

UX Testing & Evaluation Report

(M5X01239)

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Introduction

In this testing and evaluation document, I will be testing the two vegetable peelers I created against two existing potato peelers using a diverse group to get honest and dependable test results. This group will be made up from ten people who are different in gender, age, health conditions and use of dominant hand (right or left handed). Any additional comments made by the test group will also be noted down in order to ensure my understanding of their position on the product. These results will then go under evaluation in order to discover what product is more effective and best designed. The evaluation will then tell me if my products are effective, efficient and satisfying, and which one out of the two can be improved.

Design Issues

I believe that there are a few design issues with existing peelers such as lack of grip and designs that choose aesthetics over functionality. I asked a few members of my family and some of my fellow students and they also agree that there are some issues with the existing peelers, here are some quotes and feedback that I got back from everyone that I asked.

Question: Do you find any issues or difficulties with using existing vegetable peelers?

Here I used 'unmoderated user testing' as this was a very relaxed section of testing to get the true thoughts of the participants out - <https://www.uxpin.com>

Answers: "yes I do I feel that the handles are very slippery when they get a bit wet" -June Pederson, "its hard to peel quickly when you have a wet handle and because it's straight I always have to readjust my hand it's annoying" – Oliver Scammell, "I prefer the 'Y' shaped peeler as its quicker but the blade is very open and I often cut myself on the blade" – Emily Rees, "I can never use vegetable peelers as they are uncomfortable and feel unnatural, so I use knives instead" – Oliver Evans, "I am unable to peel any vegetables as I have severe arthritis and cannot close my hand to get a grip on anything"- Ben Jones.

After hearing all these issues, I decided that the most common issue is not enough grip on the handle when wet or dry. The comment that hit me the most was Ben Jones talking about his arthritis as it severely affects his day to day life. This is the moment I decided to create a peeler that everyone, even Mr Jones could use that would be comfortable easy to use and with plenty of grip, I also wanted to make it safer to use hence the glove type design.

Type A concept and Type B concept Designs

These are the final designs I have made to test against the existing vegetable peelers, the prototypes are made out of basic materials such as zip ties and duct tape as these were easy to mould to my hand and create the desirable fit. Although the prototypes work fully, they don't fit everyone comfortably as I didn't use proper universal metrics to ensure that everyone's hand would fit. Having this in mind the second design will have an adjustable strap which will insure that the peeler can fit the majority of testers/users.

These are the prototypes being used in the testing stage.



Baseline Existing Peelers

It is very important to have a baseline when testing so I will be using peelers that are already on the market to test against the prototype peelers. This will ensure clear and reliable test results that will show what products are the best. There will be two peelers used as the baseline, one 'Type A' the straight peeler and one 'Type B' the 'Y' shaped peeler.

These are the existing peelers getting used in the testing stage.



Key improvements and enhancements of prototypes

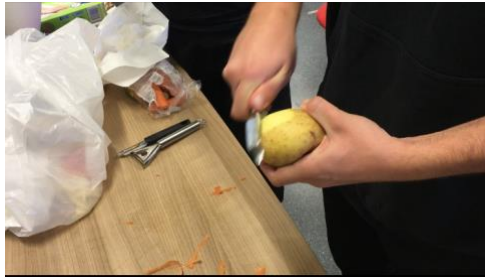
The prototype peelers focus on extremely enhanced grip for people with very limited grip and dexterity. Although this product was designed to cater to people with arthritis and other limitations it is also very suitable for people without any physical joint problems. This means that the product/prototype is suitable for an extremely wide target audience. The final peeler will be made from PLA plastic that is 3D printed as it has a very organic shape, the shape is made 'curvy' in order to look aesthetically pleasing and also to feel natural in the hand. I find the problem with other peelers is that when gripping the handle of a traditional peeler it puts stress on the hand. My new peeler eliminates any stress on the hand and puts it into a natural position, this means that sufferers of arthritis and other grip/dexterity disabilities can use the product with out worry. There is a curve inside the middle of the peeler which supports the lower palm and the strap can be used to adjust the pressure of the hand to the peeler. This feature allows the user to be completely comfortable while using the product.

