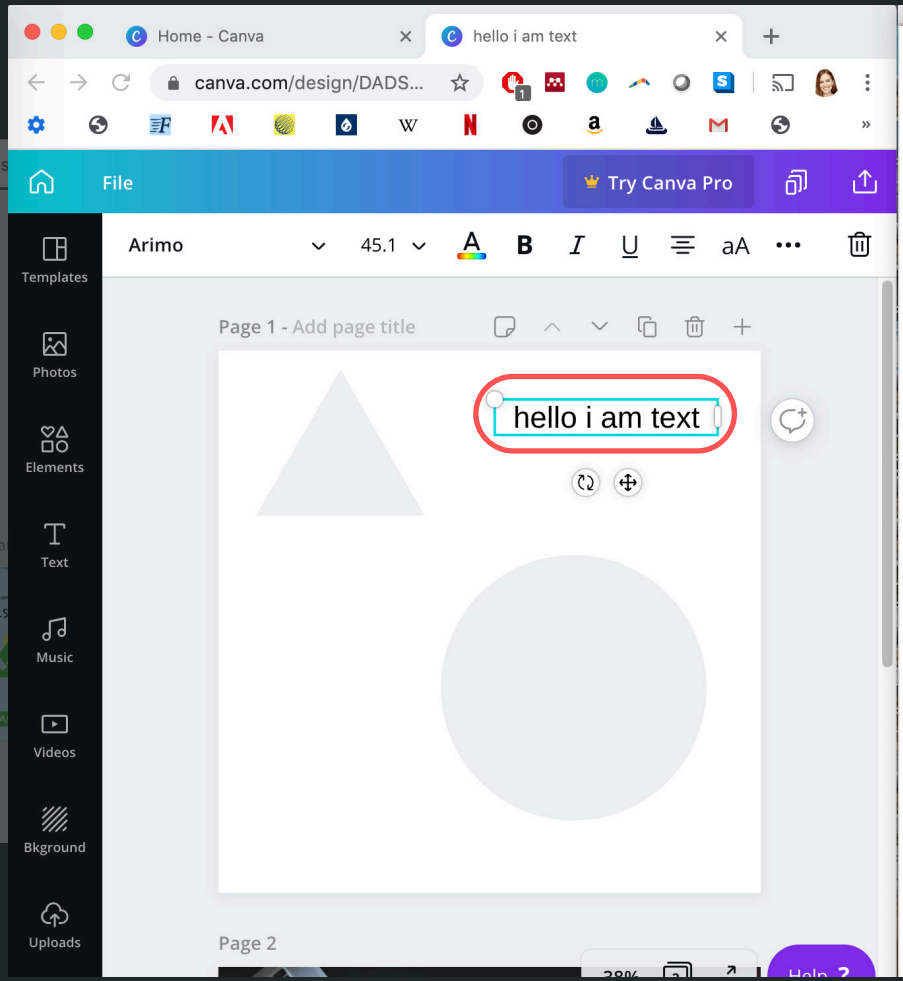


Accessibility Inspector

<AXApplication: “XD”>
<AXWindow: “template-edited”>
<AXCheckBox: “”>

Attributes:
AXIdentifier: “toolbarEllipseButton”
AXEnabled: “1”
AXDescription: “Ellipse”
AXParent: “<AXWindow: “template-edited”>”
AXSize: “w=28 h=24”
AXFocused (W): “0”
AXActivationPoint: “x=382 y=156”
AXRole: “AXCheckBox”
AXTopLevelUIElement: “<AXWindow: “template-edited”>”
AXHelp: “Ellipse (E)”
AXValue: “1”
AXPosition: “x=368 y=144”
AXWindow: “<AXWindow: “template-edited”>”
AXRoleDescription: “toggle button”
AXTitle: “”
AXSubrole: “AXToggle”
AXFrame: “x=368 y=144 w=28 h=24”

Actions:
AXPress - press

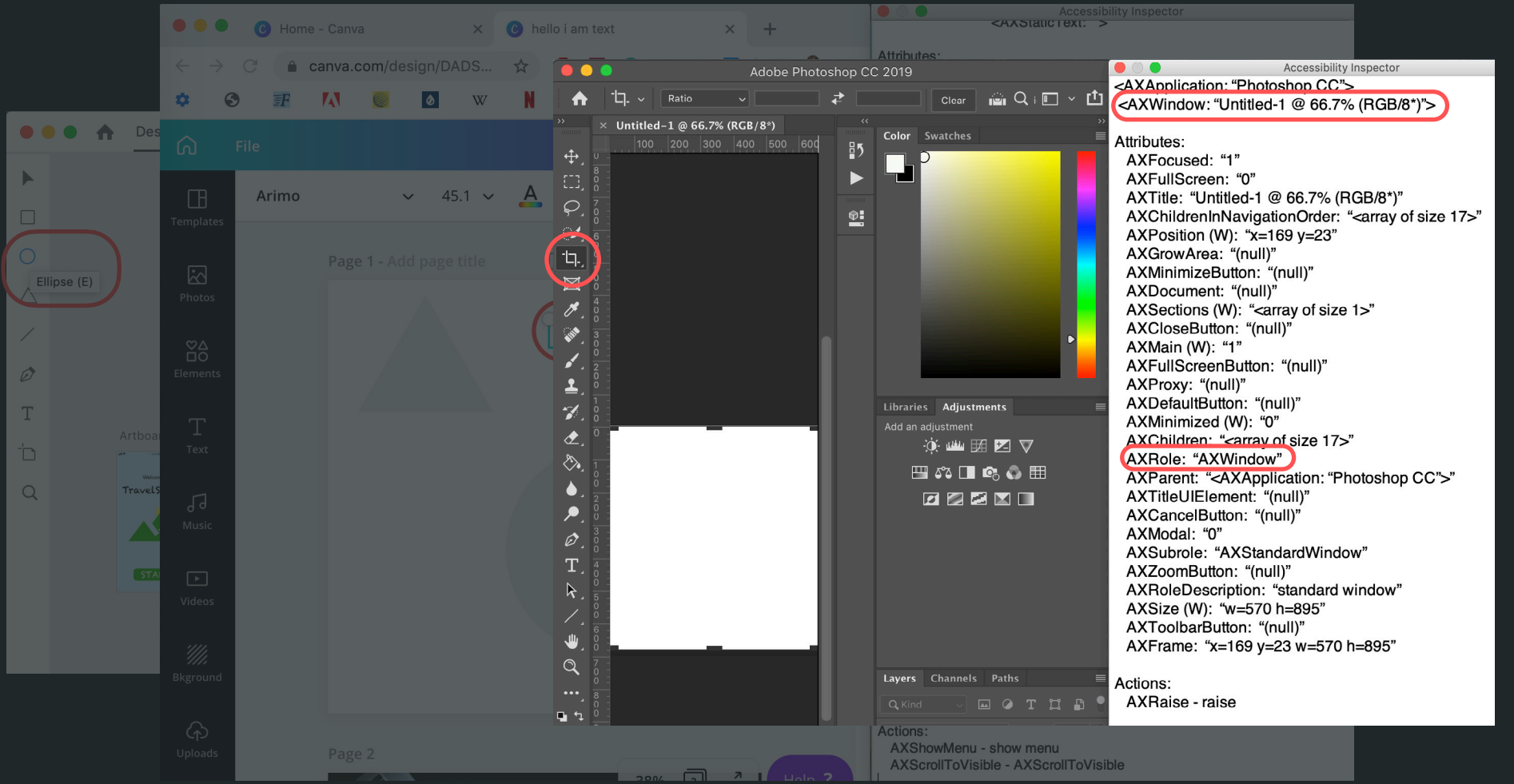


Accessibility Inspector

<AXStaticText: >

Attributes:
AXFocused: "0"
AXTitle: ""
AXElementBusy: "0"
AXLinkedUIElements: "<array of size 0>"
AXPosition: "x=412 y=323"
AXSelected: "0"
AXStartTextMarker: "<AXTextMarker 0x600002134b90 [0x7fff887ad8e0]>{length = 56, bytes = 0x020000008b050000feffffff00000000 ... 423633410015b63a}"
AXEnabled: "1"
AXVisited: "0"
AXDOMIdentifier: ""
AXHelp: ""
AXChildren: "<array of size 0>"
AXRole: "AXStaticText"
AXParent: "<AXGroup: "">"
AXSelectedTextMarkerRange: "<AXTextMarkerRange 0x60000300cea0 [0x7fff887ad8e0]>{startMarker:<AXTextMarker 0x600002132350 [0x7fff887ad8e0]>{length = 56, bytes = 0x0000000000000000feffffffffffffff ... 00000000007f0000} endMarker:<AXTextMarker 0x600002132850 [0x7fff887ad8e0]>{length = 56, bytes = 0x0000000000000000feffffffffffffff ... 0000000000000000}}"
AXTitleUIElement: "(null)"
AXDOMClassList: "<array of size 0>"
AXDescription: ""
AXSubrole: "(null)"
AXTopLevelUIElement: "<AXWindow: "hello i am text - Google Chrome - Ailie (cafraser@eng.ucsd.edu)">"
AXValue: "hello i am text"
AXBlockQuoteLevel: "0"
AXRoleDescription: "text"
AXSize: "w=142 h=27"
AXWindow: "<AXWindow: "hello i am text - Google Chrome - Ailie (cafraser@eng.ucsd.edu)">"
AXEndTextMarker: "<AXTextMarker 0x600002132940 [0x7fff887ad8e0]>{length = 56, bytes = 0x020000008b050000feffffff07030000 ... 423633410007f0000}"
AXFrame: "x=412 y=323 w=142 h=27"

Actions:
AXShowMenu - show menu
AXScrollToVisible - AXScrollToVisible


Home - Canva
hello i am text
canva.com/design/DADS...
File
Templates
Photos
Elements
Text
Music
Videos
Bkground
Uploads
Arimo
45.1
Page 1 - Add page title
Page 2
Ellipse (E)
Adobe Photoshop CC 2019
Ratio
Clear
Untitled-1 @ 66.7% (RGB/8*)
Color
Swatches
Libraries
Adjustments
Add an adjustment
Layers
Channels
Paths
Kind
Accessibility Inspector
Attributes:
Actions:
AXShowMenu - show menu
AXScrollToVisible - AXScrollToVisible
Accessibility Inspector
<AXApplication: "Photoshop CC">
<AXWindow: "Untitled-1 @ 66.7% (RGB/8*)">
Attributes:
AXFocused: "1"
AXFullScreen: "0"
AXTitle: "Untitled-1 @ 66.7% (RGB/8*)"
AXChildrenInNavigationOrder: "<array of size 17>"
AXPosition (W): "x=169 y=23"
AXGrowArea: "(null)"
AXMinimizeButton: "(null)"
AXDocument: "(null)"
AXSections (W): "<array of size 1>"
AXCloseButton: "(null)"
AXMain (W): "1"
AXFullScreenButton: "(null)"
AXProxy: "(null)"
AXDefaultButton: "(null)"
AXMinimized (W): "0"
AXChildren: "<array of size 17>"
AXRole: "AXWindow"
AXParent: "<AXApplication: "Photoshop CC">"
AXTitleUIElement: "(null)"
AXCancelButton: "(null)"
AXModal: "0"
AXSubrole: "AXStandardWindow"
AXZoomButton: "(null)"
AXRoleDescription: "standard window"
AXSize (W): "w=570 h=895"
AXToolbarButton: "(null)"
AXFrame: "x=169 y=23 w=570 h=895"
Actions:
AXRaise - raise

2. Find relevant moments in videos

Online video corpus

Search videos

Detect user behaviour

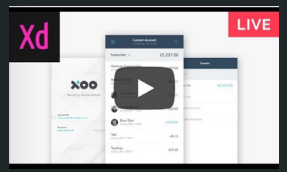
OS Accessibility API

RePlay

User Interface

Find clips in videos

Desktop software



Captions:

23:27: also use a feature that is unique to XD
23:29: and that is the **repeat grid** tool so if
23:31: we click this this whole section turns
23:36: green and we can drag down and we can
23:37: **select** in between each of them and just

Obtaining captions for YouTube videos

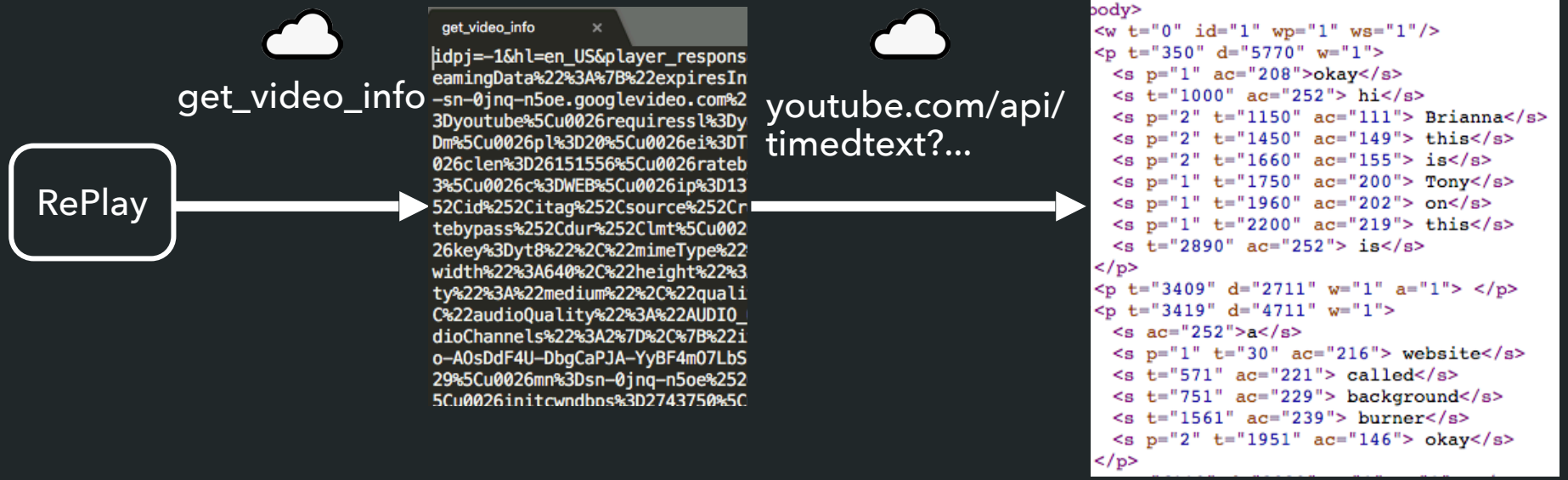
5

Heres some code I wrote which grabs all the caption tracks from any youtube video without having to use the API. Just plug the video URL in the `$video_url` variable.

```
// get video id from url
$video_url = 'https://www.youtube.com/watch?v=kYX87kkyubk';
preg_match("#(?<=v=)[a-zA-Z0-9-]+(?=&)|(?<=v\/)[^&\n]+(?=\?)|(?<=v=)[^&\n]+|(?<=youtu.be/)[^&\

// get video info from id
$video_id = $matches[0];
$video_info = file_get_contents('http://www.youtube.com/get_video_info?&video_id='.$video_id);
parse_str($video_info, $video_info_array);

if (isset($video_info_array['caption_tracks'])) {
    $tracks = explode(',', $video_info_array['caption_tracks']);

    // print info for each track (including url to track content)
    foreach ($tracks as $track) {
        parse_str($track, $output);
        print_r($output);
    }
}
```

stackoverflow.com/questions/14061195/how-to-get-transcript-in-youtube-api-v3

Obtaining captions for YouTube videos



3. Present moments to the user

RePlay File Edit Format View Window Help

Design Prototype template — Edited 56.3%

ASSETS

All Assets

Colors

Character Styles

Symbols

Light Status Bar

Light Status Bar

Artboard 1

9:41 AM 100%

Welcome to

TravelStories

START

Artboard 2

9:41 AM

My TravelStor

Repeat Grid

W 0 X 0

H 0 Y 0

APPEARANCE

0%

RePlay

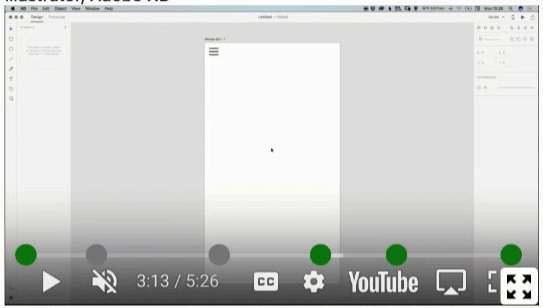
Searching for adobe xd Symbols from illustrator

Current app for search: XD

Symbols from illustrator GO

Layers & Symbols in Adobe XD

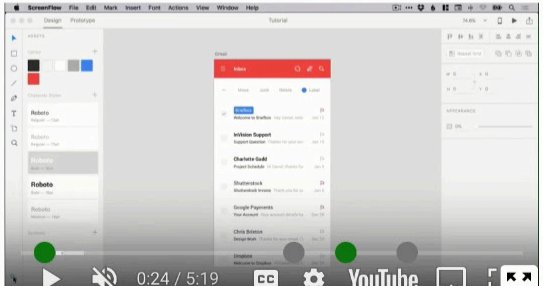
Illustrator, Adobe XD



...together so once you've created your icon just select it and in a **symbols** panel select the plus and you'll see ...

