GenderMag Report: ScoreGen

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1 Revision History

Date	Version	Notes
2025-03-18	1.0	Initial version.

2 Symbols, Abbreviations and Acronyms

Symbol	Description
GM	GenderMag.
PDF	Portable Document Format.
UC	Use Case.
UI	User Interface.

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3 Introduction

This document details the results of the usage of the GenderMag method to evaluate gender inclusivity as an aspect of ScoreGen's usability. It uses empirically based personas to simulate the software system's use from diverse perspectives, revealing design issues that might be missed.

This document is organized into sections covering use cases, customized personas, reporting forms, and the design changes implemented based on the GenderMag evaluation. Each section provides a focused look at how GenderMag helps improve software inclusiveness.

4 Methodology

The team followed the prescribed GenderMag evaluation methodology, engaging collaboratively throughout the process. In each of the two sessions, we formed our own individual perspectives and insights and then consolidated them in unified decisions on whether a persona would or would not formulate/undertake a specific subgoal/action. This approach was chosen as it maximized the diversity of perspectives and minimized the risk of bias from any one team member.

5 Use Cases

The GenderMag method was applied to the following two use cases of the software system:

UC1. Recording audio

UC2. Generating sheet music from audio

6 Customized Personas

6.1 Abi

Abi is designed to represent users with facet values often seen in females, such as comprehensive information processing and higher risk aversion. For more details, see the full persona: View the Abi Persona PDF.

6.2 Tim

Tim represents users with facet values commonly found among males, characterized by a selective information processing style and an impulse for exploring new functionalities. For additional details, see the full persona: View the Tim Persona PDF.

7 Report Forms

The GenderMag method uses three types of reporting forms: subgoal, action, and result. The subgoal reporting form is used to document the steps that the persona formulates themselves and tries to achieve, while the action reporting form is used to document the actions the persona takes to achieve the subgoals. The subgoal reporting form is filled out first, followed by the action reporting form. After all subgoal and action reporting forms are filled, the results reporting form tallies the results and identifies general UI issues and/or gender-inclusion issues with the application.

All raw reporting forms for each use case are provided in this document.

7.1 Use Case 1 Reports

Use Case 1 is the recording audio use case. The Abi persona reflects facet values commonly seen in women, such as high risk-aversion, low self- efficacy, and so on.

7.1.1 Subgoal Reporting Forms

Scenario (Overall Goal): Abi want	ts to record some audio of her play	ving the piano.
Subgoal #1: Get to the audio rec	ording page.	
 Will Abi have formed the 	his sub-goal as a step to their o	verall goal? Why?
∑ Yes	Maybe	☐ No
Which, if any,	of Abi facets did you use to answe	r the question?
	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above Why?	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above
Abi knows she has a particular task to do using this application, this is the first step in working towards completing that task (<i>Motivations</i>). She will also likely notice that there are different pages for different features as she	wwy.	

gathers comprehensive information about the application home page

(Information Processing Style).

Scenario (Overall Goal): Abi wants to record some audio of her playing the piano.				
Subgoal #2: Identify the button t	hat starts recording audio.			
1. Will Abi have formed ti	his sub-goal as a step to their ov	verall goal? Why?		
∑ Yes	Maybe	No		
Which, if any, of Abi's facets did you use to answer the question?				
Motivations	Motivations	Motivations		
	☐ Information Processing Style	☐ Information Processing Style		
Computer Self-Efficacy	Computer Self-Efficacy	Computer Self-Efficacy		
Attitude Towards Risk	Attitude Towards Risk	Attitude Towards Risk		
Learn by Process vs.	Learn by Process vs.	Learn by Process vs.		
Tinkering	Tinkering	Tinkering		
☐ None of the above	☐ None of the above	☐ None of the above		
Why?				
Abi will have likely looked at all				
the huttons and their symbols				

before clicking any (*Information*

The record button is the logical next step in achieving her overall goal, she has started the process of recording, which she would have figured is very straight-forward so she can learn the process while doing

(Motivations, Learn by Process

Processing Style).

the steps necessary

vs. Tinkering).

