

Click- Flash- Develop!

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Table of Contents

Acknowledgements	3
Purpose and Hypothesis	4
Background Research	5
Materials	9
Procedure	10
Data Graphs	11
Results	12
Conclusions	13
Work Cited	14

Acknowledgements:

I would like to thank first my science teacher, Mrs. Yee for giving me time to complete and permission to do the science fair.

Next, I would like to thank my parents for letting me do this experiment and being supportive of the process.

Purpose

The purpose of my investigation is to see if different light settings will help a polaroid develop at a faster rate.

Hypothesis

If I take polaroid pictures and use many different lighting methods to see which makes it expose faster, then the method where I just leave it in an average-lit room face up will work best because it can get over exposed to too much light, but it can't get under-exposed to too little light.

Imagine, the perfect setting, the wind blowing at just the right angle, and the sun just barely over the horizon. The mountains to the side of a glistening lake turn a purplish-pink due to the rising sun. Or, maybe, someone's son caught his first fish, or daughter is at her first dance recital! Now imagine, never being able to save this moment for future generations. This is what it was like before the instant polaroid.

In the past, people would have to snap a picture and right away take it to a special room for it to develop, or not even be able to take a camera around. Cameras were so big and bulky they would only be a photographer's job to handle! As time progressed, our nation, and eventually many others, would be able to snap a picture and right after be able to look and reflect on the moment. The instant polaroid was a huge help to society.

The creator of this stunning invention was named Edwin Land, though many called him Dr. Land for his genius works. It all started in 1929 when Dr. Land invented something that could erase reflection and glare from pictures, called the polarization filter. Dr. Land started toying around and attempted to brainstorm an instant camera when his daughter said to him she couldn't see the picture he had just taken of her. The camera that has affected millions was, in fact, a 4 year old's idea! (Purser, n.d.)

Then, merely 2 years later, Edwin Land had the first instant camera completed! He called it the model 95, though there would be many more made after it. People couldn't get around the idea of the acclaimed instant camera, and everyone wanted one! Another 2 years later and sales and positive reviews skyrocketed, boosting polaroid's team and Dr. Land to produce

new, better models. Following up previous events, Land came out with one of the best selling Polaroid cameras ever designed- the 60's Swinger and, soon after, Polacolor, the first instant color film was created. (Purser, n.d.)

Land continued to make two more models by the end of 1972, though one was most impressive. The classic SX-70 was launched in 1972 and it was the first camera to use dry film and developing methods. This camera shaped Polaroid's brand- a camera that was able to develop a picture in less than a minute! From there, a new type of instant camera was made in 1977, and it was completely different than the others! It was an inexpensive model that went by the name of the Polaroid OneStep. It was a fixed-focus camera, meaning “the focus is set when the polaroid is produced, and remains focused, making it easier to snap a quick picture! Most cameras with fixed-focus lenses also have a relatively tiny hole, which escalates the depth of the scene.” (Fixed Focus Lens, 2020)

The Polaroid Company, afterwards, made one more genius camera following in the footsteps of the OneStep. The Polaroid Sun 600 was released with Type 600 color film in 1981. After that camera, just a year later, Dr. Land decided to quit Polaroid and settle into a happy retirement. From there, the company still decided to create cameras, upping their looks and photo quality, though they would be no match to the classic Dr. Land. (Purser, n.d.)

After that, 3 new cameras were made, shaping the Polaroid brand. The Polaroid Spectra System, made 38 years after the original land camera, the Fujifilm Instax camera series, which would evolve from there, and the Polaroid Captiva, a camera smaller and higher quality than the rest! Dr. Land died in retirement at age 81 from natural causes in 1991. (Purser, n.d.)

Looking at the Polaroid today, it can be seen how much it has continued to evolve. Polaroid never gave up and continued making cameras through time. So how does the Polaroid work, and what pieces did Dr. Land put together for a single “smile,” click, and flash?