Color & Character Styles Adobe XD Tutorial

Adobe XD



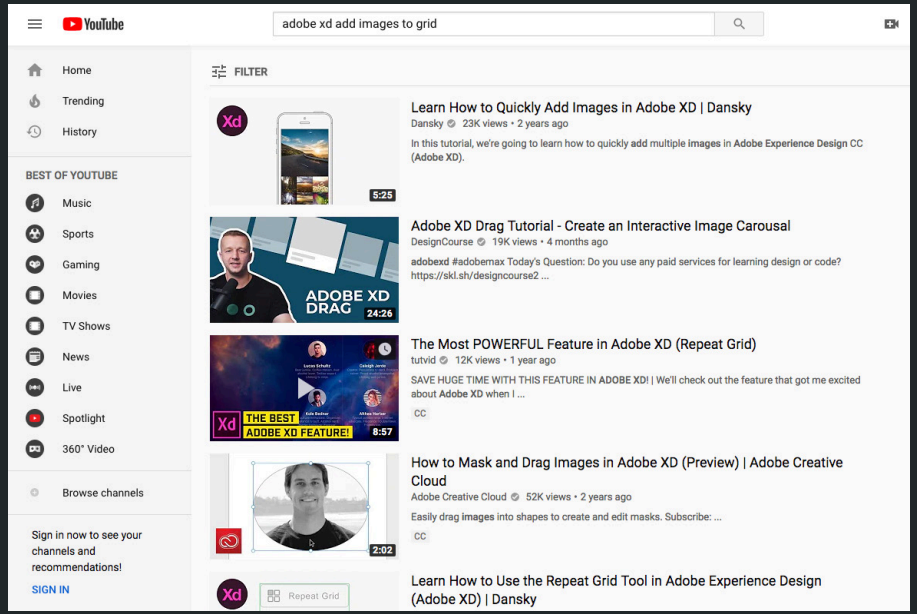
Does contextual assistance help people find what they need more quickly?

- Does RePlay make searching and browsing faster than online video search?
- Does RePlay change how people browse and navigate videos?

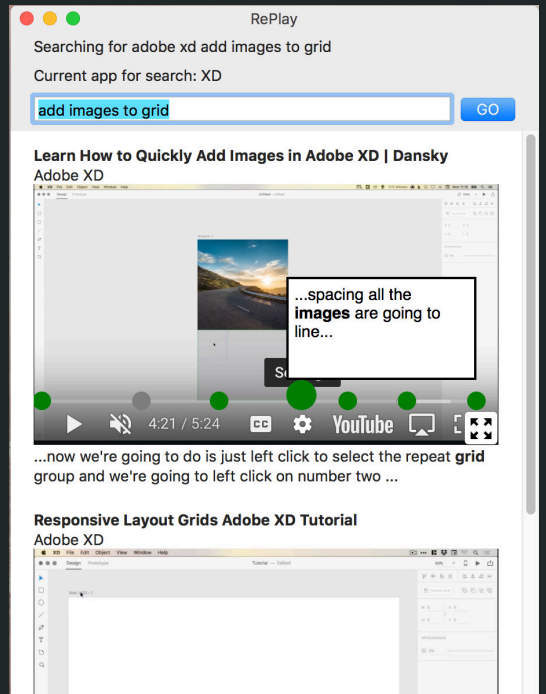
Does contextual assistance help people find what they need more quickly?

Between-subjects study

Web (n = 12)



RePlay (n = 12)

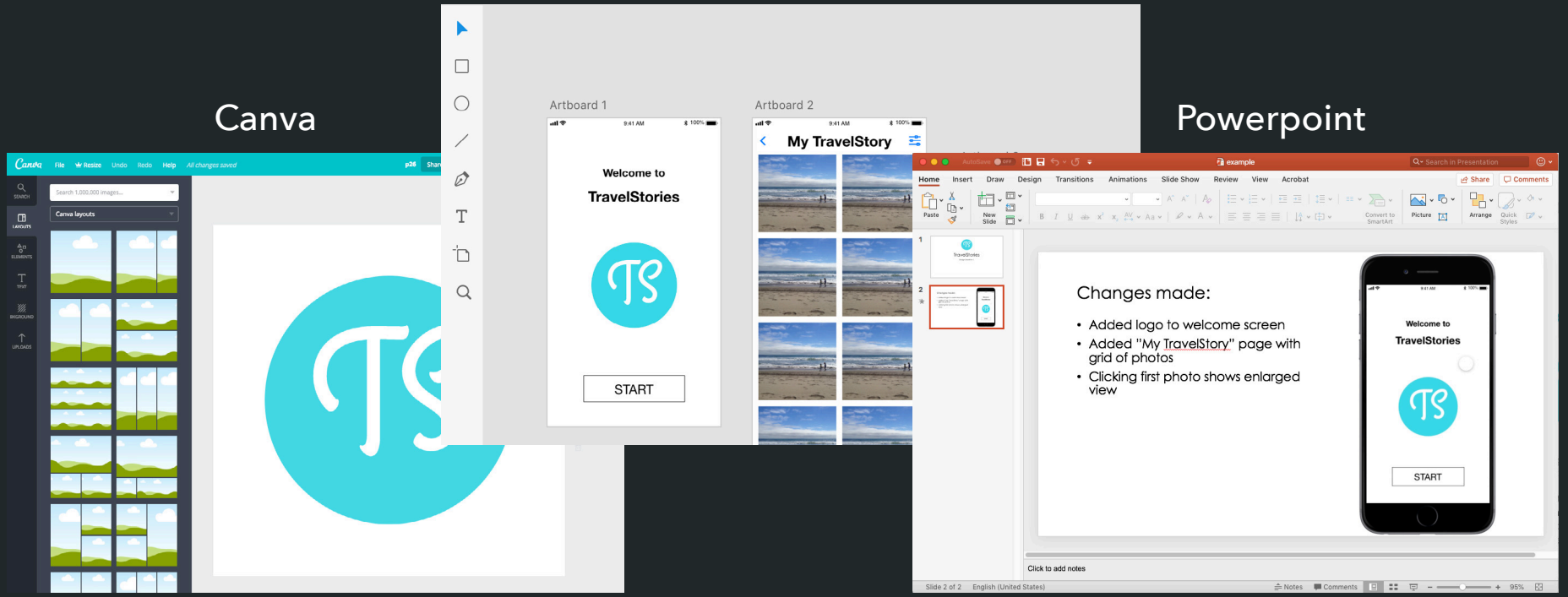


Task: make changes to a design

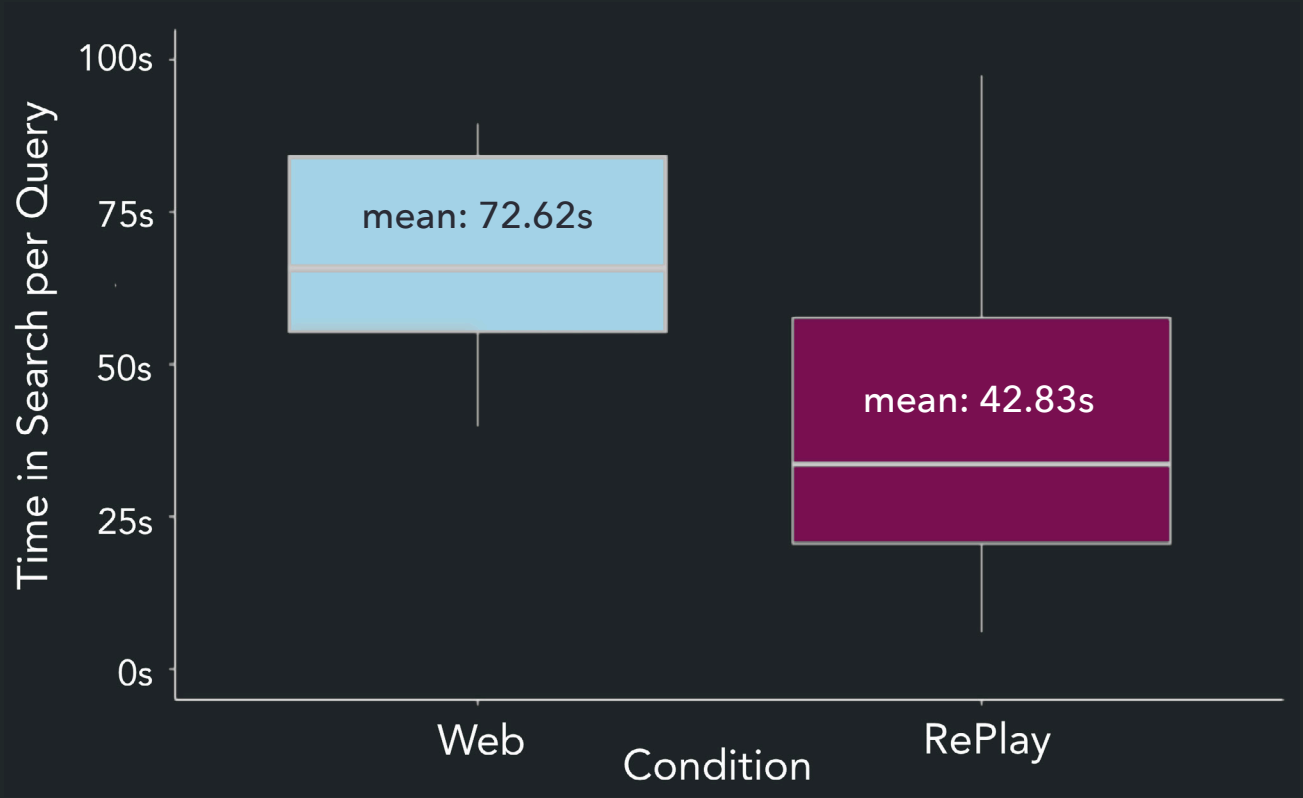
Adobe XD

Canva

Powerpoint



People with contextual assistance spent 40% less time searching

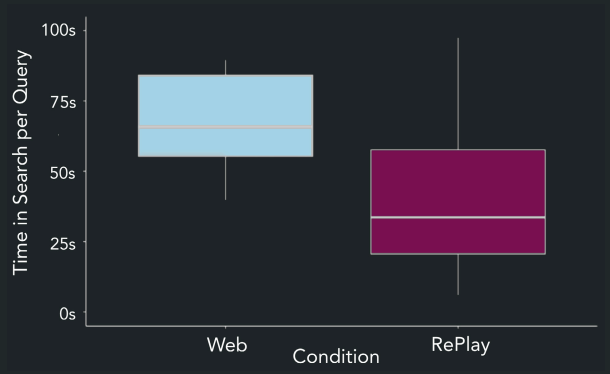


t = 2.52, p = .02

Does contextual assistance help people find what they need more quickly?

- Does RePlay make searching and browsing faster than online video search?

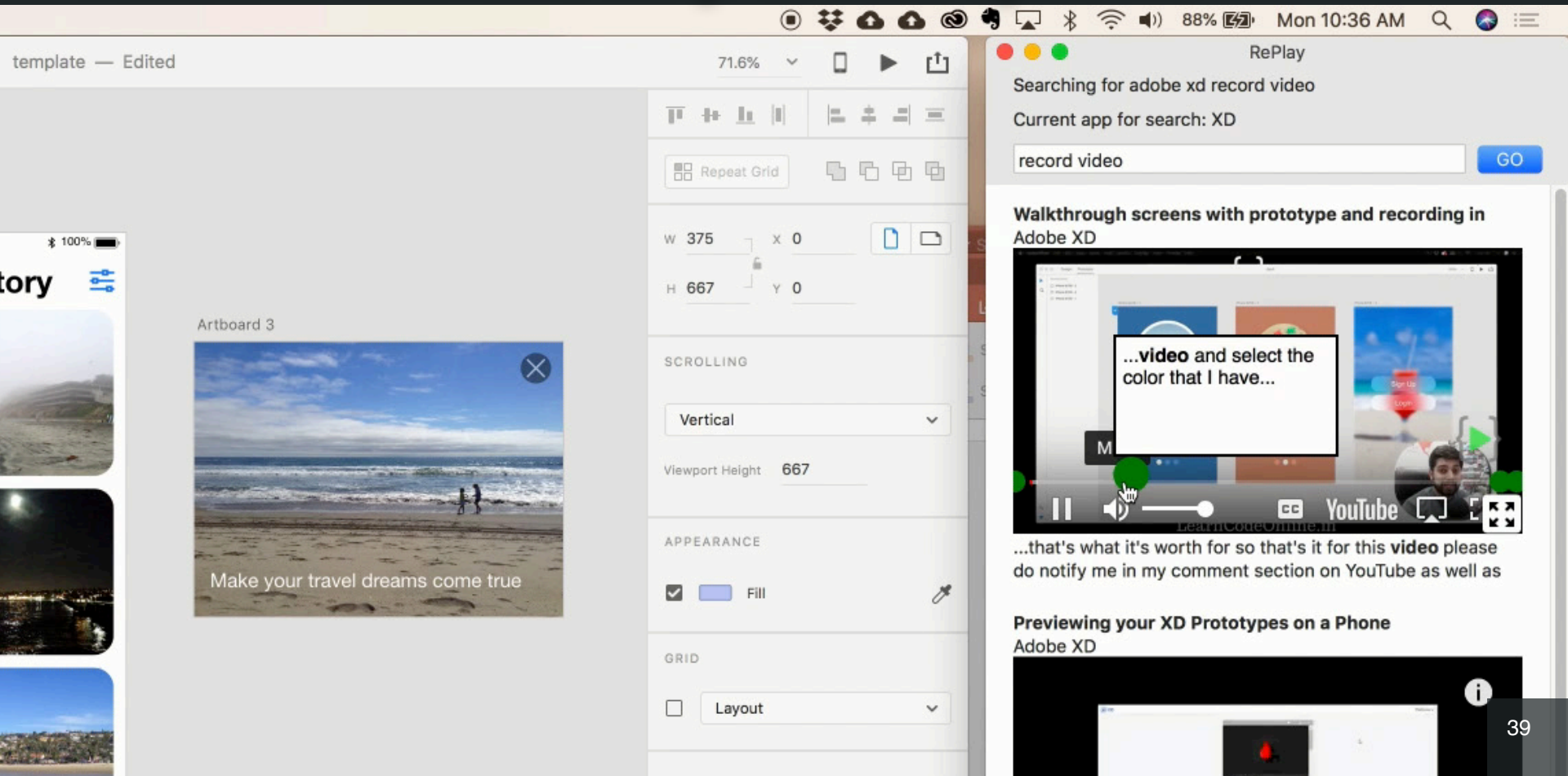
  YES



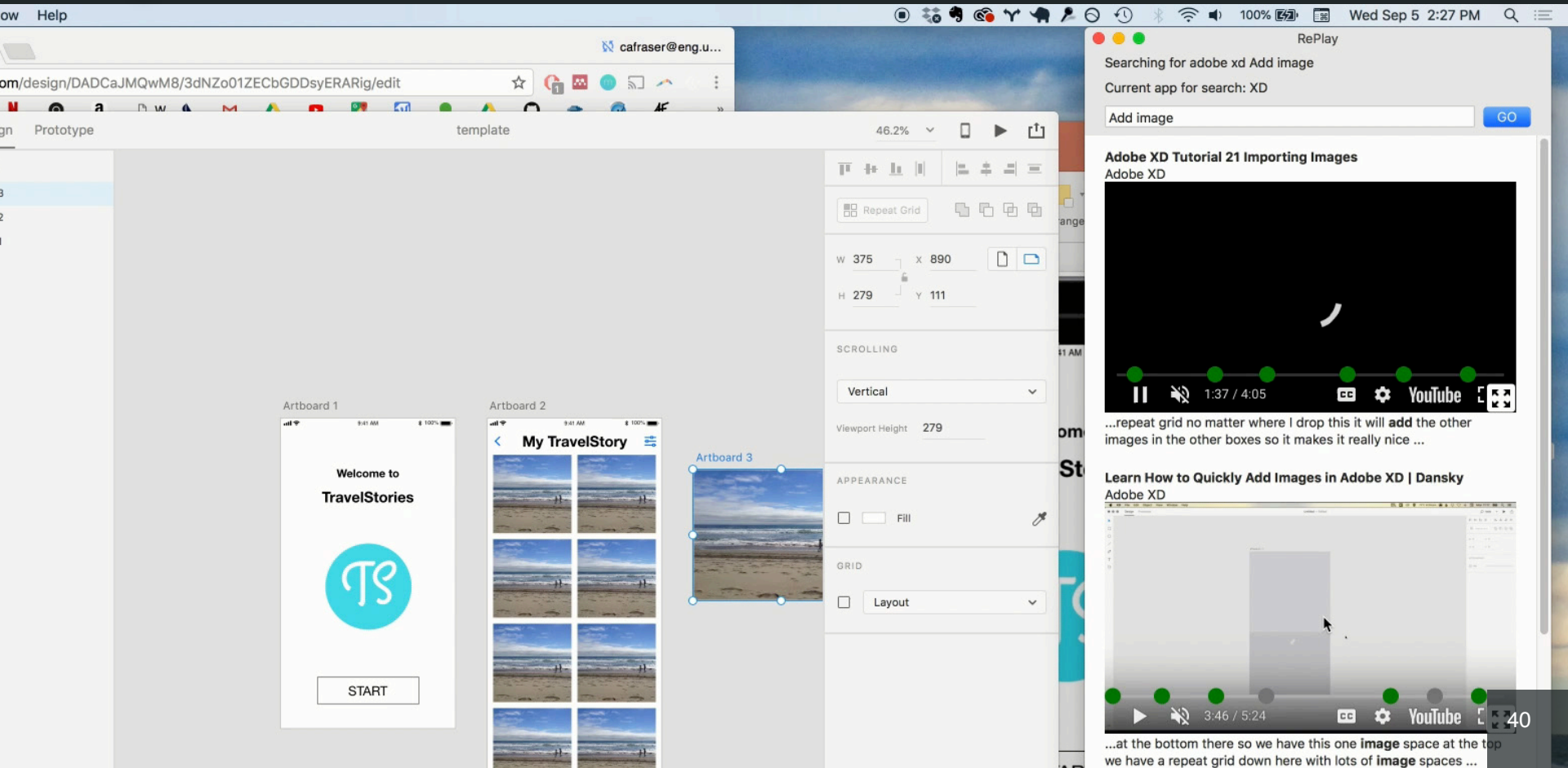
- Does RePlay change how people browse and navigate videos?

