# GNG2101


# Accessible Digital Drawing: Needs, Problem Statement, Metrics, Benchmarking and Target Specifications

Submitted by

Group B25

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**Introduction**

Our goal is to develop an accessible digital drawing experience for a client suffering from a fluctuating disability. Our product creates a customized experience for the customer that allows them to switch between different Photoshop tools by voice command and create an "most used" section which allows them to access their drawing tools with no difficulty. We recently had a meeting with our client, where we learned more about their situation and what kind of product could help them to use Photoshop more effectively.

**1. Client statements/observations obtained from client interviews**

- The client is an art student that teaches art therapy and is a professional artist
- They are suffering from a rare neurological disability which affects their visual tracking.
- The disability sometimes causes the client to be unable to use their hands and their ability to speak.
- They are transitioning from physical art to digital and therefore do not have a lot of experience with Photoshop.
- The client uses different art styles:
    1. Surrealism, which requires the use of textures and overlays.
    2. An art style that uses thin lines, dots and shapes.
- The client uses a digital drawing tool that smoothens their pencil strokes, but it often results in the wrong shape due to their shaky hands.
- Looking at the colour red could cause them to have seizures.

**2. Customer needs**

| # | Need | Importance (1-5) |
|---|------|------------------|
| 1 | The product helps users suffering from visual processing disorders switch between Photoshop tools using voice commands | 5 |
| 2 | The product makes Photoshop's hidden subfolders of commands more accessible for users with visual tracking disorders | 4 |

| 3 | The product is compatible with Photoshop CC 2019 | 5 |
|---|---|---|
| 4 | The user interface does not contain the colour red | 5 |
| 5 | The user interface is composed of neutral colours | 2 |
| 6 | The product is easy to install on a computer | 3 |
| 7 | The product is easy to use | 4 |
| 8 | The product does not solely rely on voice commands | 5 |
| 9 | The user interface is intuitive and easily navigable without much instructions | 4 |
| 10 | The product contains an easily accessible section containing the most used tools | 5 |
| 11 | The product is compatible with the client's operating system | 5 |

## 3. Problem Statements

Design a computer application that facilitates the utilization of Adobe Photoshop tools for a person suffering from visual processing issues.

## 4 . Metrics

| # | Metric | Importance (1-5) | Unit |
|---|---|---|---|
| 1 | RGB intensity | 5 | 3 primary digital colors(red,green, blue) range from 0-255 in intensity |
| 2 | Button size | 2 | Pixels or % of screen |
| 3 | Amount of pages the client has to navigate through in order to access all features(including loading screens) | 4 | pages |

| 4 | Time to learn the basics of the product | 4 | hours |
|---|---|---|---|
| 5 | Compatibility with the client's operating system | 5 | binary |
| 6 | Size of executable file (.exe) | 2 | MB |
| 7 | Installation time | 3 | min |

## 5. Benchmarking of similar products

Through research we've found that the most common and ideal ways of modifying photoshop are through photoshop plugins and scripts. Though the biggest problem is that, these plug-ins and scripts are not designed to make photoshop easier to use for a new user but to make difficult or specific tasks more simple.

1. We found the plug in Layrs Control 2 that matched the metric for Inutive Design.

This plugin is free, and easy to download.

The plug-in re-formats photoshop taskbar for layers to make it more accessible and creates scripts to perform certain tasks involving layer easy to use for both new and experienced users.

2.  Benchmark of our own solution of making our own photoshop plug in. It is a viable solution for making our own plug in. This would be the easiest for the user to install and immediately use. Although this provides convenience the main issue is that lack of freedom, we must first join the photoshop development community using our money. This would immediately exceed our budget and furthermore there are limits to what we can accomplish with a plug-in. Information was obtained from :https://photoshoproadmap.com/programming-photoshop-plugins/

3.  We can develop an executable file, java, html or any other format that would be an interface for macros that we would develop specifically for the client. This would give us the most amount of freedom but it would also be the most difficult to install as we would have to make a script that runs perfectly on the client's device.