Scenario (Overall Goal): Abi wants to record some audio of her playing the piano.				
Subgoal #3: Identify the 'Stop' bu	utton to end the recording.			
1. Will Abi have formed th	his sub-goal as a step to their o	verall anal? Why?		
∑ Yes	Maybe	□ No		
Which, if any, o	of Abi's facets did you use to answ	er the question?		
 ✓ Motivations ✓ Information Processing Style ☐ Computer Self-Efficacy ☐ Attitude Towards Risk ✓ Learn by Process vs. Tinkering ☐ None of the above 		 Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above 		
	Why?			
Again, Abi would have already known this is the next logical step due to her consolidating her previous knowledge of recording audio with other technology. Furthermore, if she had never done this before (unlikely) she would have done research on the process or read				

relevant documentation (*Learn* by *Process vs. Tinkering*).

Scenario (Overall Goal): Abi wants to record some audio of her playing the piano.				
Subgoal #4: Abi wants to save th	ne recording to her computer's driv	e.		
-				
1. Will Abi have formed th	his sub-goal as a step to their ov	verall goal? Why?		
∑ Yes	Maybe	No		
Which, if any, o	of Abi's facets did you use to answe	er the question?		
	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above		
Why?				
Abi would have noticed the Save button and its icon in previous steps (<i>Information Processing Style</i>) and she its very presence would have motivated her to form this as a				

subgoal because she would not want to lose the recording and have this entire process go to waste (*Attitude Towards Risk*).

Scenario (Overall G	oal): Abi wants to record	I some audio of	her playing the piano.
---------------------	---------------------------	-----------------	------------------------

Subgoal #5: Save the recording to a particular (non-default) directory.

1. Will Abi have formed this sub-goal as a step to their overall goal? Why?

Yes	Maybe	No		
Which, if any, of Abi's facets did you use to answer the question?				
Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	 ✓ Motivations ☐ Information Processing Style ✓ Computer Self-Efficacy ✓ Attitude Towards Risk ☐ Learn by Process vs. Tinkering ☐ None of the above 		
	Why?	T		
		At this point, Abi has completed the task she set out to do (<i>Motivations</i>).		
		Her confidence in her ability to complete the task would have been reinforced by the action of saving the file (something that was not explicitly in her overall goal) and she would want to avoid taking any steps that would reverse this reinforcement (<i>Computer Self-Efficacy</i>).		
		She is also only comfortable using software she is used to, this is a new application and even though selecting a destination directory is trivial, this action still puts her audio recording at risk (Attitude Towards Risk).		

7.1.2 Action Reporting Forms

Action #1: Click on the red 'Record' button.			
1a. Will Abi do this? Why?			
∑ Yes	Maybe	□ No	
Which, if any, o	of Abi's facets did you use to answe	er the question?	
 Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above 	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	☐ Motivations ☐ Information Processing Style ☐ Computer Self-Efficacy ☐ Attitude Towards Risk ☐ Learn by Process vs. ☐ Tinkering ☐ None of the above	
	Why?		
The description above the button clearly indicates this is relevant to the task she has set out to do (<i>Motivations</i>).			
What i	n the UI helped/confused Abi in th	is step?	
There are two buttons that say 'Record', both of which lead to this subgoal's achievement. However, the nav bar button is more ambiguous (Attitude Towards Risk) and it does not have a description like the red one does (Information Processing Style). 1b. If Abi does this, will they ke their goal? Why?	now they did the right thing and	d are making progress toward	
∑ Yes	Maybe	□ No	
	of Abi's facets did you use to answe		
 Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above 	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above Why?	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	
The recording page shows a			
large audio visualizer and various buttons with symbols related to audio recording (Information Processing Style).	n the III he line if the second of the secon	in action 2	
What in the UI helped/confused Abi in this step?			

N/A.	

Action #2: Click on the record button (red button with the while circle).				
2a. Will Abi do this? Why?				
∑ Yes	Maybe	□ No		
Which, if any,	Abi's facets did you use to answer	the question?		
	 Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above Why? 	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above		
Similar to the justifications for	wny:			
Abi forming the subgoal in the first place. This is the next logical next step in the process she has set out to do. There are also not (too many) other confusing options she could mistake for this step (Motivations, Learn by Process vs. Tinkering, Information Processing Style).				
What is	n the UI helped/confused Abi in th	is sten?		
The play button at the bottom of the interface. However, the time scrubbing bar directly beneath shows that there is 0:00 – 0:00 minutes of audio recorded. This is information she would have gathered as she processed the entire UI page before engaging in any action (<i>Information Processing Style</i>).	now they did the right thing and			
Yes	⊠ Maybe	No		
Which, if any, of Abi facets did you use to answer the question?				
☐ Motivations ☐ Information Processing Style ☐ Computer Self-Efficacy ☐ Attitude Towards Risk ☐ Learn by Process vs. ☐ Tinkering ☐ None of the above		Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above		