  YES

Timeline markers help to find specific moments



People could browse multiple videos simultaneously



How might we improve contextual help search?

- People often preferred exploration over search

  “I felt like I could find it if I searched for it [in the interface], which I did. I was able to figure it out.” – P8

- People perceived search as more time-consuming

  “I knew I didn’t have time. I wanted to complete the task so I just hacked it.” – P11

- People searched for actions more than tools

  “how to crop image”

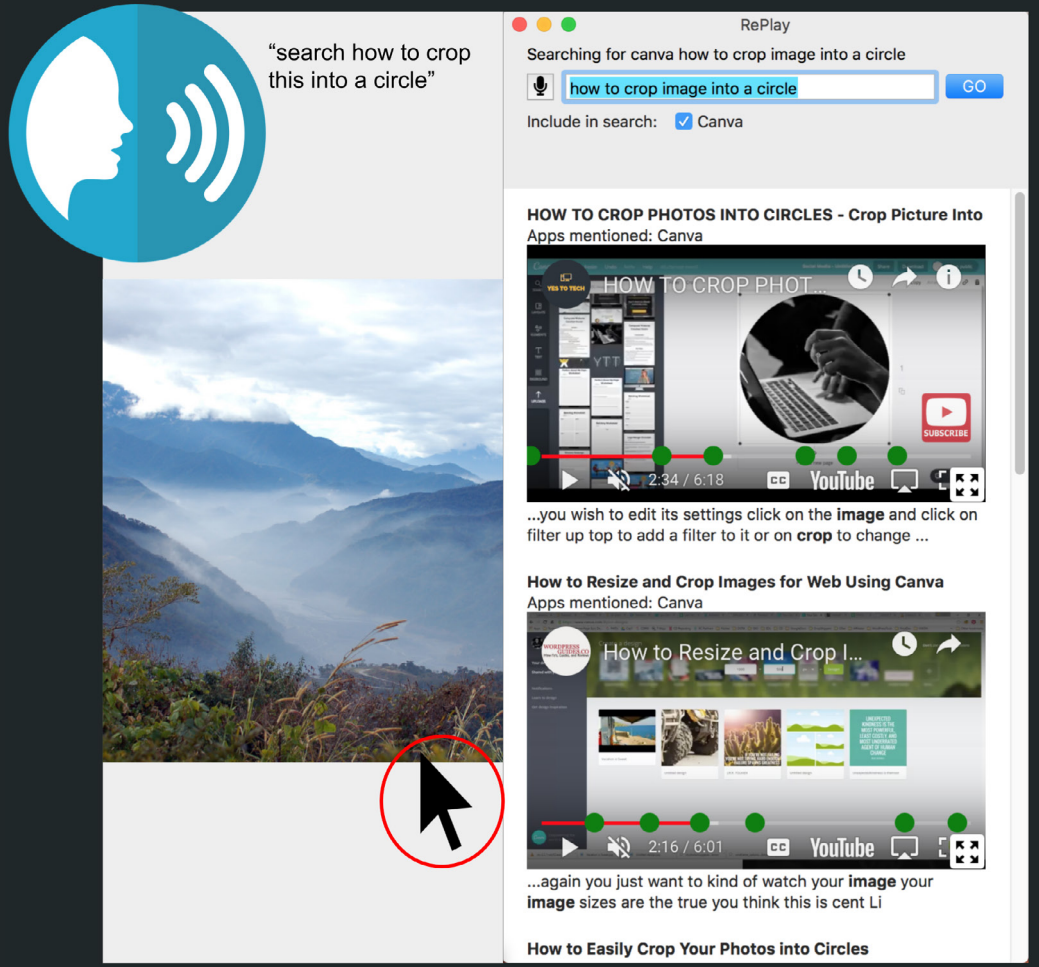
  “how do i record a video”

  “round corners”

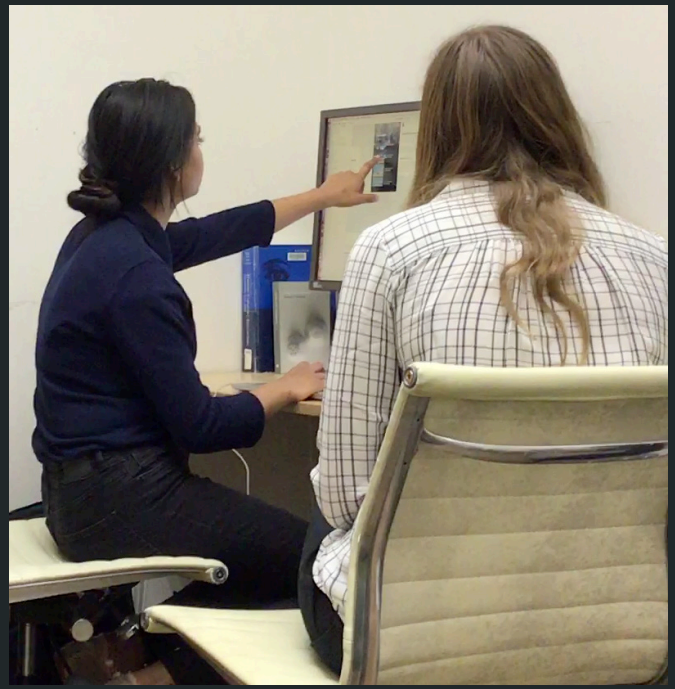
ReMap: Multimodal Help-Seeking

Ailie Fraser, Julia Markel, James Basa, Mira Dontcheva, Scott Klemmer

UIST 2019 Demo



When people help each other, they use language, gestures, and context



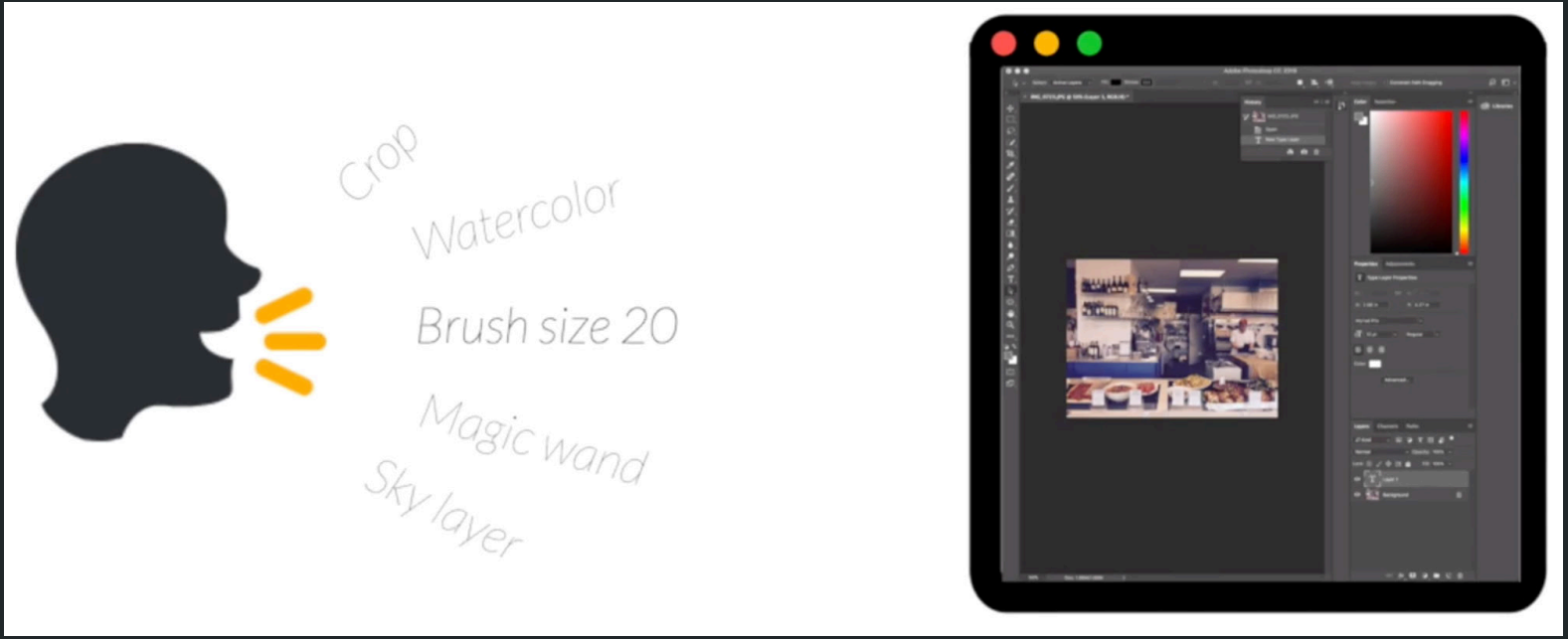
Language and gesture work well together

[Bolt SIGGRAPH ‘80]

Language and gesture work well together

[Dontcheva CHI '13]

Multimodal input for creative work can help maintain flow state



[**Kim CHI '19**, Sedivy C&C '99]

Research Questions

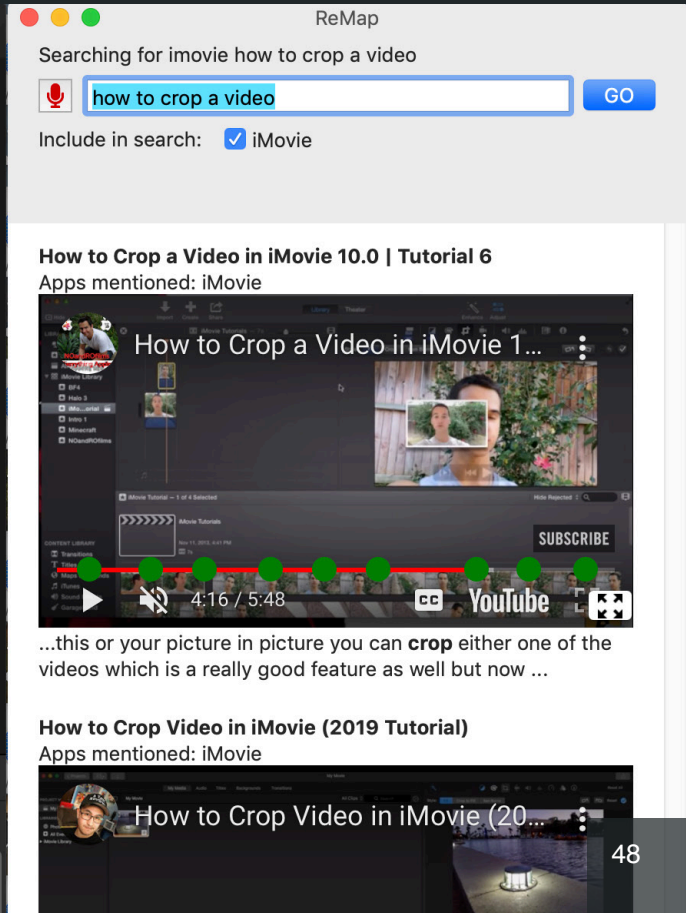
- How might we bring the benefits of multimodal interaction to help-seeking?
- Does multimodal interaction help people stay focused on their task?
- Does multimodal interaction lower the barrier to searching?

ReMap: Multimodal help-seeking

1. Use speech to initiate and dictate a search

2. Use speech to navigate videos

3. Deictic resolution: Point at interface elements



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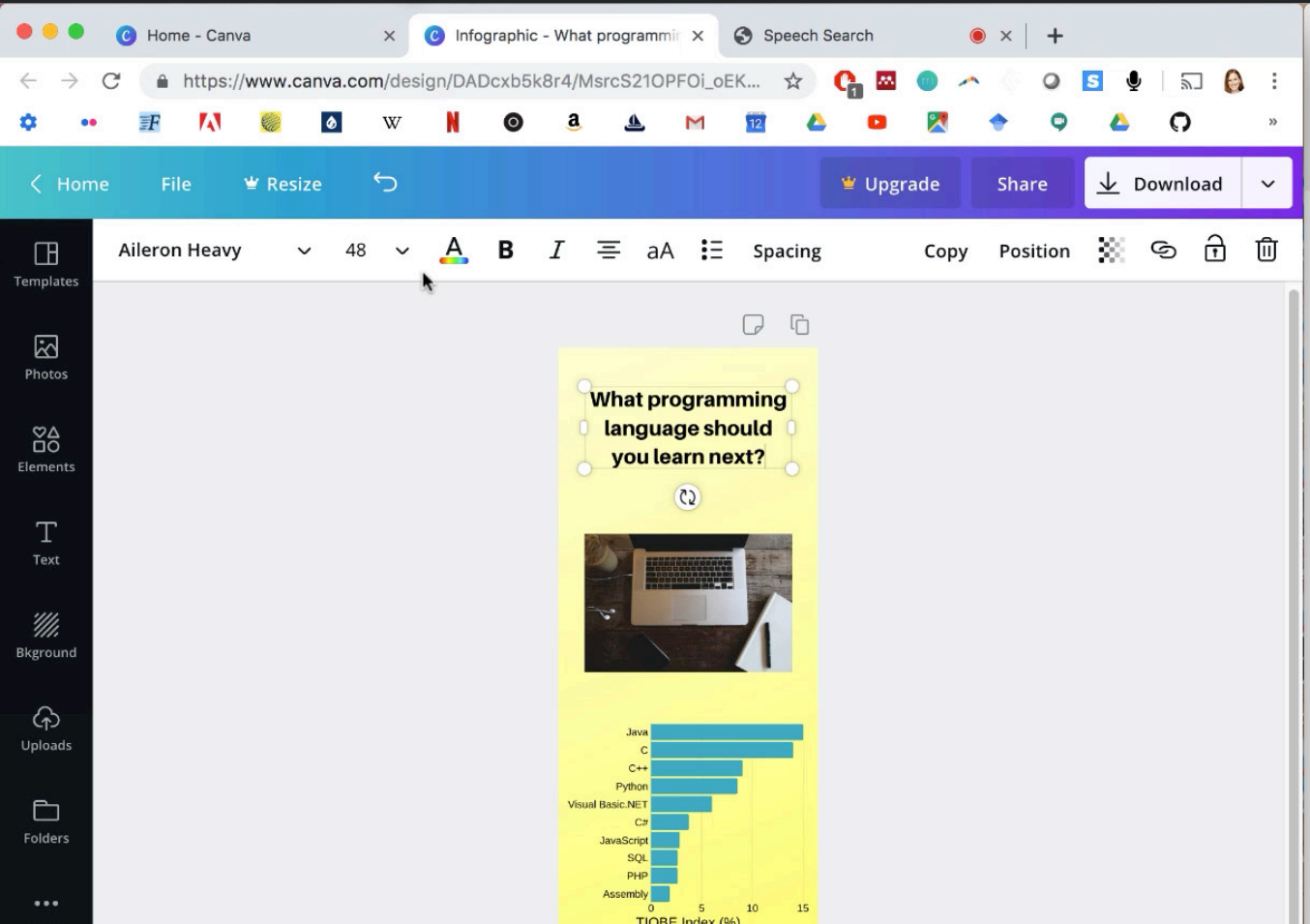
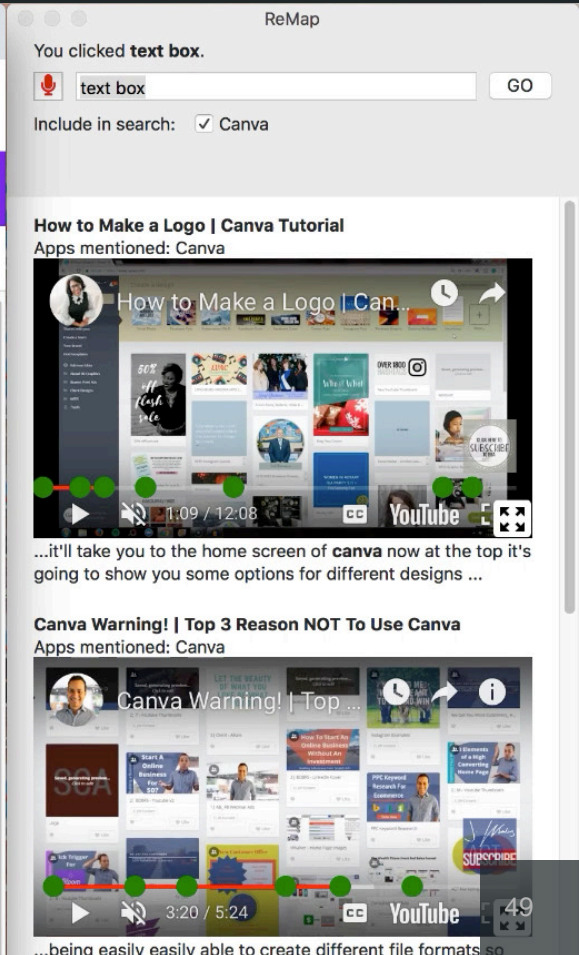
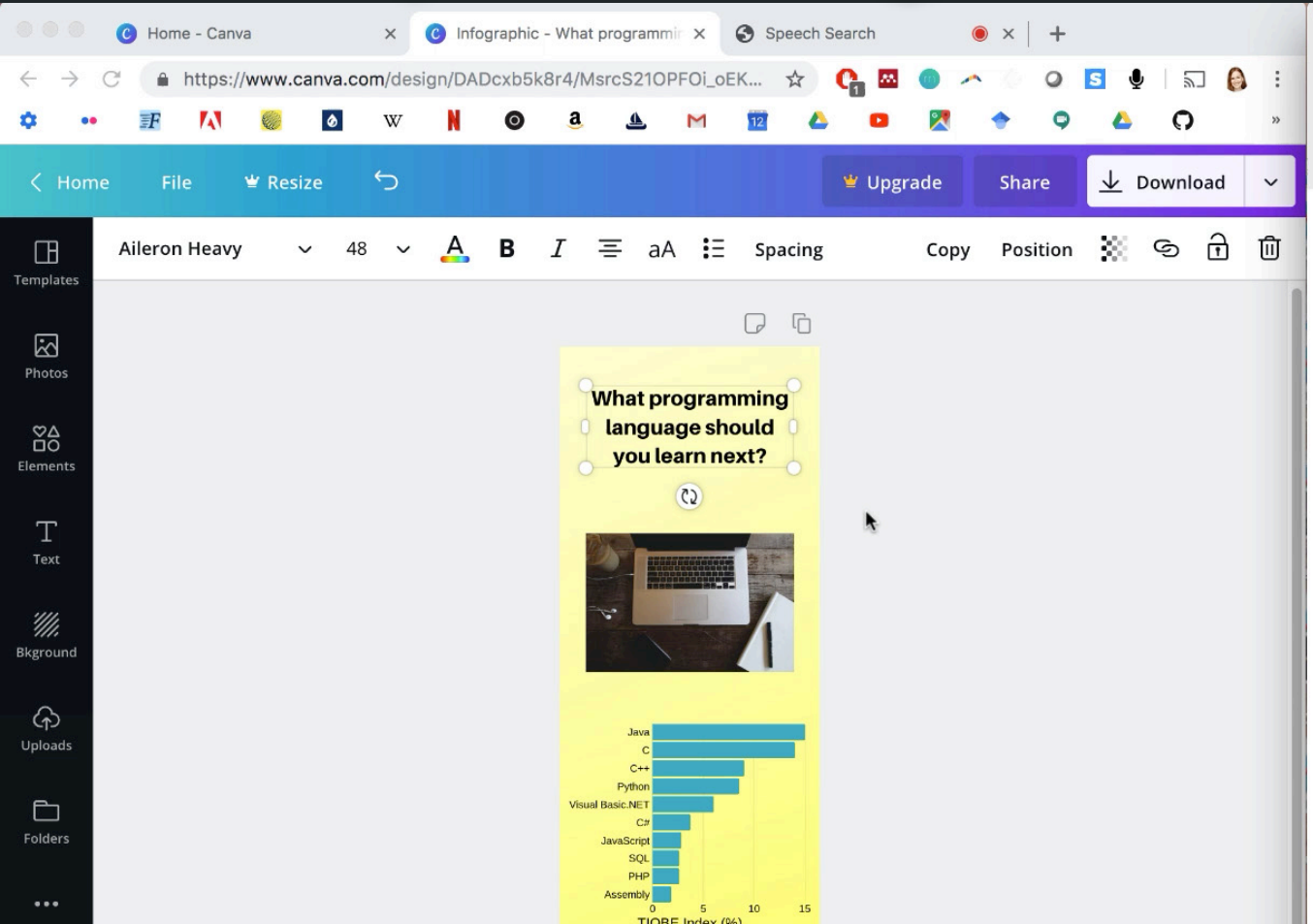
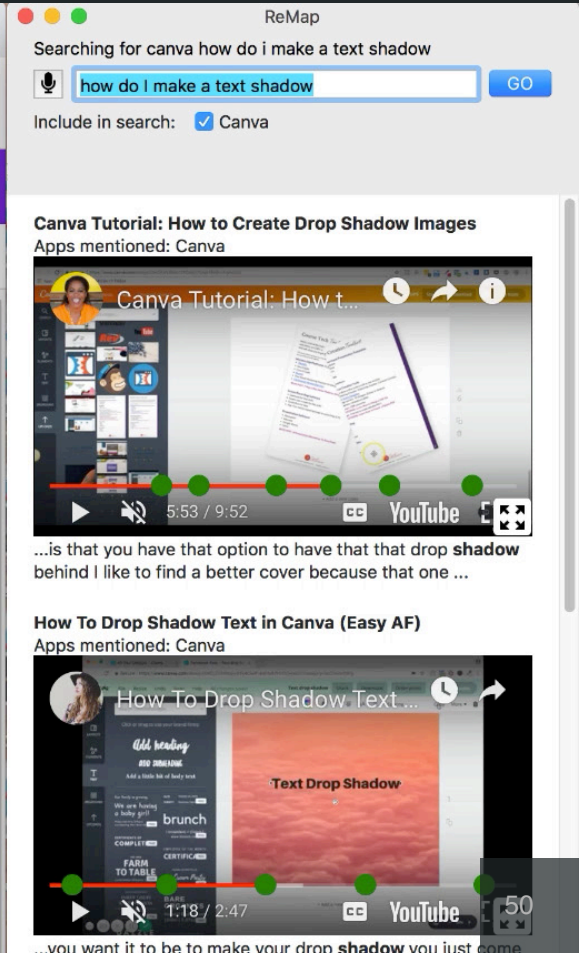