Normal camera film is almost the exact same as Instant film, with a few additional components. The essential concept of film is to snatch patterns of light using certain chemicals. The camera quickly displays the film to the light delivered from a setting, generally for less than a second, and it starts a chemical reaction when the light reflects off the film. (Harris, n.d)

Now, we can move onto the details of what goes into film. The average film starts with a plastic base that is coated with fragments of a silver blend. When this compound is exposed to a massive amount of light photons, it forms silver atoms. Monochrome film (black and white) has one part silver compound, only one layer, while in color film, there are 3 layers. The first layer is receptive to blue light, the layer after that is receptive to green and the last layer is receptive to red. When people leave the film in some type of light, the sensitive grains react to that color in each layer, creating a chemical document of the way the color and light arrange themselves to make the perfect picture. (Harris, n.d)

Then, they have to develop the film using more chemicals to turn the film into a fully developed image. One chemical developer turns the developed fragments into metallic silver. The film is then mixed with three different color coupler print, or dye couplers inside dye developers. The three tinted colors are:

1. Cyan (a mixture of green and blue light)
2. Magenta (a mixture of red and blue light)
3. Yellow (a mixture of green and red light)

Each of the color layers in the film react with the dye-coupler types. The color-print couplers attach to the parts that have been exposed in average print film. In color slide film, the dye couplers affix themselves to the non-exposed areas. (Harris, n.d)

In conclusion, Dr. Land created a world of photography we would have never known without him. If his daughter hadn't thought of the genius idea, who knows where we'd be today? On top of that, you learned how much goes into each tiny picture and piece of film developing inside of a polaroid. All of these sections of photography in my background research are very important parts of our world today

Materials

Fujifilm Instax Mini 9 camera

Fujifilm Instax Mini Instant film

Gloves (safety)

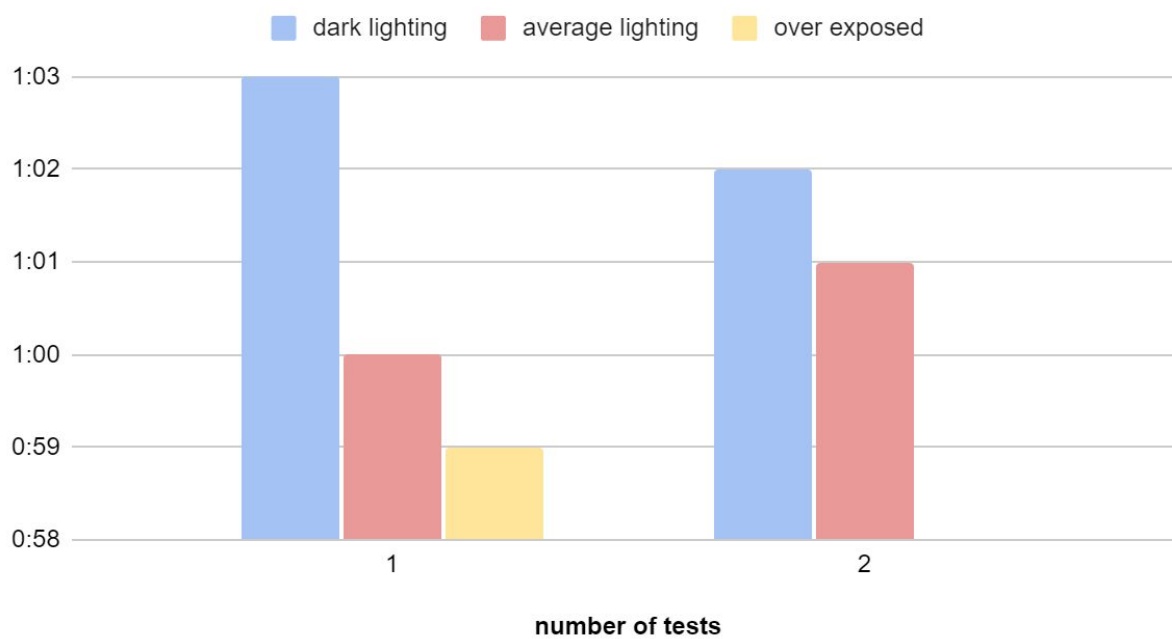
Lamp to test different light settings

timer

Procedure

1. Gather all my materials into one place
2. Put on safety gloves
3. Get a timer at the ready
4. Get prepared to test the overexposed setting
5. Take picture and time it until it is fully developed
6. Stop the timer and record the amount of time it took to develop
7. Repeat step five and six for the 2 other settings being tested

polaroid experiment results



Results

My result was that the overexposed setting made polaroids develop fastest.

Conclusion

My conclusion of this experiment is that, though each setting made a difference, none will really matter in the long run of time. There is not a big enough difference in each setting in order to say one works better than the other. In conclusion, polaroids can develop in different light settings. They are very adaptable.

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