Why? There will be subtle indications on the page that the recording has started, in particular, the greyed out Pause and Stop buttons will have changed colour. This is information she would have gathered previously, but there is no stark, obvious indication like a pop-up or warning message (Information Processing Style). The immediate start of the recording may have startled Abi and caused her to panic, thinking too much is happening right off the bat and she didn't have time to prepare her hands on her piano (Computer Self-Efficacy, Learn by Process vs. Tinkering). What in the UI helped/confused Abi in this step? The previously greyed-out buttons becoming interactable would have helped Abi. The lack of warning, countdown, or preparation time before the recording begins may have confused Abi.

Action #3: Click on the 'Stop' button to end the recording.				
3a. Will Abi do this? Why?				
Yes	⊠ Maybe	□ No		
Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	Abi's facets did you use to answer Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above Why? She has made significant progress towards the task she wants to complete; she will be motivated to see it through whether successful or not (Motivations). The Stop button is the next logical step (Learn by Process vs. Tinkering, Information Processing Style) and although the Pause button may be confusing her, she is risk-averse and knows for certain that the Stop button will Stop and is unsure if the Pause button will	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above		
	Stop or do something else, so she will not waste her valuable time figuring it out (<i>Attitude Towards Risk</i>).			
M/hat i	n the UI helped/confused Abi in th	is stan?		
vonat n	The Pause button is now	13 stcp:		
	interactable and is yellow (a significantly noticeable change in the UI), this confused Abi as it makes it less clear which stops a recording in progress.			
•	now they did the right thing and	d are making progress toward		
their goal? Why?				
∑ Yes	Maybe	No		
	of Abi facets did you use to answe			
	☐ Motivations ☐ Information Processing Style	☐ Motivations ☐ Information Processing Style		
Injurnation r rocessing style	injuritiation reducessing style	mjormation r rocessing style		

	Computer Self-Efficacy	Computer Self-Efficacy	Computer Self-Efficacy
	Attitude Towards Risk	Attitude Towards Risk	Attitude Towards Risk
	Learn by Process vs.	Learn by Process vs.	Learn by Process vs.
	Tinkering	Tinkering	Tinkering
	None of the above	None of the above	None of the above
		Why?	
	The UI updates will be sufficient		
	information for her to deduce		
	that a recording has been made		
	and that the Stop button has		
	ended the recording		
	(Information Processing Style).		
What in the UI helped/confused Abi in this step?			
	Some buttons will return to		
	Some buttons will return to grey scale which would help Abi		
	grey scale which would help Abi		
	grey scale which would help Abi deduce that the recording was		
	grey scale which would help Abi deduce that the recording was successful and stopped. The audio scrubbing bar will have		
	grey scale which would help Abi deduce that the recording was successful and stopped. The audio scrubbing bar will have also updated the ending		
	grey scale which would help Abi deduce that the recording was successful and stopped. The audio scrubbing bar will have also updated the ending timestamp, indicating a certain		
	grey scale which would help Abi deduce that the recording was successful and stopped. The audio scrubbing bar will have also updated the ending		

Action #4: Click on the 'Save' button.				
4a. Will Abi do this? Why?				
∑ Yes	□ No			
Which, if any,	Abi's facets did you use to answer	the question?		
 Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above 		Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above		
	Why?	,		
Similar to the subgoal justifications, Abi would not want her pursuit of this task to have been a waste of time (Motivations, Attitude Towards Risk). Abi would have also previously seen the Save button's icon and understood its meaning (Information Processing Style). What in The familiar and widely used	n the UI helped/confused Abi in th	is step?		
Save icon on the button, which clearly indicates its function.				
4b. If Abi does this, will they ki their goal? Why?	now they did the right thing and	d are making progress toward		
Yes	Maybe	☐ No		
Which, if any, o	of Abi facets did you use to answe	r the question?		
 Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above 	 Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above 	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above		
	Why?			
The UI initiates the native system's OS save pop-up, which is more than enough indication that this button is indeed saving her audio recording (Information Processing Style).				