| # | Metric | Import ance (1-5) | Unit | Layrs Control 2 | Develop an executable macro file | Develop photoshop plug-in |
|---|--------|-------------------|------|-----------------|----------------------------------|---------------------------|
| 1 | RGB intensity | 5 | 3 primary digital colors(red, green, blue) range from 0-255 in intensity | rgb(60,179,113) | rgb palette range(0-120,0-120,0-120) | rgb palette range(0-120,0-120,0-120) |
| 2 | Button size | 2 | Pixels or % of screen | 248 x 46 | Macro interface will take up 15% of user screen | Most frequent buttons will be enlarged to allow a taskbar that takes 20% of clients |

| | | | | | | photoshop client. approx. |
|---|---|---|---|---|---|---|
| 3 | Amount of pages the client has to navigate through in order to access all features | 4 | pages | 2 | 1 | 1 page ideally-maximum of 2 for frequently used tools. |
| 4 | Time to learn the basics of the product | 4 | hours | < 1 hour | 1 hour | > 1 hour |
| 5 | Compatibility with the client's operating system and version of Photoshop | 5 | binary | True | True | True |
| 6 | Size of executable file (.exe) | 2 | MB | N/A | Max(20mb) | Max(30mb) |
| 7 | Installation time | 3 | min | 15 | 60 | 15 |

## 6. Target Specifications

| Metric # | Metric | Importance | Units | Marginal Values | Ideal Values | Reasons for choice |
|---|---|---|---|---|---|---|
| 1 | RGB | 5 | 3 primary | (0-150)fo | Limit RGB | Being mindful of our |

| | intensity | | digital colors(red ,green, blue) range from 0-255 in intensity | r all colors, only exceptions are black and white | colors to a maximum of 100, ideal interface is pastel color palette | clients' disability, a pastel color palette was most preferred and we don't want to hinder work on photoshop so grayscale is not acceptable. |
|---|---|---|---|---|---|---|
| 2 | Button size | 2 | Pixels or % of screen | 0-30% of screen or photoshop client | 20% | Buttons should take a large portion of space in order to make tools more differentiable and clear. |
| 3 | Amount of pages the client has to navigate through in order to access all features | 4 | pages | 1-3 | 1 | 1 is the most ideal as we want 0 complexity in navigation, due to the amount of features in photoshop it's marginally acceptable to have a maximum of 3. |
| 4 | Time to learn the basics of the product | 4 | hours | 0-2 hours | 1 hour maximum, but should be intuitive and usable with no learning curve | Photoshop is complex, but we want to focus on making basic functionality extremely intuitive. 1 hour is a realistic goal and a maximum margin of 2 hours is accomplishable. |
| 5 | Compatibility with the client's operating system and version of Photoshop | 5 | Binary | Yes | Yes | Our project must be compatible with the client. |
| 6 | Size of executable file (.exe) | 2 | Mb | 0-40mb | 20mb | This is not of great importance but in order for ease of install, aim to |

| | | | | | | keep it simple. |
|---|---|---|---|---|---|---|
| 7 | Installation time | 3 | Minutes(m) | 0-60 minutes | 10-15 minutes | Marginally 60 minutes due to macros, this may require custom coordinate inputs. Though we aim for 10-15 minutes it would ideally be a simple download. |

## 7. Impact of the client meeting

The client meeting had provided us meaningful information that allowed us to see things from the client's perspective. For instance, we had no idea that the colour red could cause the client to have seizures. Therefore, the color palette of the application became an important factor in the design process. Furthermore, before the interview, we were unsure what kind of difficulties the client was experiencing with Photoshop. We learned that they suffered from visual processing issues and could not distinguish Photoshop tools from each other, as well that they sometimes have trouble using their hands. This gave us more insight into what kind of tools we should program in order to facilitate their use of the Adobe application.

## Conclusion

Through developing specific target specifications and benchmarking our solutions and alternatives. We believe developing our own Macros are the most ideal solution to meet our client's needs. The only limiting factor that is brought up through development of our own macros is installation time. We must consider that installation does not place in importance in comparison to our other metric. Analyzing through our benchmarks and target specifications, we are capable of resolving and meeting the most important client needs with development of our own macros. Accessibility and intuitive design is our primary focus, having complete freedom allows us to achieve this. We strongly believe by pursuing this solution we will satisfy the needs' of our client.