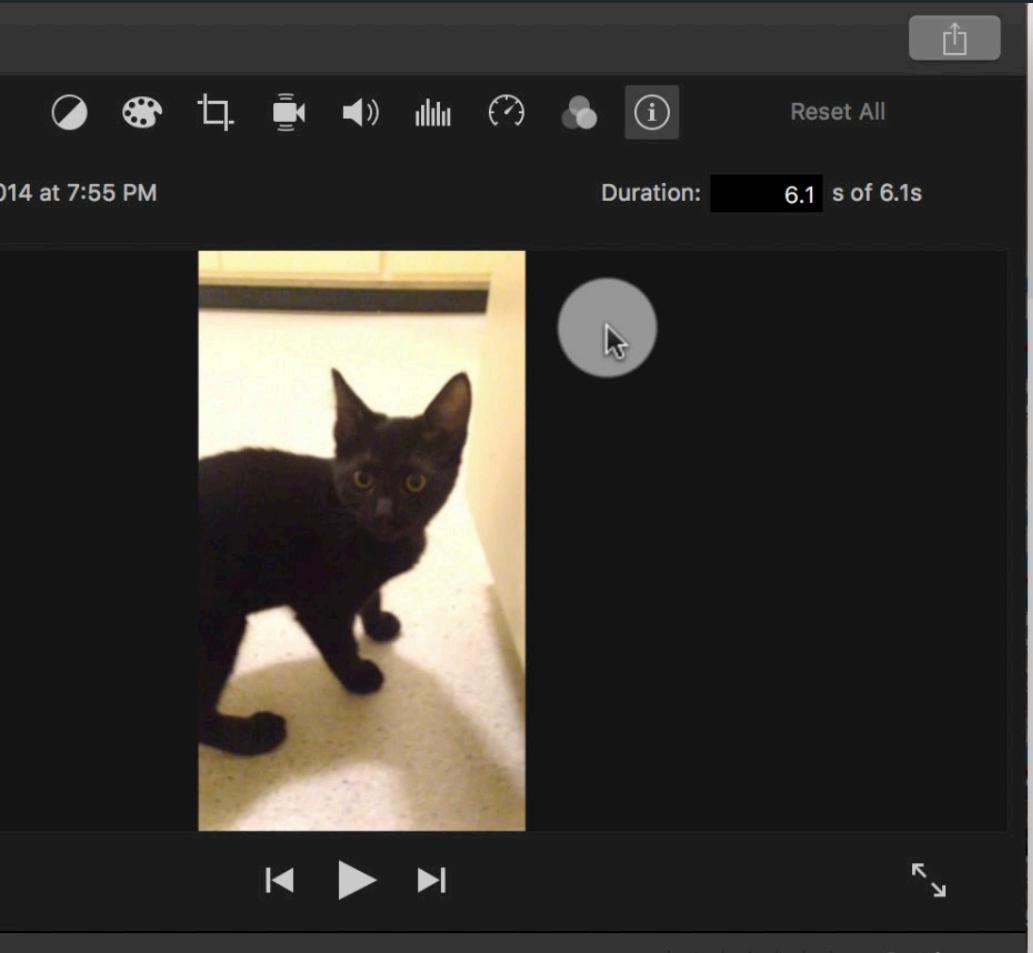


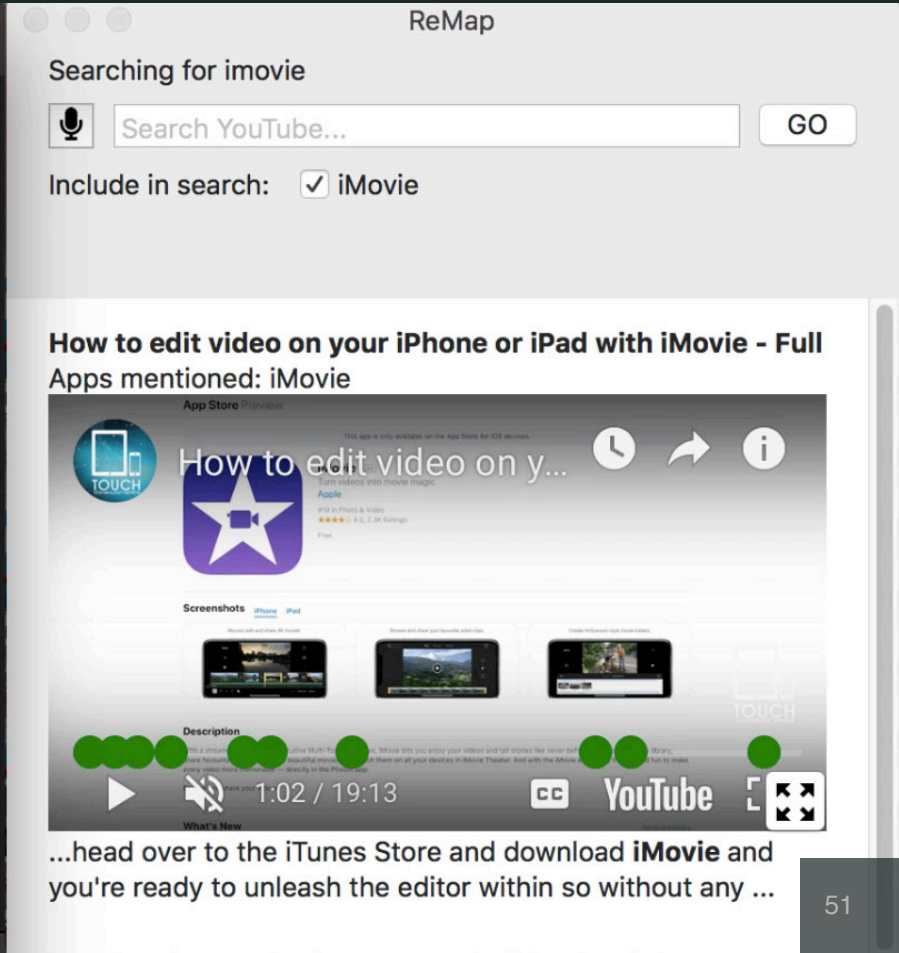
2. Use speech to navigate videos

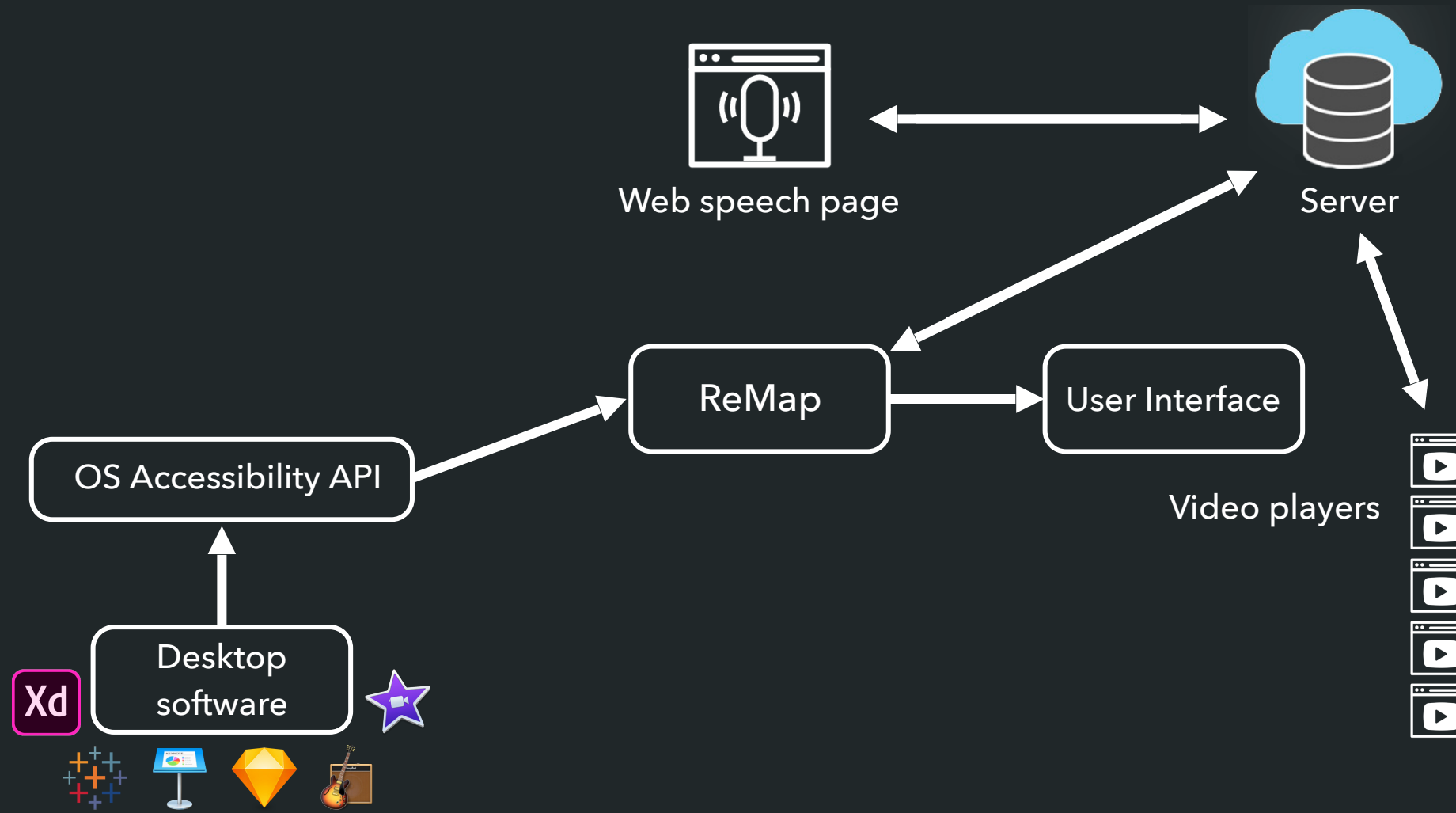




3. Deictic resolution

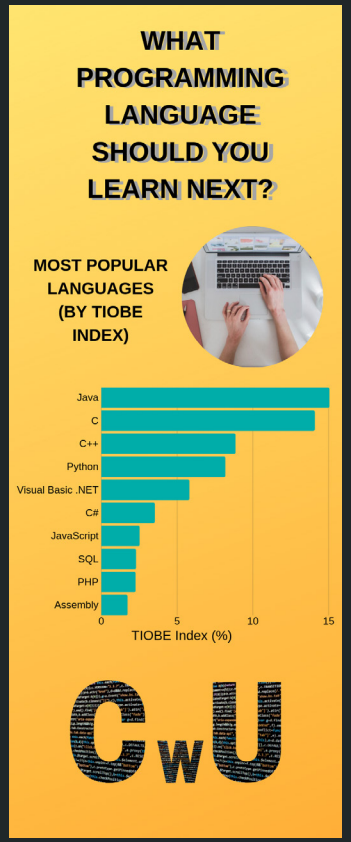





Web speech page
Server
ReMap
User Interface
OS Accessibility API
Video players
Desktop software

How do people use multimodal search for a real task?