What in the UI helped/confused Abi in this step?						
Her processing style would have						
made her notice the name of						
the file she's saving (i.e.,						
'recording.wav'), and the						
destination that it defaults to						
(i.e. on OSX it is 'Downloads') in						
this particular case, Abi would						
realize that downloading would						
be synonymous with the						
function of saving.						

Action #5: Click/open the destination directory drop down menu.					
5a. Will Abi do this? Why?					
Yes	⊠ No				
Which, if any, Abi's facets did you use to answer the question?					
Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above			
None of the above	Why?	None of the above			
y.		Making a change not necessary, her overall goal been achieved.			
What i	n the UI helped/confused Abi in th	is step?			
N/A. The native OS pop-up is not confusing for Abi as she has used her own computer many times and is comfortable with this software.					
5b. If Abi does this, will they know they did the right thing and are making progress toward their goal? Why?					
N/A, Abi does not perform this action.					

$7.1.3 \quad \text{Results Reporting Form}$

Debrief: Abi's Results for Use Case 1

Count the answers:

- 1. How many questions (forms) were answered?
 - = **15** questions/forms
- 2. How many of the questions (forms) in item 1 had EITHER a "no" or "maybe" answer?
 - = 4 questions/forms
- 3. How many of the questions (forms) in item 2 had "no" or "maybe" answers that were **tied** to facet(s)?
 - = 3 questions/forms

Percentage of usability issues

- = 4 / 15
- = 26.67%

Percentage of gender-inclusion issues

- = 3 / 15
- = 20.00%

7.2 Use Case 2 Reports

Use Case 2 is the generating sheet music from audio use case. The Tim persona reflects facet values strongly associated with men. Significantly, Tim and Abi have very similar backgrounds; they are primarily different when it comes to the way they reflect the 5 facets.

7.2.1 Subgoal Reporting Forms

Scenario (Overall Goal): Generate	e sheet music for a recording Tim h	nas of him playing on his
electronic keyboard.		
Subgoal #1: Navigate to the reco	ording page.	
1. Will Tim have formed t	his sub-goal as a step to their o	verall goal? Why?
∑ Yes	Maybe	□ No
Which, if any, o	f Tim's facets did you use to answe	er the question?
Motivations	Motivations	☐ Motivations
☐ Information Processing Style	☐ Information Processing Style	☐ Information Processing Style
Computer Self-Efficacy	Computer Self-Efficacy	Computer Self-Efficacy
X Attitude Towards Risk	Attitude Towards Risk	Attitude Towards Risk
	Learn by Process vs.	Learn by Process vs.
Tinkering	Tinkering	Tinkering
☐ None of the above	☐ None of the above	☐ None of the above
	Why?	-
Despite recording audio not		
being a part of his initial plan,		
Tim wants to understand the		
interactions the application has		
with his new keyboard		
(Motivations).		
Tim also doesn't mind taking		
risks with new technology		
through exploration and is		
confident he can work his way		
back to the homepage if things		

go awry (Attitude Towards Risk, Learn by Process vs. Tinkering,

Computer Self-Efficacy).

Scenario (Overall Goal): Generate sheet music for a recording Tim has of him playing on his electronic keyboard.				
Subgoal #2: Identify the 'Upload	' button.			
1. Will Tim have formed this sub-goal as a step to their overall goal? Why?				
∑ Yes	☐ Maybe	☐ No		
Which, if any, o	f Tim's facets did you use to answe	er the question?		
	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above Why?	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above		
At this point, not enough tinkering has caused him to forget what his original intentions were (<i>Motivations</i>). He knows he has to give the application the audio file somehow and has most likely				

already clicked on the Upload button (*Learn by Process vs. Tinkering, Information Processing Style*) and knows that it prompts him to select a

.WAV file.

Scenario (Overall Goal): Generate sheet music for a recording Tim has of him playing on his electronic keyboard.					
Subgoal #3: Find and select his audio file.					
	his sub-goal as a step to their o	, <u> </u>			
Yes	Maybe f Tim's facets did you use to answe	No No			
Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above	☐ Motivations ☐ Information Processing Style ☐ Computer Self-Efficacy ☐ Attitude Towards Risk ☐ Learn by Process vs. ☐ Tinkering ☐ None of the above	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above			
Why?					
His discovery in subgoal #2 naturally leads him to the formation of this subgoal.					

