



# Development and Usability Testing of the Operating Manual for BraidMagic™

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# Agenda

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- Introduction
  - ✓ BraidMagic™?
  - ✓ Objectives
- Operating Manual Development
- Usability Testing
- Analysis & Results
- Discussion
- Conclusions

# What is BraidMagic™?

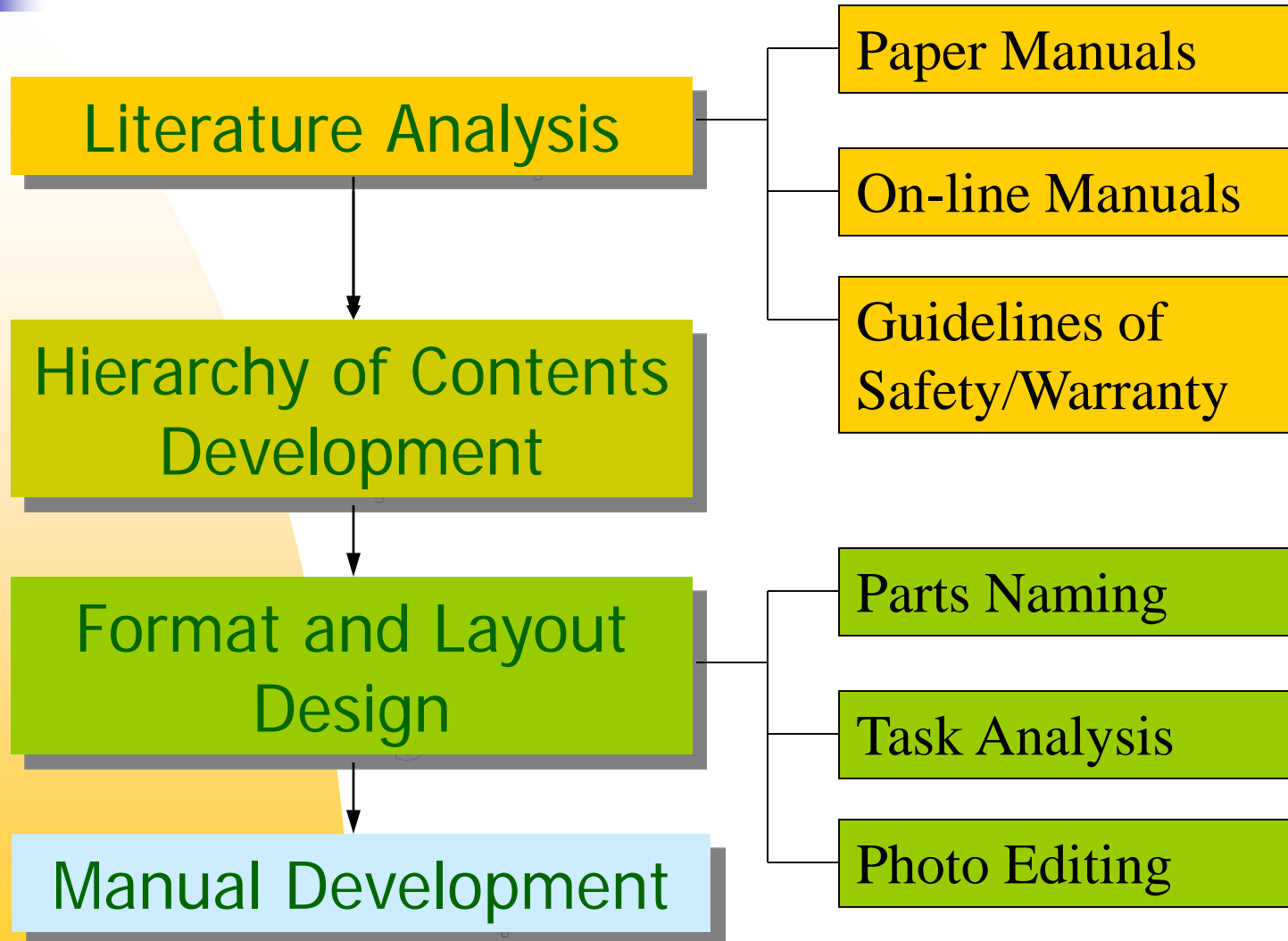


Braiding with BraidMagic



A high-fashion style created with BraidMagic

# Operating Manual Development





# Manual Structure

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1. Safeguards
2. Parts and Specifications
3. Operating Instructions
4. Maintenance
5. Warranty and Service



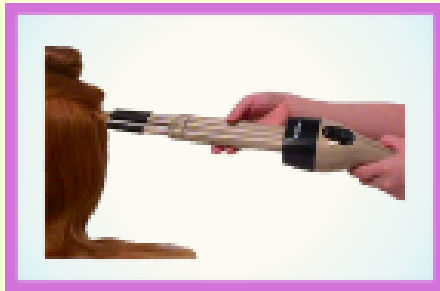
## Manual Features (selected)

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- Step-by-step instructions along with pictures
- Structured information
- Tools for easy location of information

# User-friendly Instructions

- Step-by-step instructions in plain language for the target user population (high school diploma or GED) with helpful pictures.



strand alignment

2.2 Align the hair grips for equal distance and tension on the strands.

**▲ NOTE:** For tube alignment, pull the machine slightly ( $\frac{1}{2}$ " ) toward your body.

2.3 Hold the grip of the machine, maintaining a natural, straight posture at the wrist.



# Structured Information

- Warnings, cautions, and notes were added to prevent any accidental misuse or handling of BraidMagic.