Test Methods

I used usability data capture as a test method in order to gather information on the four peelers and comparatively compare them. I also used a moderated live peeling sessions test in order to gain harder more real information as "Moderating goes one step further to truly connect you with these users and communicate with them as a peer to glean the how and why that metrics can often fall short of illuminating." - <https://www.usertesting.com> another test method used was a survey tool which gave questionnaires to individuals to gain data on what they think of current peelers. The reason for choosing these methods are because usability data is important to figure out which peelers do better in different areas and can be moderated. The unmoderated test such as the questions asked on recordings makes the users relaxed and gives honest data that can be used to improve the current design. The survey tool captures data that can be placed into graphs and used to refine the direction of design that I

The first two were the existing peelers type A and type B and the other two were my concept peelers again type A and type B. There was various type of information collected by this table such as the participants age, gender and preferred dominant hand. Then usability metrics were used to assess the time it took to peel the potatoes in seconds and how much waste was produced when peeling the potato. The experience metric helped gather information on which peeler was liked the most by the users from an aesthetics, comfortability and functionality perspective.

We capture the data by measuring the time with a stop watch and we measure the waste produced by weighing the potato before and after being peeled in grams and this shows how much waste was created. I have asked ten different people to complete these questions in order to create a test group. While choosing these people I carefully picked out a wide variety of people of different ages and gender and dominant hand in order to ensure a diverse testing group.



Here is the survey tool used:

Questionnaire

What is your age? (please tick box)

15-25 ☐ 26-36 ☐ 37-47 ☐ 48-58 ☐ 59-69 ☐ 70+ ☐

What is your gender? (please tick box)

Male ☐ Female ☐ Other ☐

What is your dominant hand? (please tick box)

Right ☐ Left ☐

When peeling vegetables which one do you prefer to use?
(please circle)



What material would you prefer for the potato peeler handle to be?
(please tick box)

Plastic ☐ Metal ☐ Rubber ☐

Do you find these peelers hard to clean? (please tick box)

Yes ☐ No ☐

What size do you prefer these peelers be? (please tick box)

Smaller than the hand ☐ Same size as the hand ☐ bigger Than the hand ☐

Here is the data captured by the group:

PARTICIPANTS	BIOGRAPHICAL DATA			PEELER TYPE A: USABILITY METRICS		PEELER TYPE A: EXPERIENCE METRIC (1-10)				PEELER TYPE B: USABILITY METRICS		PEELER TYPE B: EXPERIENCE METRIC			
	AGE	GENDER M/F/O	L / R HANDED	TIME 01 (Seconds)	WEIGHT 01 (Grams)	COMFORT Rating	AESTHETICS Rating	FUNCTIONALITY Rating	USER EXPERIENCE Rating	TIME 01 (Seconds)	WEIGHT 01 (Grams)	COMFORT Rating	AESTHETICS Rating	FUNCTIONALITY Rating	USER EXPERIENCE Rating
P1	37	M	L	29	5	8	7	8	8	31	6	6	8	9	8
P2	20	M	R	46	20	2	7	2	2	61	2	7	6	7	7
P3	55	F	R	37	15	7	9	6	8	42	5	9	10	9	9
P4	59	M	R	45	10	8	8	7	8	36	6	9	9	9	9
P5	22	M	L	53	24	7	8	9	8	32	8	7	6	8	7
P6	22	F	L	37	15	7	8	5	6	46	7	8	8	7	8
P7	19	F	R	42	6	8	7	9	8	56	8	8	7	10	8
P8	71	M	R	N/A	N/A	N/A	N/A	N/A	N/A	120	10	6	6	7	10
P9	72	F	L	47	21	7	7	7	7	74	7	8	8	9	8
P10	38	F	L	50	17	9	7	7	7	39	3	9	7	9	9
Average				38.6	13.3	6.3	6.8	6	6.2	53.7	6.2	7.7	7.5	8.4	8.3

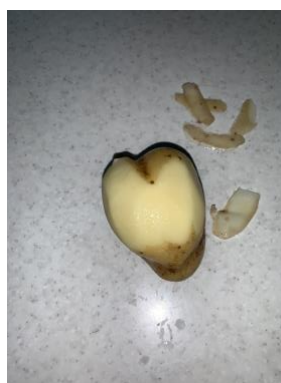
CONCEPT TYPE A: USABILITY METRICS		CONCEPT TYPE A: EXPERIENCE METRIC				CONCEPT TYPE B: USABILITY METRICS		CONCEPT TYPE B: EXPERIENCE METRIC			
TIME 01 (Seconds)	WEIGHT 01 (Grams)	COMFORT Rating	AESTHETICS Rating	FUNCTIONALITY Rating	USER EXPERIENCE Rating	TIME 01 (Seconds)	WEIGHT 01 (Grams)	COMFORT Rating	AESTHETICS Rating	FUNCTIONALITY Rating	USER EXPERIENCE Rating
42	10	4	4	4	4	56	5	8	5	9	7
58	4	4	4	4	4	42	9	5	6	7	6
38	4	8	8	8	8	58	2	9	9	9	9
50	5	6	6	5	6	60	10	7	7	7	7
45	6	5	6	5	5	70	14	7	6	8	7
39	8	7	6	5	6	65	10	9	8	7	8
44	9	5	2	5	4	36	3	10	2	7	5
N/A	10	7	7	4	4	130	17	7	7	5	5
46	11	4	4	2	3	47	6	7	7	5	6
52	10	4	2	2	3	66	8	7	8	7	7
41.4	7.7	5.4	4.9	4.4	4.7	63	8.4	7.6	6.5	7.1	6.7