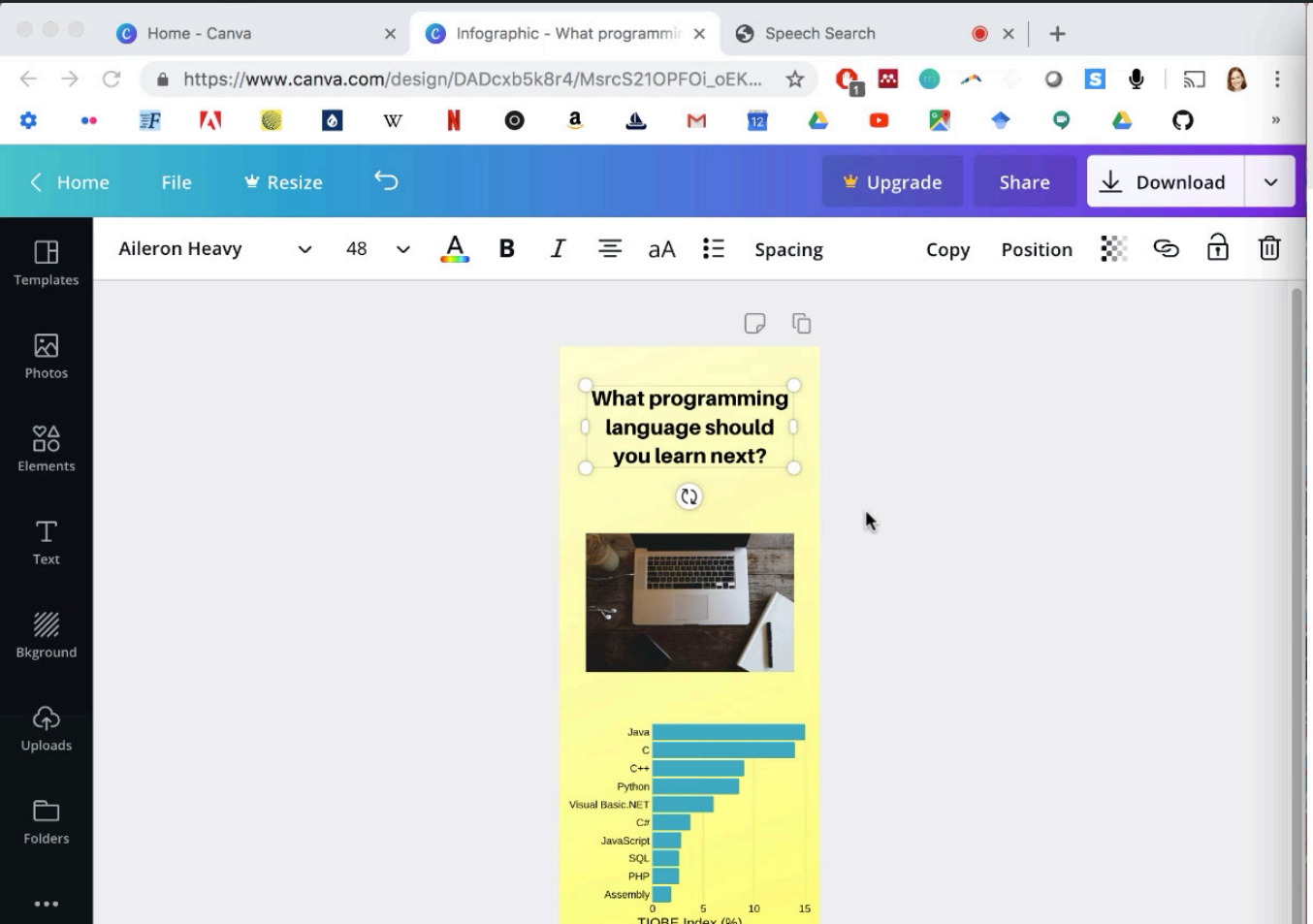
Canva

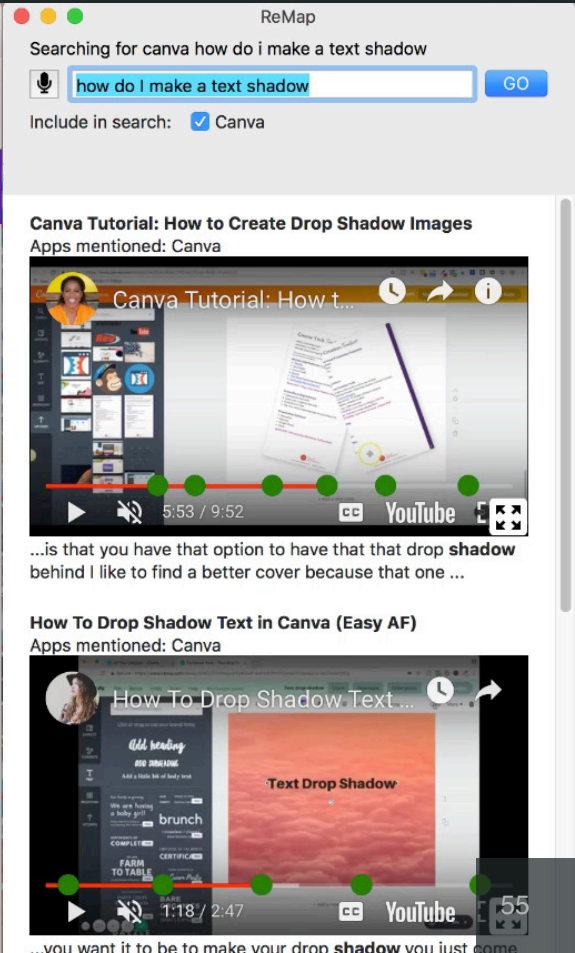


Main findings

- Participants used multimodal interaction for multitasking
- Some preferred manual video navigation, others preferred speech
- Deictic resolution mostly used for canvas elements

Participants used multimodal interaction for multitasking





Some preferred manual video navigation, others preferred speech

Preferred manual:

"I don't really know what [the timeline markers] are until i scroll over them" – P11

Preferred speech:

"If I hear the info I want and I'm kind of following along I can pause it, take the instructions, apply it, and then ... continue watching ... without having to stop the fluidity of work." – P8

Deictic resolution mostly used for canvas elements

- 22% of spoken queries included a deictic reference (24/111)
- 23/24 deictic references were canvas elements
  - Only 25% were successfully resolved (6/24) due to missing accessibility labels
  - 10/18 unsuccessful references asked for help with a chart
  - Accessibility common for widgets; more rare for the “insides”

→ Computer vision could help address accessibility API limitations e.g. [Dixon CHI ’10]

→ Mobile accessibility is better

SOLUTION

Expert resources can help with…

"I need help accomplishing my goal"

→ segment tutorials & display in context

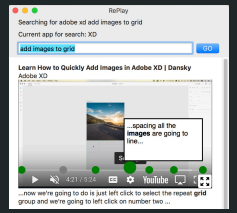
"I don't know what my end goal is"

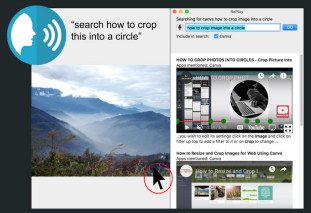
→ suggest example demonstrations

"I have a goal and want it done"

→ suggest applicable operations

RePlay & ReMap





SOLUTION

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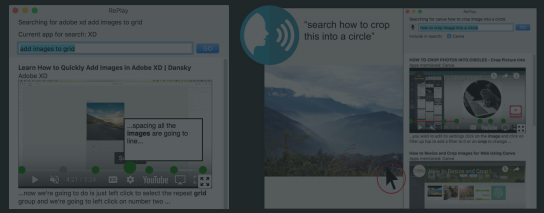
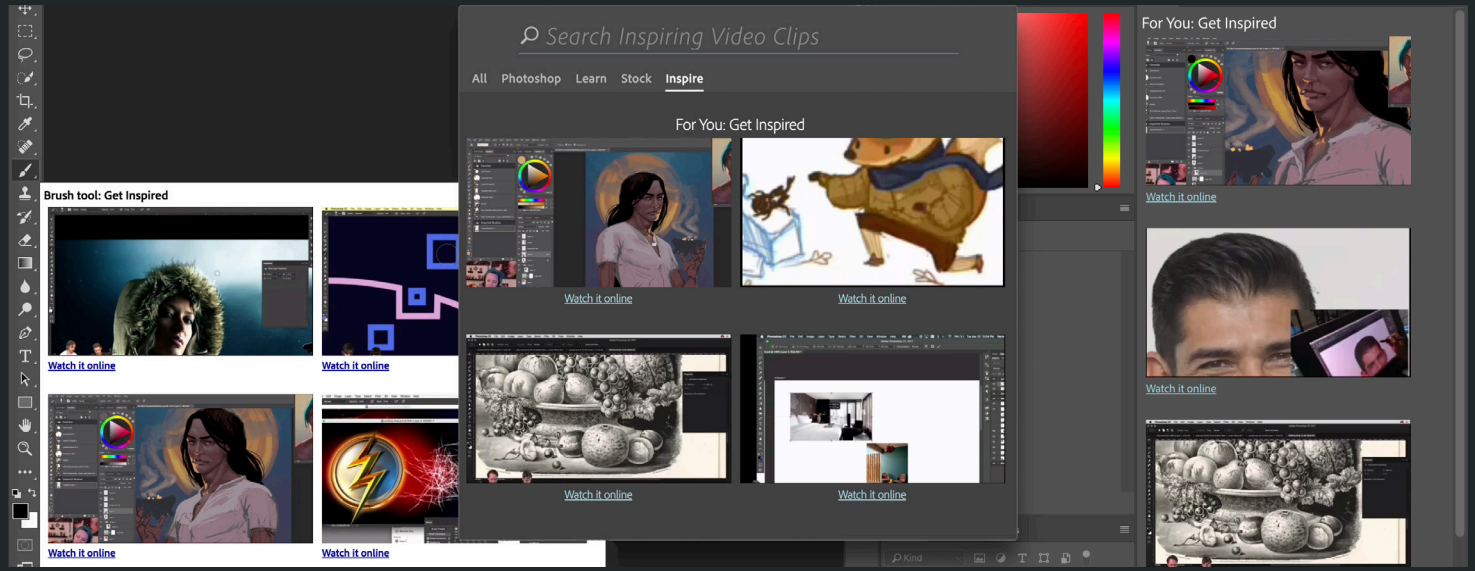


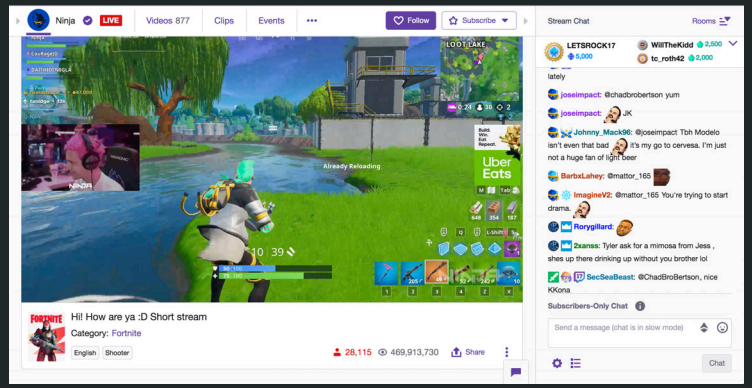
LiveClips: Contextual Video Demonstrations to Help People Learn Creative Techniques

Ailie Fraser, Mira Dontcheva, Scott Klemmer, Andy Edmonds, Joy Kim, Alison Thornsberry

C&C 2019 / Unpublished

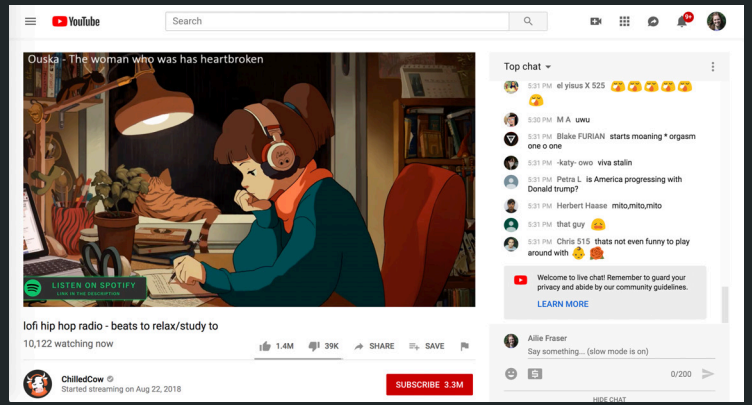


Livestreaming: Real-time broadcasting



twitch.tv/ninja

facebook.com/HamiltonMusical/videos/1315061111854096



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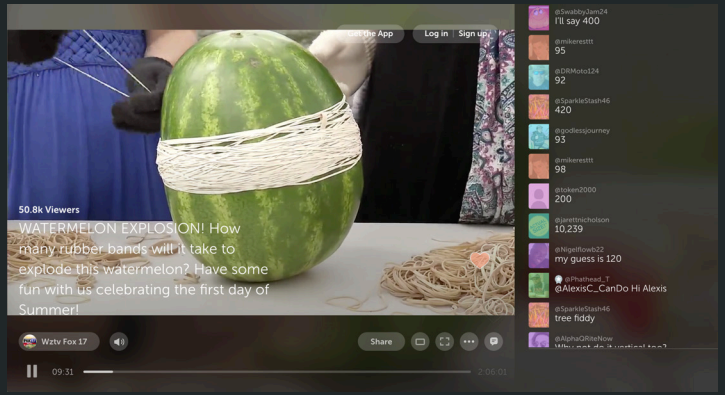

pscp.tv/w/1lPKqowBzAbJb

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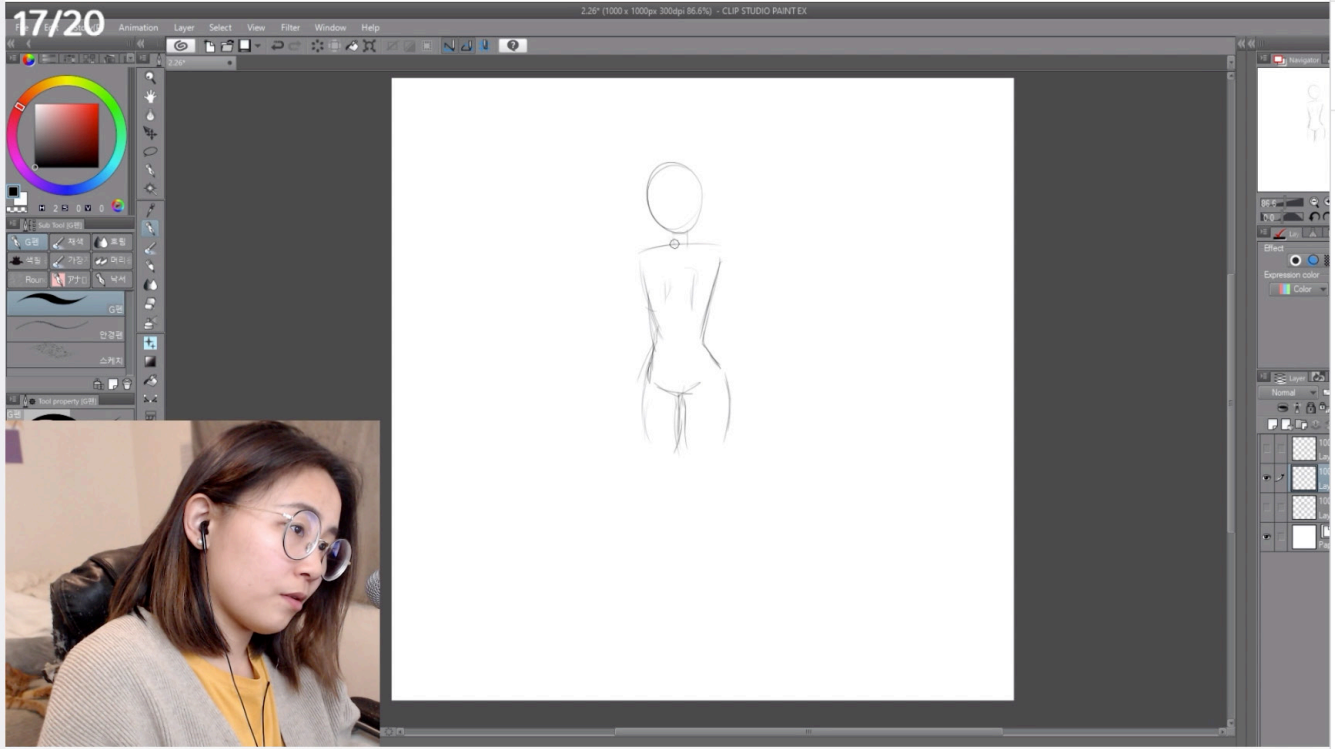

very extremely creative title that grabbed your attention

110 846,415

Category: Art • Team: Nekotopia

STREAM CHAT

Tomaae 5 jarjar2_ 5 JayBeenL... 5

msfWEBdude: remember game cheat codes?

bobuffet: up up down down left right left right B A

Janegland: is chibi something like dwarf?

msfWEBdude: @bobuffet

Drunknfr0g: I think it was the arm size. (I can only draw blueprints so I only notice proportion lol)

modifythehumans: that looks good now

bobuffet: thank christ YouTube reinstated Chilled Cow

bobuffet: the LoFi hip hop guy.

polluxandbellatrix:

msfWEBdude: oh the music

Send a message

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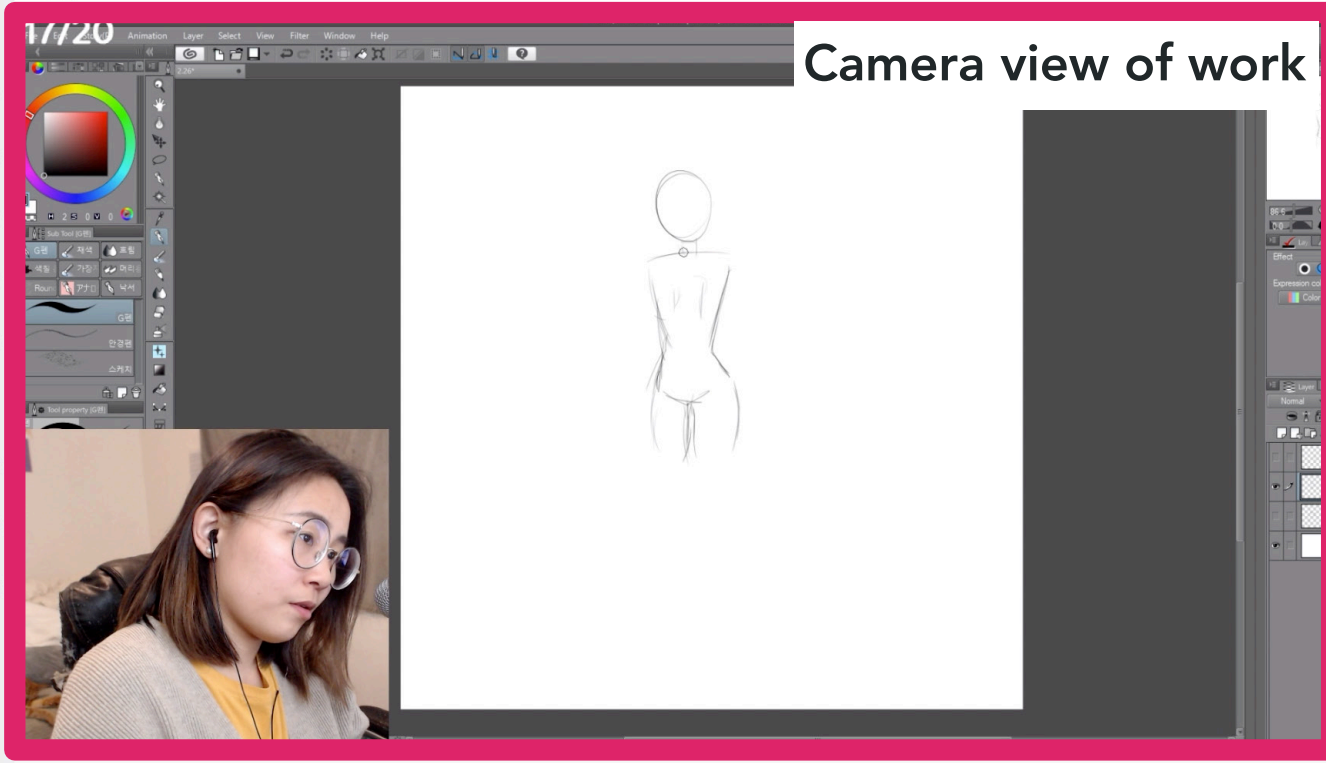