**WARNING:** Unplug BraidMagic before sanitation.



**CAUTION:** Do **NOT** clean the machine body under running water or by submersion.



**NOTE:** Use the small cleaning brush for the top and middle tube bodies and the large cleaning brush for the bottom tube body.



# Information Locating Tools

- Table of Contents was provided with page numbers to allow for quick reference to information.
- Reference tabs were provided on corresponding pages.

## Table of Contents

● Safeguards .....	2
● Parts and Specifications .....	3
● Operating Instructions .....	5
● Maintenance .....	10
● Warranty & Service .....	13

Parts &  
Specifications



# Usability Testing - Participants

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- 5 cosmetology students
- All females
- Age: 18-25 years
- Cosmetology training: 60 to 700 hrs.



# Test Design

## 1. Pre-Test Session

- Orientation Script
- Consent Forms
- Background Questionnaire

## 2. Test Session

- Locate Information
- Understand Safeguards
- Identify and Learn Parts and Specifications
- Follow Operating Instructions
- Follow Maintenance Instructions
- Understand Warranty Conditions
- Use Service Cards

## 3. Post-test Session

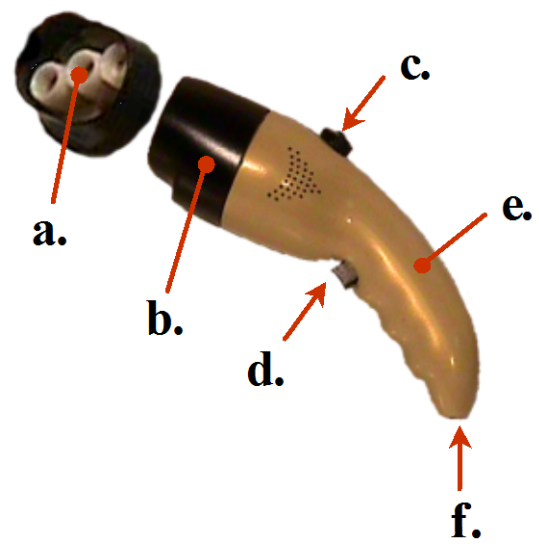
- Debriefing

# Measure/Instrument Matrix (selected)

Measures		Locate Information	Safeguards	Instrument/Scale
Performance	Completion Time	<input type="radio"/>		Stop watch
	% Correct Answers		<input type="radio"/>	T/F, Matching, Multiple-choice
Preference	Usefulness	<input type="radio"/>	<input type="radio"/>	Questionnaire with Likert Scales
	Ease of Use	<input type="radio"/>	<input type="radio"/>	
	Learnability	<input type="radio"/>	<input type="radio"/>	
	Accessibility	<input type="radio"/>	<input type="radio"/>	
	Clarity	<input type="radio"/>	<input type="radio"/>	
	Conciseness		<input type="radio"/>	
	Accuracy		<input type="radio"/>	
	Satisfaction	<input type="radio"/>	<input type="radio"/>	

# Parts Name Matching (illustrated)

- Matching questions for parts name identification

Column A (Names)	Column B
___ Speed Control Dial	
___ Docking Posts	
___ Adapter Plug	
___ Grip	
___ Barrel	
___ Power Switch	

# Assessment Questions (illustrated)

Questions	Very Poor	Poor	Fair	Good	Very Good
How useful is it for information search?	①	②	③	④	⑤
How easy is it to use?	①	②	③	④	⑤
How easy is it to learn?	①	②	③	④	⑤
How explicit is the organization?	①	②	③	④	⑤
How clear is the terminology?	①	②	③	④	⑤
Questions	Very Dissatisfied	Dissatisfied	Somewhat Satisfied	Satisfied	Very Satisfied
What is your overall satisfaction?	①	②	③	④	⑤

# Assessment Results - Overall

Section	Average	S.D.
Table of Contents	4.7	0.5
Safeguards	4.9	0.2
Parts & Specifications	4.7	0.6
Operating Instructions	4.5	0.7
Maintenance Instructions	4.4	0.6
Warranty Conditions	4.9	0.3
Service Cards	4.7	0.3

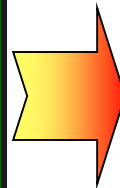
# Manual Revision

- Based on the suggestions and assessment results of the usability testing, 6 recommendations were developed and revisions were made accordingly.