To begin the testing, I firstly weighed out 4 potatoes and had a stop watch ready to time the peeling of potatoes too. I then asked one member of the test group to start peeling the first potato and I started the timer. They first started with the Type A peeler and after they had finished peeling, I had them mark the usability user metrics out of ten how they felt about the comfort, aesthetic, functionality and overall experience. I also personally marked the time it took to peel the potato and the weight of the waste produced. After that was complete, I had them repeat this process another three times with the Type B peeler, Concept Type A peeler and concept Type B peeler.

All of the participants were recorded using a camera and asked while peeling what their experience was like of the current peeler. This is another method called ‘voice of customer’ which according to - <https://www.crazyegg.com> “Learning how to listen to your customers can become an excellent exercise in user experience testing.”

“Understanding user preferences in terms of product visual aesthetics and the factors affecting user experience (UX) is crucial for the product designers to enhance customer satisfaction.”- <https://www.sciencedirect.com>

Users testing the new designs:

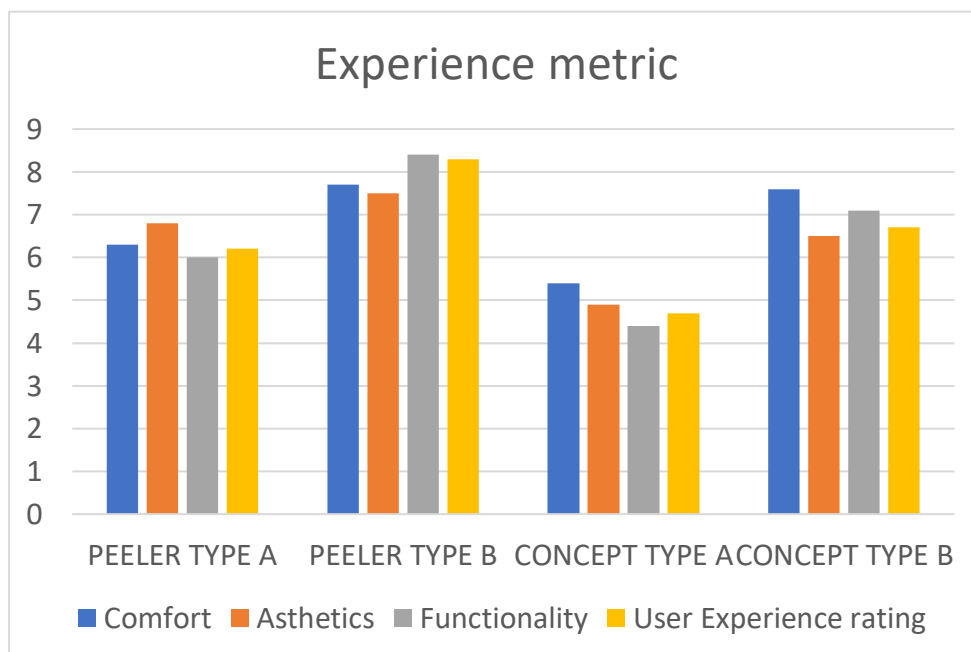


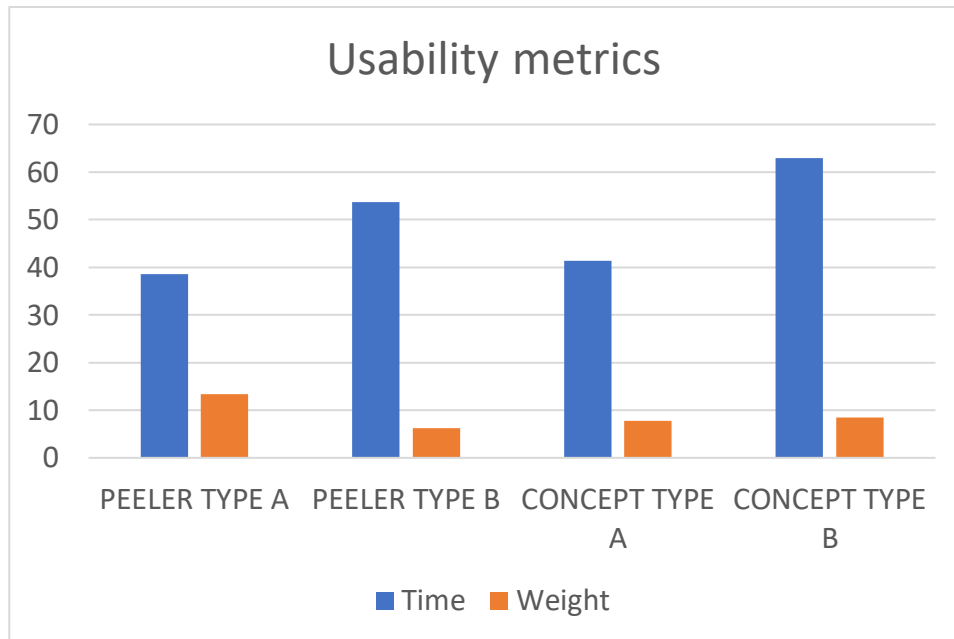
After collecting all of this data I then calculated the average of the results all individually. I did this in order to create a series of column charts to visually show a clear result of which peelers did better in different areas.

Data recording tools are as follows:

- Stopwatch to record time to peel potatoes
- Camera to capture motion and key difficulties the users are experiencing
- Weighing scales to capture data of how much peel each peeler was producing
- Phone to capture comments of participants
- Another scale to measure the weight of vegetables
- Excel Spread sheet to capture and record participants every result

Here are the results put into an easy to read column chart:





Results

After looking at these results using the chart it is very clear to see that 'Type A' and 'Type A' concept had the overall worst results with functionality on both being the lowest. The highest results for the 'Type A' and concept 'Type A' was comfort and aesthetics. Two of the best peelers were the 'Type B' and concept 'Type B' peelers but the one with most overall votes is the average 'Type B' peeler which is the 'y' shaped peeler. However, my concept 'Type B' peeler had most comfort over the average 'Type B' but unfortunately aesthetics, functionality and user experience ratings are higher in the average 'Type B' peeler. This is very important information and can help me further adapt and improve my design into one that's better in every way.