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17/20

Camera on artist's face

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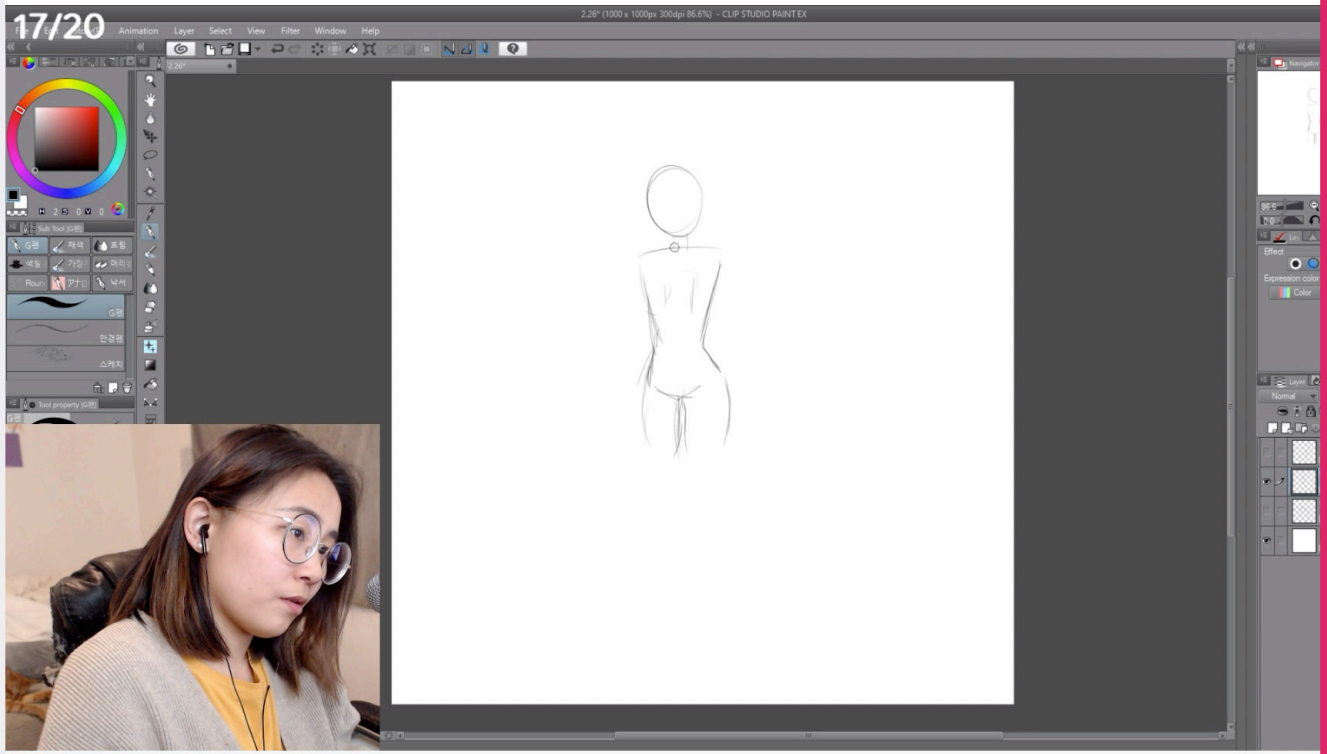

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Send a message

0 Chat

Creative live streams are an untapped source of expert knowledge

Large volume

Show creative knowledge

Too long to browse

twitch

Behance

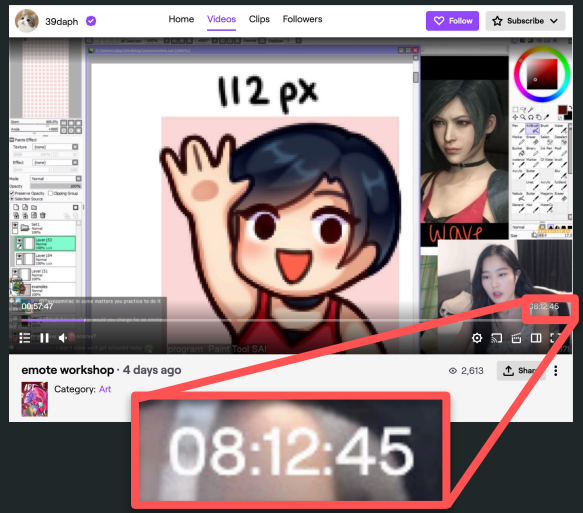
YouTube

Periscope

PICARTO

Deltiee: Do you use 100% density for line art?

kergony: do you actually need a shading on the emote? @39daph



Research Questions

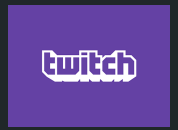
- What are creative live streams?
- Why do people live stream and why do others watch?
- What challenges do live stream viewers face?
- How might we better leverage the expert knowledge in these videos?

Formative Work

Content analysis of a sample of creative livestreams on Twitch

Semi-structured interviews with 8 streamers

3 online surveys with 165 viewers over 1.5 years



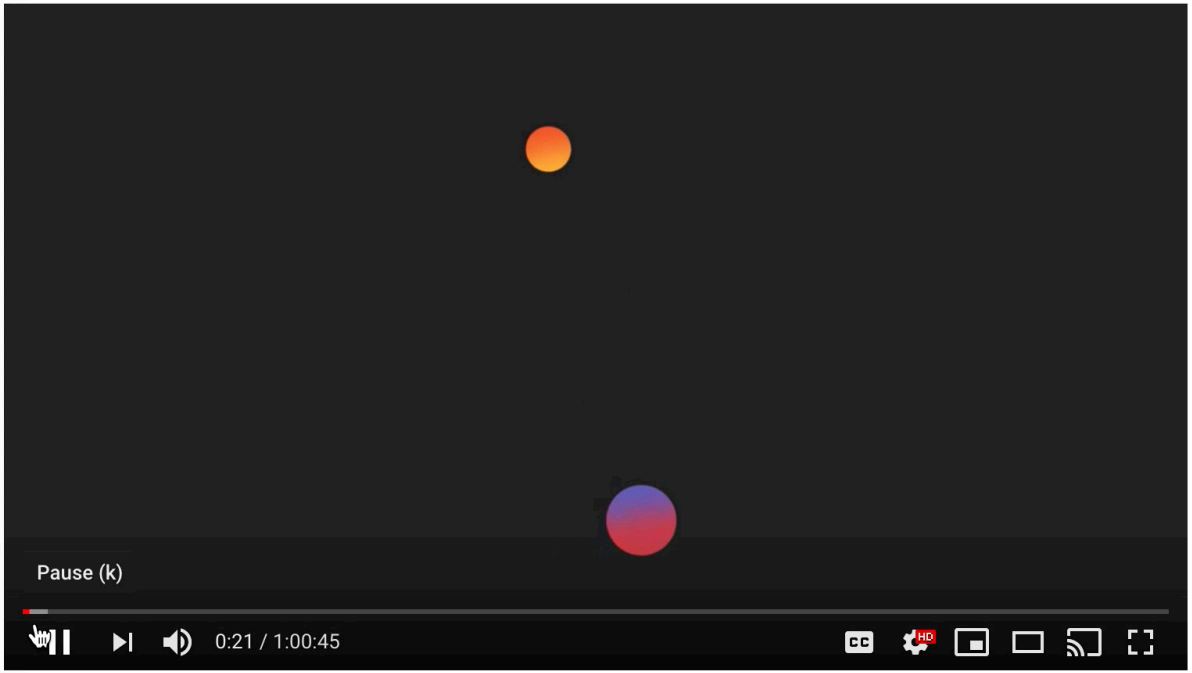
Main findings

- 4 main types of creative livestreams: Teaching, Making, Socializing, Performing
- Community & engagement are important to streamers and viewers
- Streamers face a tension between working and engaging with viewers

Main findings

- 4 main types of creative livestreams: Teaching, Making, Socializing, Performing
- Community & engagement are important to streamers and viewers
- Streamers face a tension between working and engaging with viewers
- People want to view archived livestreams, but they are hard to navigate

how to use repeat grid adobe xd



Getting Started in Adobe XD with Paul Trani

6,317 views

150 6 SHARE SAVE

Top chat replay

Live chat replay is on. Messages that appeared when the stream was live will show up here.

0:13 Nina hi

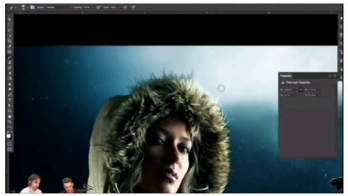
youtu.be/XzghQlHE5wY

Adobe Photoshop CC 2018

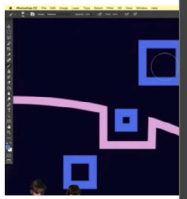
Mode: Normal Opacity: 100% Flow: 100%

a

Brush tool: Get Inspired



Watch it online



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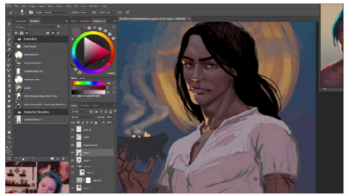

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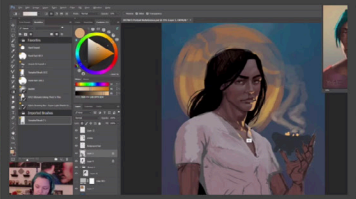

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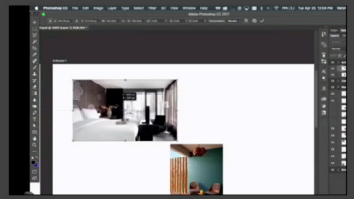

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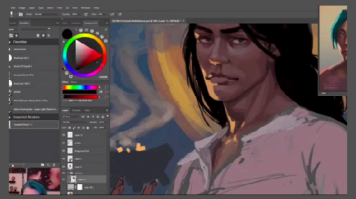
Color Swatches

Kind Normal Opacity: Lock: Fill:

c

Inspire

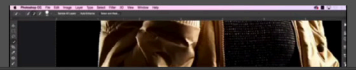
For You: Get Inspired



Watch it online

Watch it online

Watch it online



Libraries

My Library

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68

Feather: 0 px | Anti-alias | Style: Normal | Width: | Height: | Select and Mask...

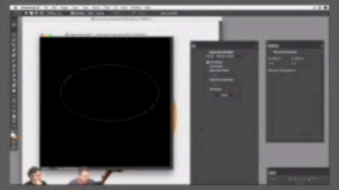
Untitled-1 @ 100% (RGB/8)

Color
Swatches
Properties
Adjustments
Layers
Channels
Paths

Learn

For You: Get Inspired

Watch it online



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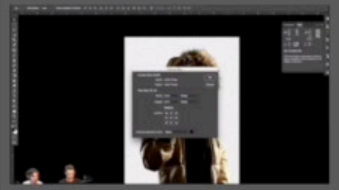

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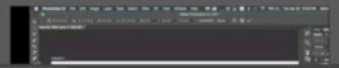

Libraries

My Library

Search Adobe Stock

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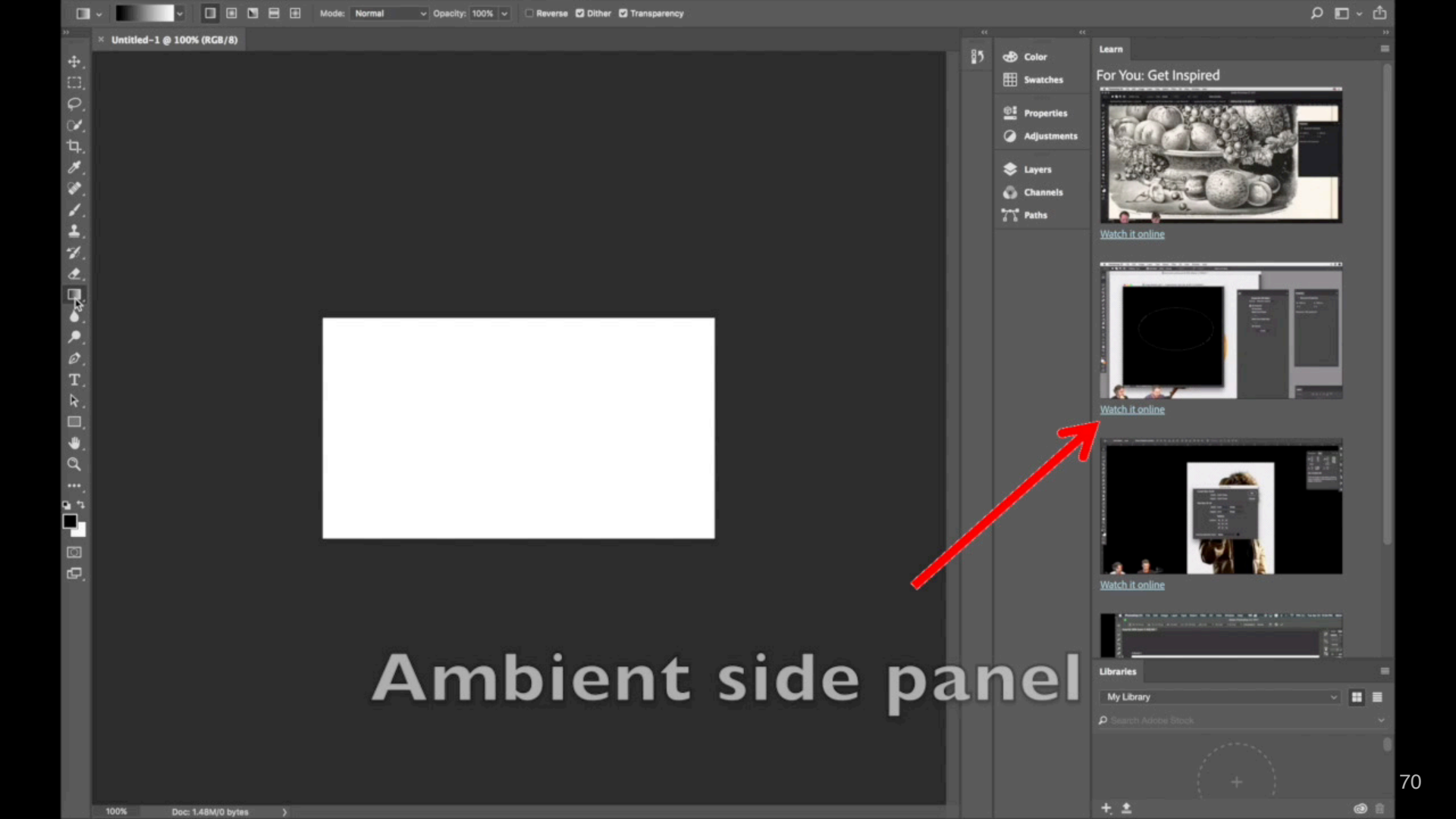
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Mode: Normal
Opacity: 100%
Reverse
Dither
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Color
Swatches
Properties
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Channels
Paths
Learn
For You: Get Inspired
Watch it online
Watch it online
Watch it online
Libraries
My Library
Search Adobe Stock
100%
Doc: 1.48M/0 bytes
Ambient side panel

Mode: Brush Opacity: 100% Flow: 100% Erase to History

Untitled-1 @ 100% (RGB/8) *

Color
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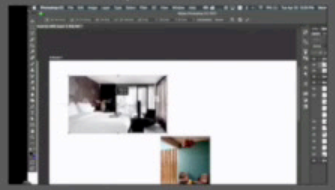
Layers
Channels
Paths

Learn

For You: Get Inspired



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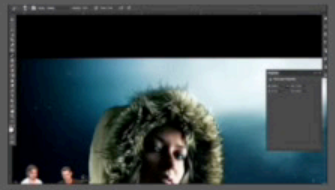

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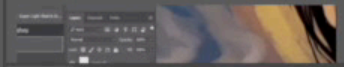

Libraries

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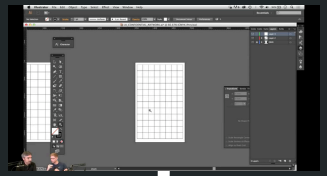
Video