1. Provide a **subsection listing and page numbers** in the Table of Contents.

## Table of Contents

● Safeguards .....	2
● Parts and Specifications .....	3
● Operating Instructions .....	5
● Maintenance .....	10
● Warranty & Service .....	13



## Table of Contents

● Safeguards .....	2
● Parts and Specifications .....	3
✓ Parts Diagram .....	3
✓ Parts Description .....	4
✓ Specifications .....	4





## Recommendations (continued)

2. **Provide additional details** for machine malfunctioning and moisture content of hair in Safeguards.

3. **Rename** two parts (hair grip and hair inserter) for better intuitive identification and learnability in Parts and Specifications.

# Recommendations (continued)

4. **Enlarge the images** in Operating Instructions and Maintenance.

5. **Align the instructions and images and include action symbols in the images.**

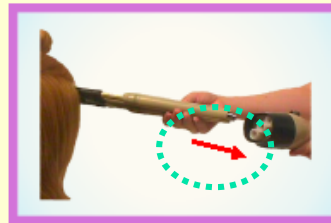


strand alignment

2.2 Align the hair grips for equal distance and tension on the strands.

▲ **NOTE:** For alignment, pull the machine slightly.

2.3 Hold the grips maintaining a posture at the



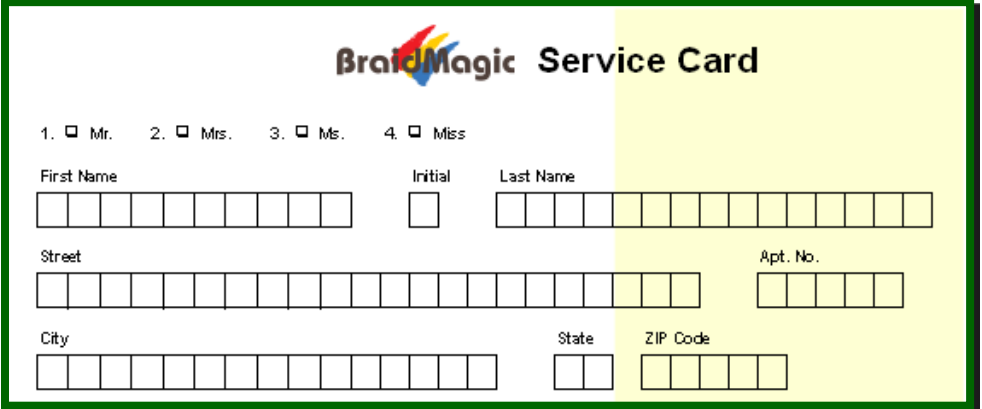
tube docking

## Step 2. Tube Docking

2.1 Place each tube into a docking post of the machine without twisting or crossing over each other.

# Recommendations (continued)

**6. Enlarge the boxes and provide two types of service card (one with lines and one with boxes for address).**



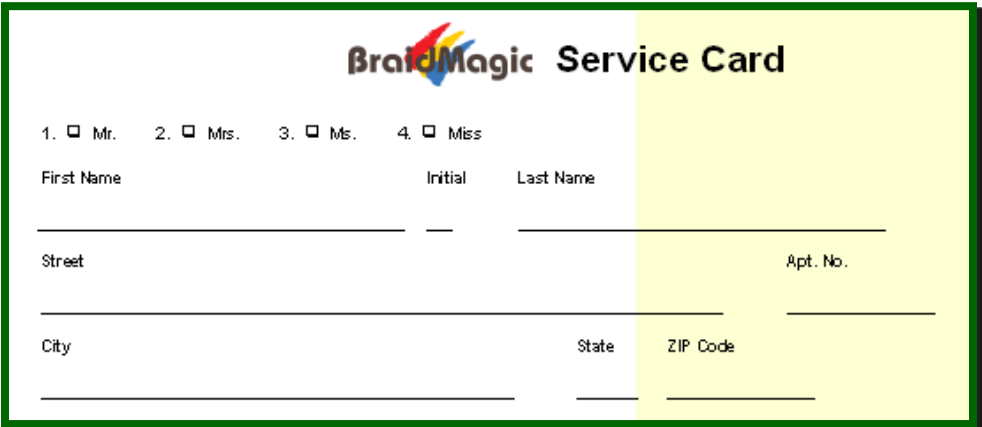
**BraidMagic Service Card**

1.  Mr. 2.  Mrs. 3.  Ms. 4.  Miss

First Name  Initial  Last Name

Street  Apt. No.

City  State  ZIP Code



**BraidMagic Service Card**

1.  Mr. 2.  Mrs. 3.  Ms. 4.  Miss

First Name \_\_\_\_\_ Initial \_\_\_\_\_ Last Name \_\_\_\_\_

Street \_\_\_\_\_ Apt. No. \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP Code \_\_\_\_\_



# Discussion

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- Usability testing is a critical design component for user-centered design.
- Use of various performance/preference measures, observations, and open suggestions in the testing facilitated the identification of potential usability problems of the design.



# Acknowledgements

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We acknowledge HiBraid Inc. in Seoul, Korea, John Jewell, Pat Radford, and cosmetology students of Olde Town Barber & Beauty College at Wichita, KS for their support and time in this study.



# Q & A

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Thank you for your attention!