Scenario	(Overall Goal):	Generate s	sheet musi	c for a red	cording Tim	has of him	playing on his
electroni	c keyboard.						

Subgoal #4: Identify the process audio file/export to MusicXML button.

1. Will Tim have formed this sub-goal as a step to their overall goal? Why?

	☐ Maybe	□ No	
Which, if any, o	er the question?		
	Informations Information Processing Style Imputer Self-Efficacy Itude Towards Risk Information Processing Style Information Processi		
Tim has now constructed an understanding of how the application internally performs the sheet music generation. This happens to be right and his understanding of the system is that now that the system has the audio file, he needs to tell it to generate the sheet music from it (<i>Learn by Process vs. Tinkering</i>).	Why?		

7.2.2 Action Reporting Forms

Action #1: Click on the red 'Record' button.					
1a. Will Tim do this? Why?					
Which, if any, Tim's facets did you use to answer the question?					
Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above Since the nav bar 'Record' button is at the top of the application, it is likely Tim will notice this first (Information Processing Style). His depthfirst approach will lead him to follow this lead to satisfy his curiosity (Computer Self-Efficacy, Attitude Towards Risk), despite it not being	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above Why?	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above			
obviously relevant to his overall					
goal (<i>Motivations</i>).					
What is	n the UI helped/confused TIm in th	is step?			
The nav bar makes it easy for					
him to break down the					
application. The second, red					
'Record' button is slightly					
confusing.					
1b. If Tim does this, will they k their goal? Why?	now they did the right thing an	d are making progress toward			
Yes	Maybe	No			
	of Tim facets did you use to answe				
Motivations	Motivations	Motivations			
Information Processing Style	Information Processing Style	Information Processing Style			
Computer Self-Efficacy	Computer Self-Efficacy Computer Self-Efficacy				
Attitude Towards Risk	Attitude Towards Risk Attitude Towards Risk				
Learn by Process vs.	Learn by Process vs. Learn by Process vs.				
Tinkering	Tinkering Tinkering				
None of the above	None of the above	None of the above			
	Why?				
Tim will have tinkered with					
some of the available buttons					
on the page and noticed the					

'Upload' button that only accepts .WAV files, accompanied with the obvious main function of the application, this is sufficient for him to understand that after uploading, transcription is the next logical step the application will encourage him to take (Learn by Process vs. Tinkering).		
What is	n the UI helped/confused Tim in th	is step?
The distinguishable icons that each interactable has clearly indicates its function, this allows Tim to thoroughly understand which button performs which action after coupling it with pressing on them and seeing their change to the UI/pop-ups that open.		

Action #2: Click the 'Upload' button.			
2a. Will Tim do this? Why?			
∑ Yes	Maybe	☐ No	
Which, if any, Tim's facets did you use to answer the question?			
Motivations	Motivations	Motivations	
	☐ Information Processing Style	☐ Information Processing Style	
Computer Self-Efficacy	Computer Self-Efficacy	Computer Self-Efficacy	
Attitude Towards Risk	Attitude Towards Risk	Attitude Towards Risk	
Learn by Process vs.	Learn by Process vs.	Learn by Process vs.	
Tinkering	Tinkering	Tinkering	
None of the above	☐ None of the above	None of the above	
	Why?		
Tim knows that the logical next			
step towards his goal is to			
upload the audio file. His			
curiosity, discovery of this			
promising lead (<i>Motivations</i> ,			
Information Processing Style)			
and disregard for risk (Attitude			
Towards Risk) when using new			
technology leads him to click			
this button impulsively (<i>Learn</i>			
by Process vs. Tinkering).			
,			
What is	n the UI helped/confused TIm in th	is step?	
N/A.			
2b. If Tim does this, will they k	now they did the right thing an	d are making progress toward	
their goal? Why?			
∑ Yes	☐ Maybe	□ No	
Which, if any,	of Tim facets did you use to answe	r the question?	
Motivations	Motivations	Motivations	
☐ Information Processing Style	Information Processing Style	Information Processing Style	
Computer Self-Efficacy	Computer Self-Efficacy	Computer Self-Efficacy	
Attitude Towards Risk	Attitude Towards Risk	Attitude Towards Risk	
Learn by Process vs.	Learn by Process vs.	Learn by Process vs.	
Tinkering	Tinkering	Tinkering	
None of the above	None of the above	None of the above	
Why?			
The UI prompts Tim to choose a			
file to upload, rather than			
backing out, he explores			
different directories and notices			
that the ambu files that are			
that the only files that are			
clickable are .WAV files.			
•			