Python

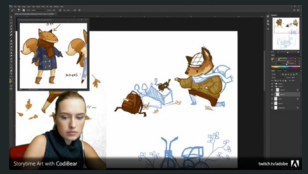
1. Extract short clips

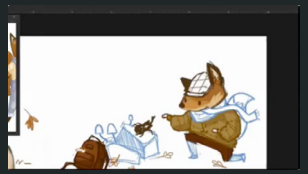
MATLAB

2. Crop clips

MATLAB
Javascript

3. Rank clips





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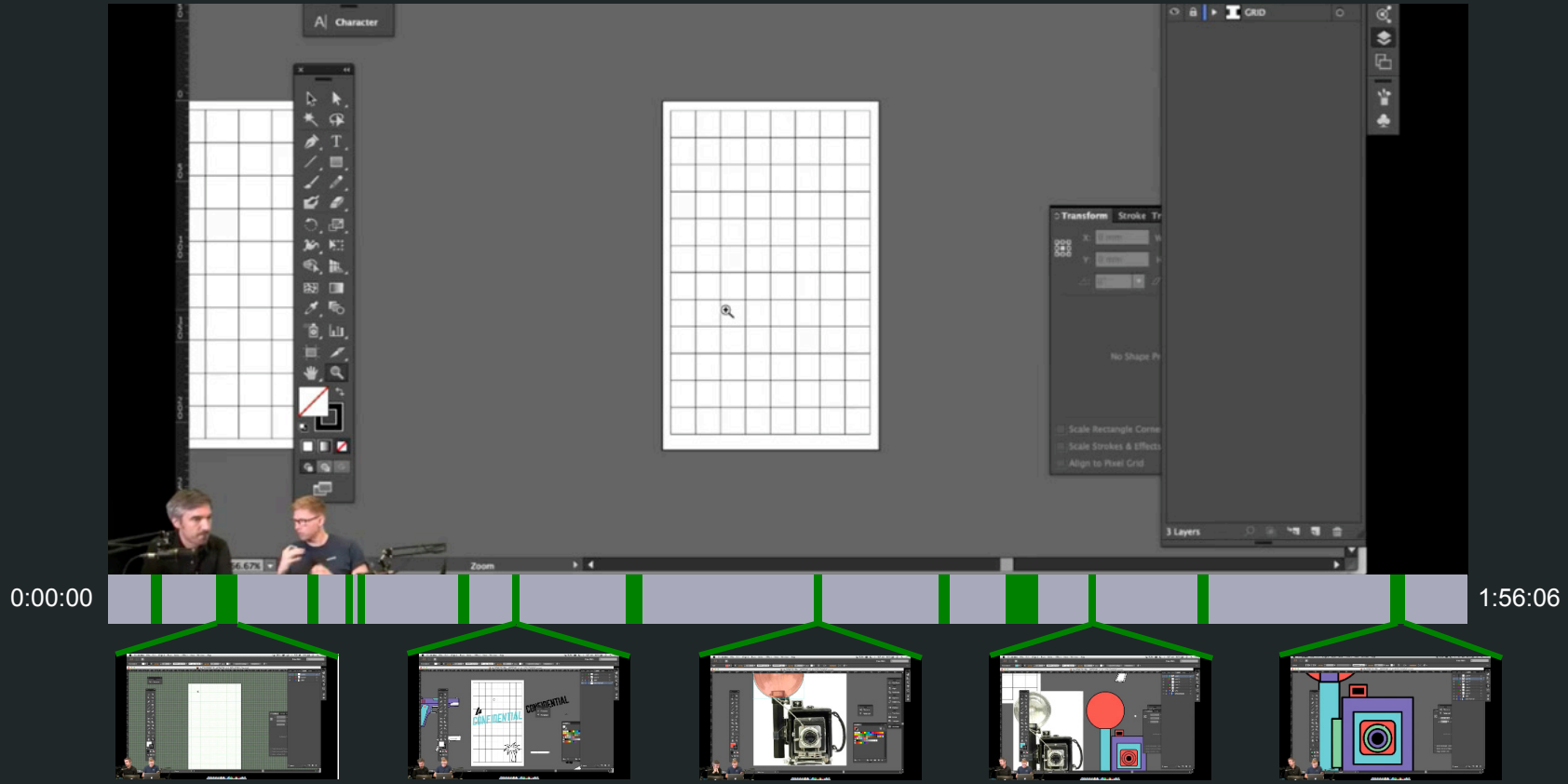
Tool Changed	Select_Tool	2017-05-24T16:16:19Z
Tool Changed	Ellipse_Shape_Tool	2017-05-24T16:16:22Z
Tool Changed	Rectangle_Shape_Tool	2017-05-24T16:16:23Z
Shape_Created	Shape_Created	2017-05-24T16:16:28Z
Tool Changed	Select_Tool	2017-05-24T16:16:30Z
Tool Changed	Line_Tool	2017-05-24T16:16:35Z
Tool Changed	Select_Tool	2017-05-24T16:16:39Z
Command	Group	2017-05-24T16:16:52Z
Command	Group	2017-05-24T16:16:53Z
Command	Group	2017-05-24T16:16:54Z
Tool Changed	Add_Anchor_Point_Tool	2017-05-24T16:17:04Z
Tool Changed	Direct_Select_Tool	2017-05-24T16:17:13Z

Tool event log

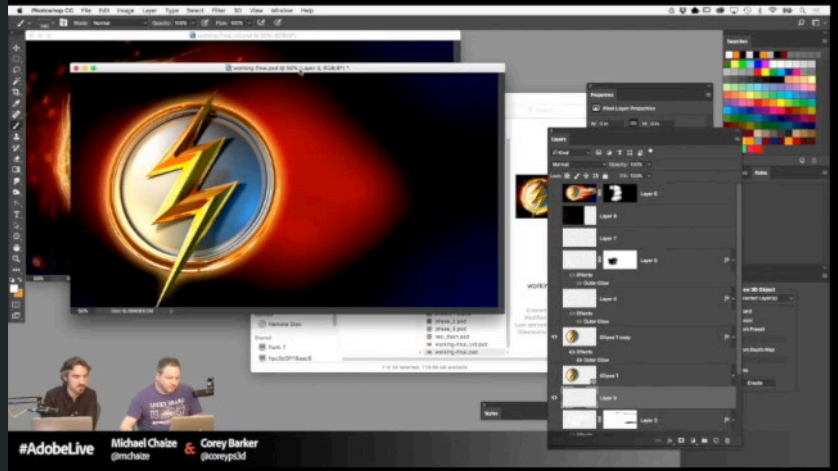
7 / 48

1. Extract short clips



Based on [Lafreniere et al. 2014]

2. Crop clips to thumbnail size



3. Rank clips for presentation

- Time in original video
- Amount of visual change
- User context

Initial user feedback

- Useful to see how other artists use tools
- One preferred tooltips, other preferred ambient side panel
- Clips provided an entry point to the full videos

How might we improve contextual inspiration?

- Are tools the right granularity for segmenting?
    - Extract moments based on what the streamer is saying
    - Summarize live streams in a short clip

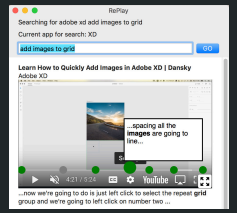
SOLUTION

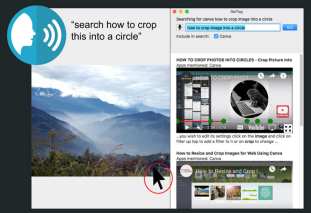
Expert resources can help with…

"I need help accomplishing my goal"

→ segment tutorials & display in context

RePlay & ReMap

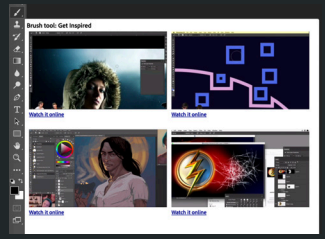




"I don't know what my end goal is"

→ suggest example demonstrations

LiveClips



"I have a goal and want it done"

→ suggest applicable operations

SOLUTION

Expert resources can help with…

"I need help accomplishing my goal"

→ segment tutorials & display in context

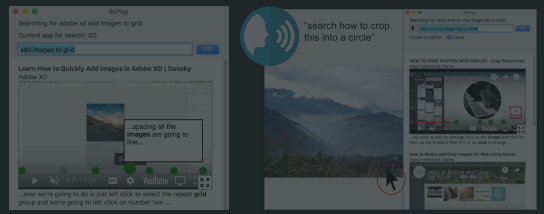
"I don't know what my end goal is"

→ suggest example demonstrations

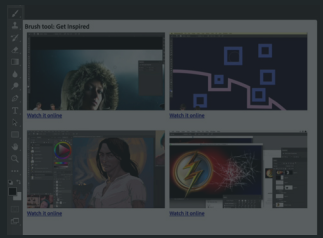
"I have a goal and want it done"

→ suggest applicable operations

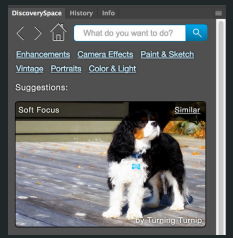
RePlay & ReMap



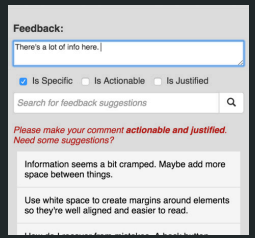
LiveClips



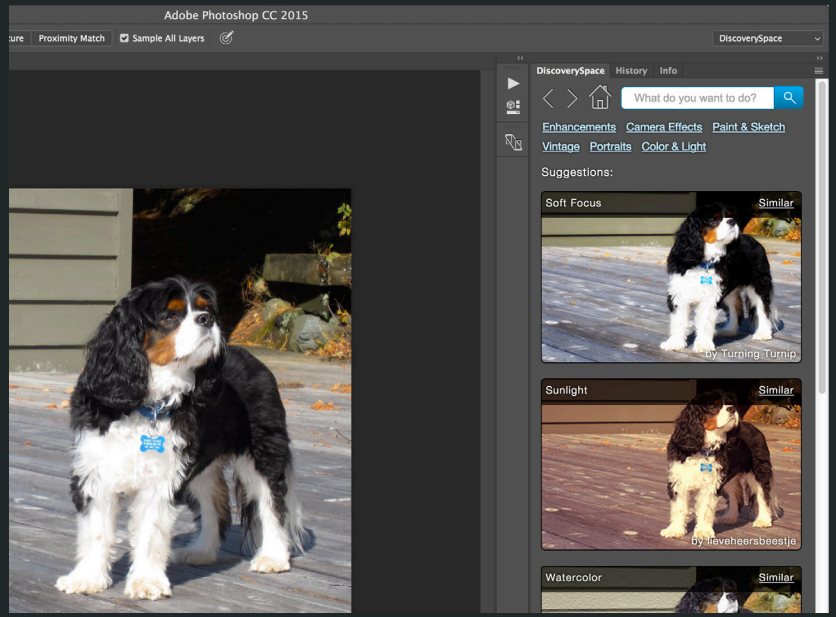
DiscoverySpace



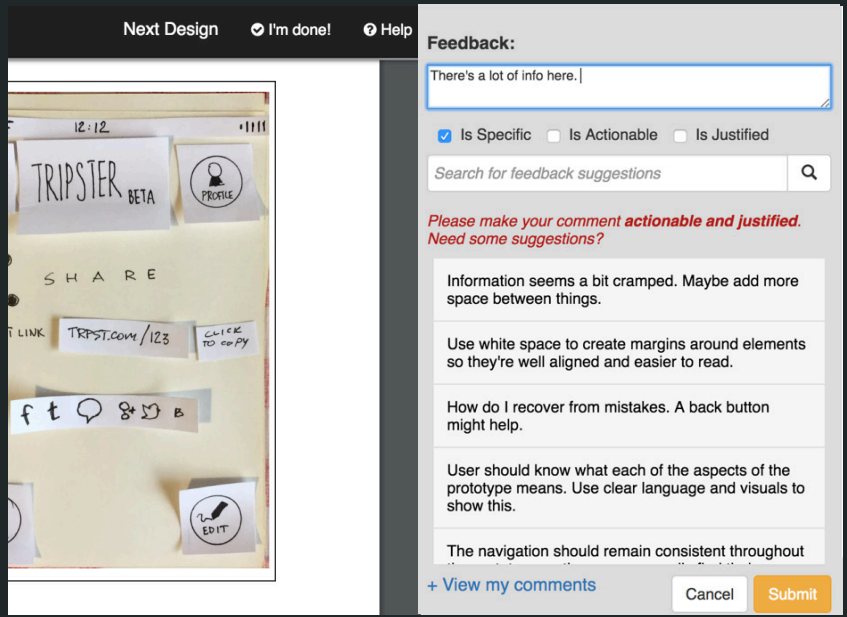
CritiqueKit



Reusable actions and examples help novices build confidence & produce better work



DiscoverySpace
Ailie Fraser, Mira Dontcheva, Holger Winnemöller, Sheryl Ehrlich, Scott Klemmer
DIS 2016



CritiqueKit
Tricia Ngoon, Ailie Fraser, Ariel Weingarten, Mira Dontcheva, Scott Klemmer
CHI 2018 - Honourable Mention 🏅

Thesis Statement

- *Curating expert help and demonstrations*
- *and presenting them in context*

enables people to produce better work.

Future Directions

- Integrating resources more closely into the creative process
- Improving navigation and browsing of video resources

Integrating resources more closely into the creative process

- Engage the user in a conversational dialogue

“I want to edit this”

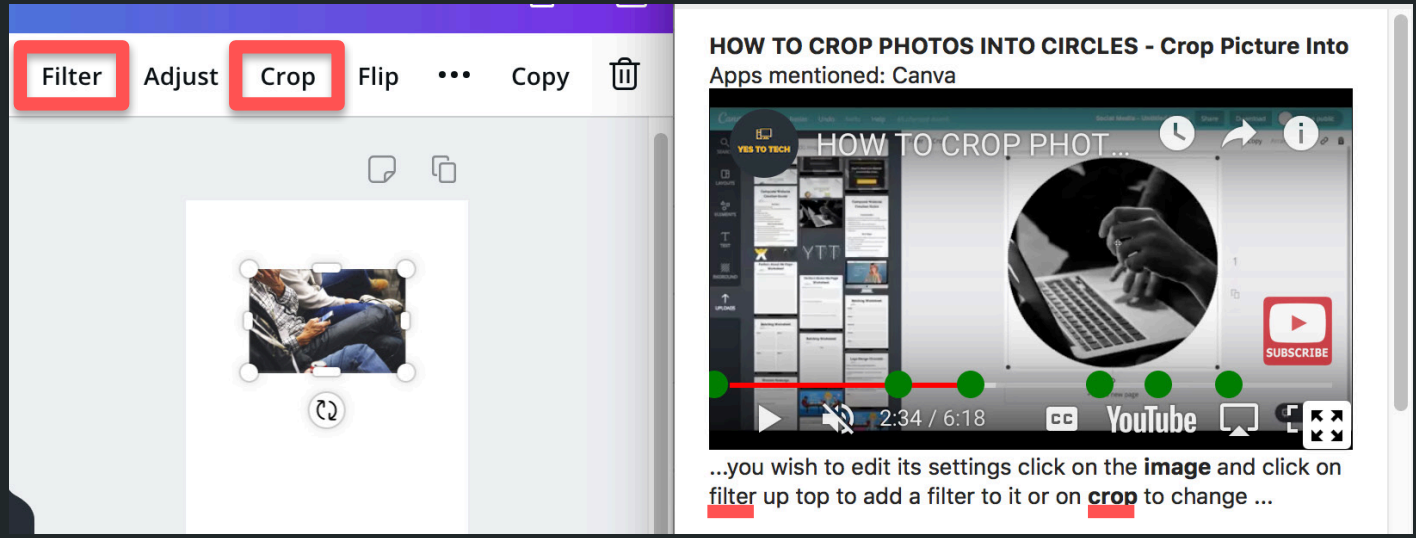
“What aspect of the graph do you want to edit? (data, axis labels, colour, size, type of graph)”

“The axis labels”

“Here is a video about editing the axis labels on a graph”

Integrating resources more closely into the creative process

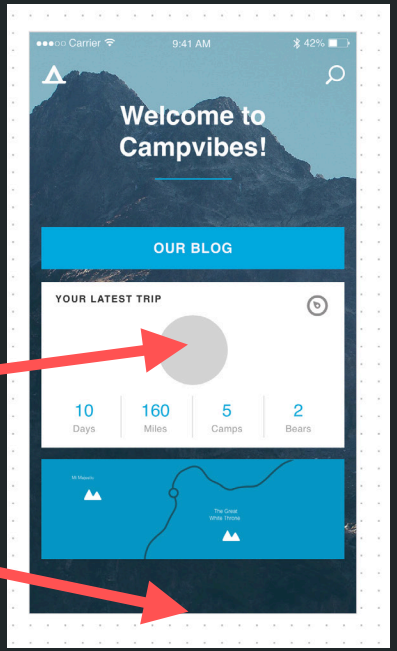
- Engage the user in a conversational dialogue
- Link results more closely to the software



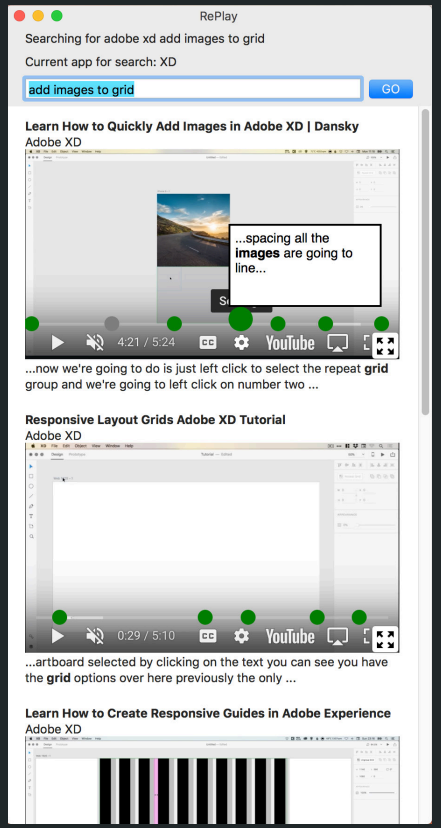
Integrating resources more closely into the creative process

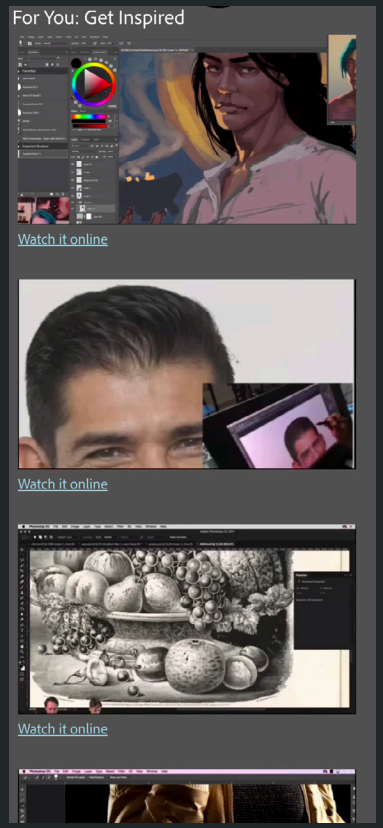
- Engage the user in a conversational dialogue
- Link results more closely to the software
- Allow users to issue commands directly