The usability metric results are very surprising as I discovered that the concept 'Type B' peeler that did very well in the experience metrics are actually the worst from the other three peelers. The column chart shows that concept 'Type B' peeler took the longest to peel potatoes and also created the second most waste after average peeler 'Type A'. This is a very disappointing result but is also very helpful and critical to further improvements on the design. Interestingly the concept 'Type A' peeler did the best with the lowest amount of peel waste and the second lowest time to peel the potato. It will be worth looking into why this result has appeared and maybe try to apply it to the concept 'Type B' peeler in order to create the most efficient vegetable peeler.

Evaluation and Conclusion

In conclusion I have discovered that the test method that I have used is a very good way of comparing different designs and getting true results that show which designs are the best. Although I was happy with the testing method, I do believe there could be some restrictions such as effected opinion. When the group tested the different peelers, they all tested the peelers in the same order one after the other so maybe they compared the peeler that they tested against the previous one. So, in order to solve this next time, I will either switch up the order in which they test the peelers or get them to test one peeler then wait a few hours or maybe a day and then test another one etc. This would ensure that they're non-bias and only judge on what's in front of them and not comparing the peelers to each other. This would in turn make the test fairer and ultimately more accurate.

The test method showed that the best peeler out of the four we tested was the existing 'Type B' peeler. But out of the two concept peelers the best one was the concept 'Type B' peeler. The results show that my prototype peelers are capable of being as good as existing peelers but did not beat the existing products. This means that there is a lot of improvement to be made not only to my own peeler but the existing ones too as none of the tested peelers had marks higher than 8.5. when looking at the results for the time taken to peel the potatoes and the waste produced by peeling with a vegetable peeler, it's clear to see that again there's a lot of improvement to be made to mine and peelers already on the market. I will take a look at what made the peeler 'Type B' better and try to apply it to my own designs to improve the users experience and I will also take a look at how the concept peeler 'Type A' peeled potatoes quicker and with less waste and again apply it into my other design to create a more efficient product. I have learnt a lot from creating a test group and doing first hand testing in order to find out if my product works and how to improve it. I will be sure to improve the testing method and use many more testing methods in the future in order to push my design to the limit and make it as best as it can be.

Reference list

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