What in the UI helped/confused Tim in this step?		
The UI's usage of the host		
system's native OS allows Tim		
to easily explore his file system.		
This is enough to identify the		
file extensions the application is		
asking for.		

A 12 - 110 Po. 1 12 1 12 1 12 12 12 1		
Action #3: Double-click on his audio file.		
3a. Will Tim do this? Why?		
∑ Yes	Maybe	∐ No
Which, if any,	Tim's facets did you use to answe	the question?
 Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above 	☐ Motivations ☐ Information Processing Style ☐ Computer Self-Efficacy ☐ Attitude Towards Risk ☐ Learn by Process vs. ☐ Tinkering ☐ None of the above	Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering None of the above
	Why?	
With the subgoal already formed, Tim sees no reason to back out now, he will proceed whether this is correct or not (Attitude Towards Risk).		
What is	n the UI helped/confused TIm in th	is step?
The OS file system is familiar and easy for him to use. 3b. If Tim does this, will they k	now they did the right thing an	d are making progress toward
	now they are the right timing an	a are making progress toward
their goal? Why?		
their goal? Why?	Maybe	No
their goal? Why? Yes Which, if any,	Maybe of Tim facets did you use to answe	No r the question?
their goal? Why?	Maybe	No
their goal? Why? Yes Which, if any, of the state of the	Maybe of Tim facets did you use to answe Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering	No r the question? Motivations Information Processing Style Computer Self-Efficacy Attitude Towards Risk Learn by Process vs. Tinkering

the buttons as an indication he

was right. (Learn by Process vs. Tinkering).		
What in the UI helped/confused Tim in this step?		
The UI will have removed the		
grey scale on some of the		
buttons, making them		
interactable and more		
noticeable.		

Action #4: Click on the process audio/export button.			
4a. Will Tim do this? Why?			
⊠ Yes	☐ Maybe	☐ No	
Which, if any, Tim's facets did you use to answer the question?			
	Motivations	Motivations	
Information Processing Style	Information Processing Style	Information Processing Style	
Computer Self-Efficacy	Computer Self-Efficacy	Computer Self-Efficacy	
Attitude Towards Risk	Attitude Towards Risk	Attitude Towards Risk	
Learn by Process vs.	Learn by Process vs.	Learn by Process vs.	
Tinkering		Tinkering	
☐ None of the above	None of the above	None of the above	
	Why?		
Tim's hypothesized			
understanding of the system			
works leads him to this action			
(Motivations).			
(Motivations).			
He is confident in his			
understanding and believes he			
has worked out how the			
system's audio to sheet music			
pipeline works (<i>Computer Self-</i>			
Efficacy).			
This is the consequence of the design			
This is the most promising lead			
he has discovered thus far			
towards his overall goal, he will			
pursue it (Attitude Towards			
Risk).			
14/1			
	n the UI helped/confused TIm in th	is step?	
The removed grey scale of the			
button has helped Tim.			
4b. If Tim does this, will they know they did the right thing and are making progress toward			
their goal? Why?			
∑ Yes	Maybe	No	
Which, if any, of Tim facets did you use to answer the question?			
☐ Motivations	Motivations	Motivations	
Information Processing Style	Information Processing Style	Information Processing Style	
Computer Self-Efficacy	Computer Self-Efficacy	Computer Self-Efficacy	
Attitude Towards Risk	Attitude Towards Risk	Attitude Towards Risk	
Learn by Process vs.	Learn by Process vs.	Learn by Process vs.	
Tinkering	Tinkering	Tinkering	
None of the above	None of the above	None of the above	
Why?			