*"Make **this***
ease in from
***here**"*

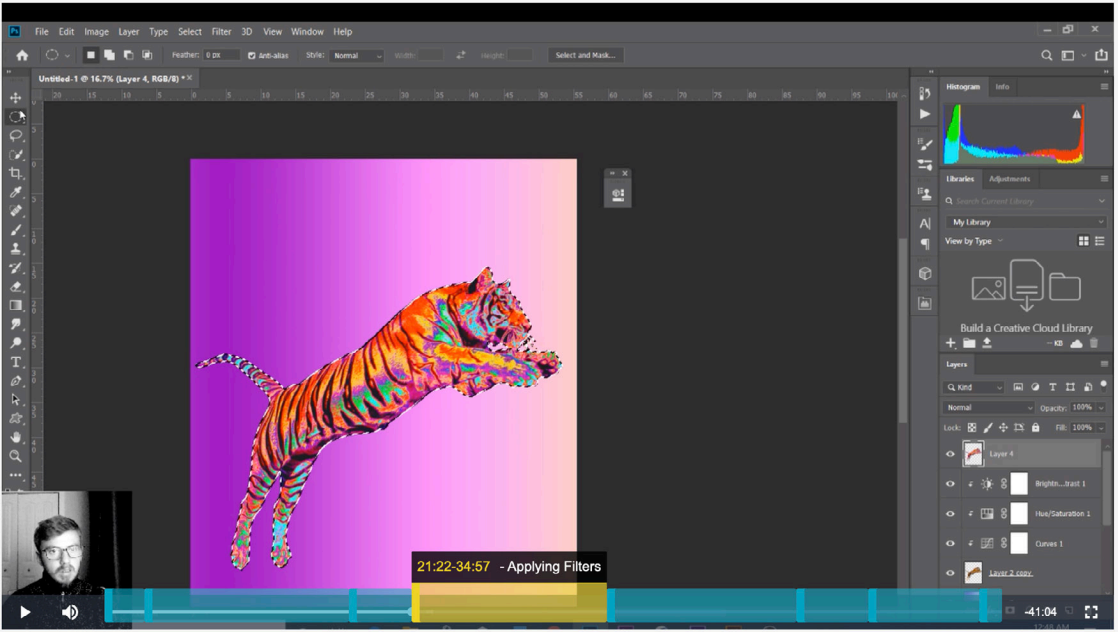


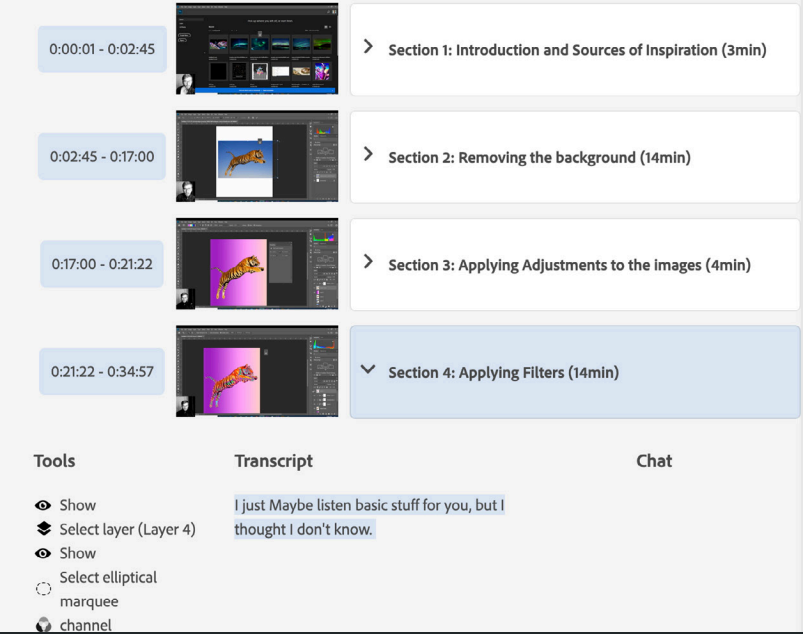
Improving navigation and browsing of video resources





Improving navigation and browsing of video resources





Ailie Fraser, Joy Kim, Valentina Shin, Joel Brandt, Mira Dontcheva

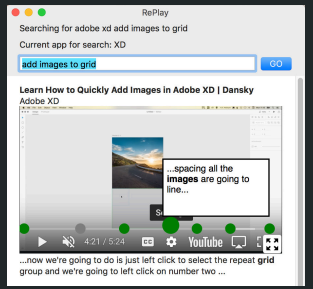
To appear at CHI 2020

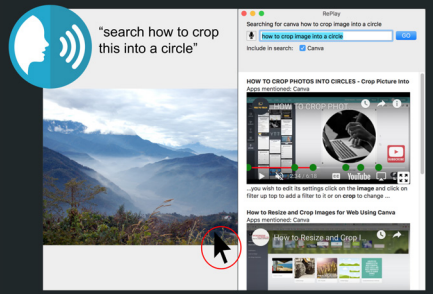
Contributions

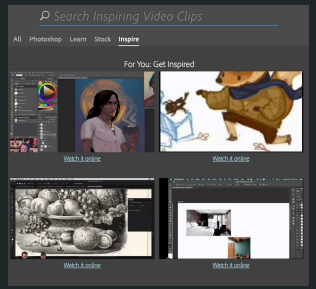
- Algorithms that curate and rank four different types of expert resource
  (tutorial videos, live stream videos, action macros, and written feedback)

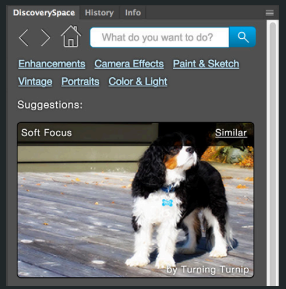
- Interfaces that present curated expert help and demonstrations in-situ

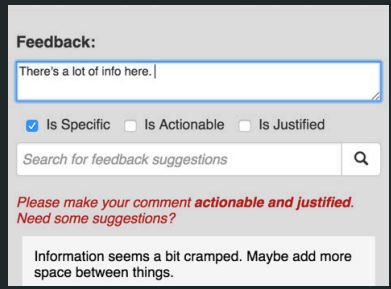
- Evaluations that demonstrate the efficacy of contextually presenting expert resources











Dissertation Outcomes

Full Papers

2020 ACM CHI *Temporal Segmentation of Creative Live Streams.*
C. Ailie Fraser, Joy Kim, Valentina Shin, Joel Brandt, Mira Dontcheva

2019 ACM C&C *Sharing the Studio: How Creative Livestreaming can Inspire, Educate, and Engage.*
C. Ailie Fraser, Joy O. Kim, Alison Thornsberry, Scott Klemmer, Mira Dontcheva

2019 ACM CHI *RePlay: Contextually Presenting Learning Videos Across Software Applications.* *Honourable Mention*
C. Ailie Fraser, Tricia J. Ngoon, Mira Dontcheva, Scott Klemmer

2018 ACM CHI *Interactive Guidance Techniques for Improving Creative Feedback.* *Honourable Mention*
Tricia J. Ngoon, C. Ailie Fraser, Ariel S. Weingarten, Mira Dontcheva, Scott Klemmer

2017 ACM CHI *WeBuild: Automatically Distributing Assembly Tasks Among Collocated Workers to Improve Coordination.*
C. Ailie Fraser, Tovi Grossman, George Fitzmaurice

2016 ACM DIS *DiscoverySpace: Suggesting Actions in Complex Software.*
C. Ailie Fraser, Mira Dontcheva, Holger Winnemöller, Sheryl Ehrlich, Scott Klemmer

2016 ACM CHI *Framing Feedback: Choosing Review Environment Features that Support High Quality Peer Assessment.*
Catherine M. Hicks, Vineet Pandey, C. Ailie Fraser, Scott Klemmer

Dissertation Outcomes

Extended Abstracts (Demos, Posters, Workshops)

2019 ACM UIST Demos	*ReMap: Multimodal Help-Seeking.* C. Ailie Fraser, Julia M. Markel, N. James Basa, Mira Dontcheva, Scott Klemmer
2019 ACM CHI Live Streaming Workshop	*Creative livestreaming: How sharing one's process can inspire, educate, and engage.* C. Ailie Fraser, Joy O. Kim, Scott Klemmer, Mira Dontcheva
2018 ACM UIST Doctoral Consortium	*The Right Content at the Right Time: Contextual Examples for Just-in-time Creative Learning.* C. Ailie Fraser
2018 ACM CHI Sensemaking Workshop	*Software videos: Rich content and learning potential, but a challenge for sensemaking.* C. Ailie Fraser, Mira Dontcheva, Scott Klemmer
2017 ACM UIST Demos	*CritiqueKit: A Mixed-Initiative, Real-Time Interface For Improving Feedback.* C. Ailie Fraser, Tricia J. Ngoon, Ariel S. Weingarten, Mira Dontcheva, Scott Klemmer
2016 ACM CSCW Demos	*DiscoverySpace: Crowdsourced Suggestions Onboard Novices in Complex Software.* C. Ailie Fraser, Mira Dontcheva, Holger Winnemöller, Scott Klemmer
2015 ACM Learning at Scale Posters	*Do numeric ratings impact peer reviewers?* Catherine M. Hicks, C. Ailie Fraser, Purvi Desai, Scott Klemmer

Dissertation Outcomes

Other Publications

ACM interactions
Jan 2020

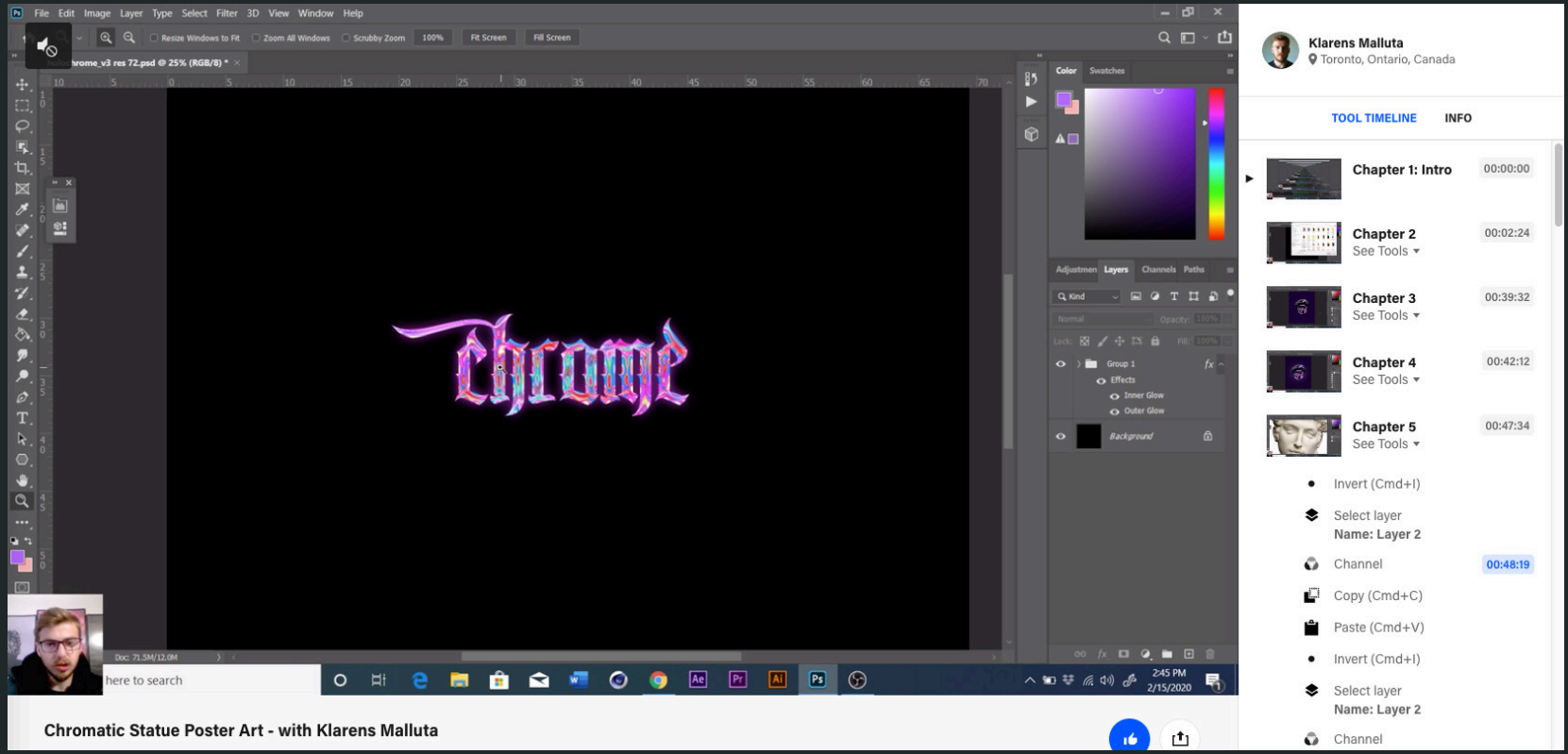
How Live Streaming Does (and Doesn't) Change Creative Practices.
C. Ailie Fraser, Mira Dontcheva, Joy Kim, Scott Klemmer

Medium
May 2019

How to download public YouTube captions in XML.
C. Ailie Fraser

Dissertation Outcomes

Impact on Industry Product

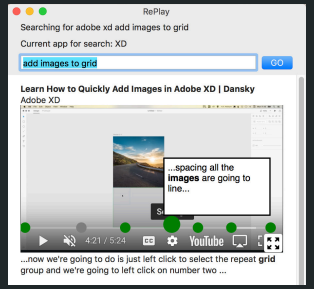


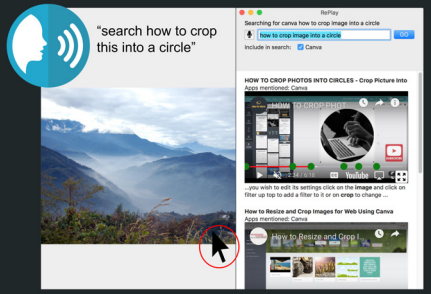
Next Steps: Adobe Research - Seattle

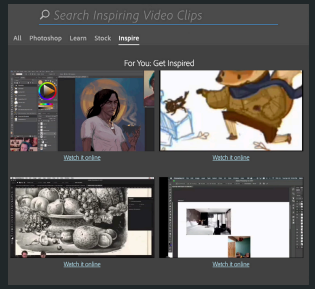
Research Engineer

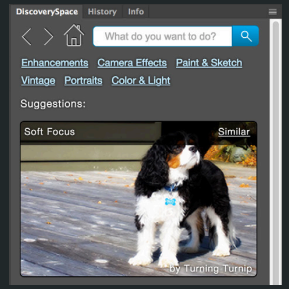
Final thoughts

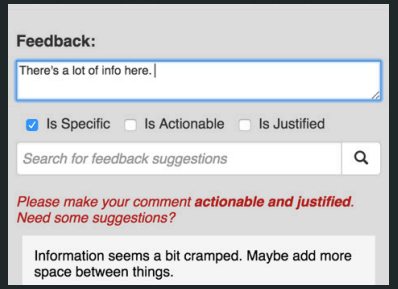
- Lowering the barrier to get started is a key step toward enabling creativity
- Expert help and demonstrations are powerful tools for learning, execution, and inspiration
- Bringing expert resources into the user's context makes them more useful









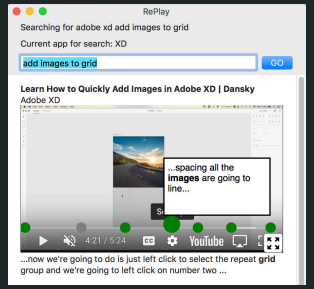


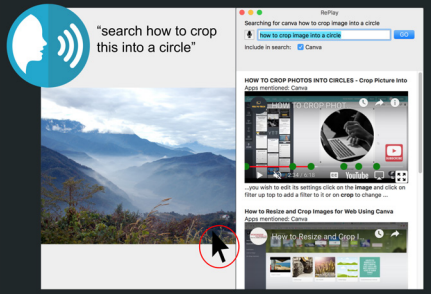
Thanks!

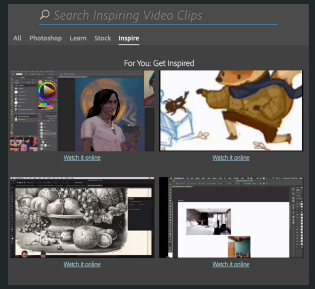
cafraser@cs.ucsd.edu

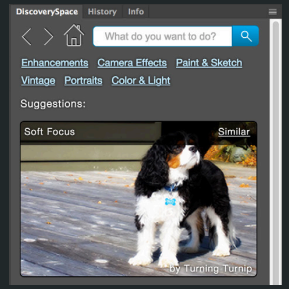
@ailiefraser

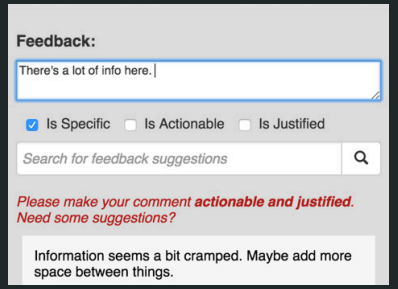
- Lowering the barrier to get started is a key step toward enabling creativity
- Expert help and demonstrations are powerful tools for learning, execution, and inspiration
- Bringing expert resources into the user's context makes them more useful











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