The application shows a pop-up dialog box that states that a 'MusicXML file was exported successfully'.		
What in the UI helped/confused Tim in this step?		
The clear, un-ignorable pop-up		
was more than enough for Tim		
to understand his subgoal has		
been achieved at this point.		

7.2.3 Results Reporting Form

Debrief: Tim's Results for Use Case 2

Count the answers:

- 1. How many questions (forms) were answered?
 - = **12** questions/forms
- 2. How many of the questions (forms) in item 1 had EITHER a "no" or "maybe" answer?
 - = **0** questions/forms
- 3. How many of the questions (forms) in item 2 had "no" or "maybe" answers that were **tied** to facet(s)?
 - = **0** questions/forms

No usability issues discovered!

No gender-inclusion issues discovered!

8 Changes Due to GenderMag Evaluation

Based on the GenderMag evaluation, several issues were identified exclusively for the persona, Abi. This outcome is expected, as the Abi persona is specifically designed to target important gender-inclusion challenges through her facets. The evaluation revealed four issues, of which the first three relate to gender inclusion, while the fourth is a general usability matter. The following subsections outline these issues and provides rationale for the associated proposed changes or lack thereof.

8.1 Subgoal 5: Saving the Recording

- Observation (NO): Abi did not choose to save the recording to a non-default directory.
- Rationale: This behavior is observed and although it is related to Abi's facet values and is therefore technically a gender inclusion issue, the team has decided to not consider this a gender inclusion issue as it strictly reflects a personal preference rather than a design barrier.
- **Proposed Change:** No change is proposed, the ability to select a destination remains available to users.

8.2 Action 2b: Visual Feedback on Recording Start

- Observation (MAYBE): After clicking the record button, Abi is unsure whether the recording has started. Although her comprehensive information processing suggests she can infer that a change occurred, the UI does not explicitly confirm that recording has begun.
- Rationale: The subtle feedback may negatively impact her self-efficacy. Due to her "learn by process" versus "tinkering" facet, the absence of a clear indicator might cause her to abandon or restart the process.
- **Proposed Change:** Enhance the UI by adding explicit visual feedback (e.g., a clear animation, color change, or status message) immediately after the record button is pressed, to confirm that recording has started.

8.3 Action 3a: Stopping the Recording

- Observation (MAYBE): There is confusion regarding which button stops the recording. While a red button with a stop symbol is present, a previously greyed-out pause button has become interactable and is now colored yellow.
- Rationale: This design ambiguity causes uncertainty, particularly for risk-averse users like Abi, who may hesitate or click the wrong button. Clear differentiation between stopping and pausing is essential to avoid wasted effort.
- Proposed Change: Redesign the stop function interface by:
 - Restoring the pause button to a non-interactable state during recording, or
 - Differentiating the buttons more clearly using consistent color schemes and intuitive icons so that the stop action is unmistakable.

8.4 Action 5a and 5b: Destination Directory Selection

- Observation (NO): Abi does not engage with the destination directory drop-down menu.
- Rationale: This is not a gender inclusion issue but rather a general usability observation. Since the option is available and the decision to select a directory is a matter of personal preference, the design does not restrict user freedom.
- **Proposed Change:** No modifications are proposed.

Summary: The proposed changes focus on providing clearer feedback during the recording process, specifically addressing the start and stop actions, which are directly tied to gender inclusion issues identified in the evaluation. The destination directory selection is left unchanged as it does not adversely affect user inclusion.

Appendix – Reflection

1. What lessons did you learn from the GenderMag process that you will carry forward to your Software Engineering career?"

Ian: I learned that methods of testing software usability and accessability are constantly evolving and improving. Even if software I develop in the future might meet some set of current standards, there's is always room for improvement and I have to be aware of, and open to that.

Jackson: Through GenderMag, I realized that a one size its all approach in design can (and likely will) overlook critical usability issues. Incorporating various user perspectives helps to uncover subtle barriers and improves overall system usability.

Mark: Personas are an incredibly valuable tool for usability testing. If real users can't be found or are unavailable, putting youself in the shoes of different personas is a useful alternative. I'm now aware that even if I develop something solo, I always have the oppourtunity and obligation to assess the design with different perspectives.

Emily: That understanding different user perspectives is essential. The GenderMag process showed the importance of considering how different backgrounds and cognitive styles impact software interactions. This awareness will drive me to advocate for inclusive design choices in every project.