

How Do People Use and Experience Co-Creative System

Yashash Thittamaranahalli Venkatesh

School of Science and Engineering, University of Dundee
Dundee, Scotland, UK
2546871@dundee.ac.uk

Abstract

Co-creativity is a process where people work together by sharing their innovative ideas to create something new. Co-creativity can be developed using machine learning, artificial intelligence, and deep learning algorithms. It is used in almost all sectors, such as design, art, and business, to develop creativity in the things that people do. Co-creativity is becoming famous because people can work together, which helps them to implement, learn, and explore with a wide range of knowledge and skills that will keep on creating new outcomes. The people who experienced co-creativity can help users to connect, share the content to others helping in a good connection with others, it will also help to develop a new relationship with expansion of the company. An interview was conducted to get information about it, and research was done to understand it with some case studies, About Weave silk and its controls and how they are helping humans to create things with discussions done with in group, we will also see what all future implementations can be done. This paper will help us see how people use and experience co-creativity.

Introduction

Humans are developing in all the technologies and they are also implementing new things which helps to create things faster and with the implementation they are making people more curious to learn and try something new (Gopinath, Babu, and Subramanian 2019). They come-up with Co-creativity (means human and computer) with the help of Machine Learning, Artificial Intelligence and Deep Learning algorithms which is helping people to create things together which is making a changes in the technology and developing in a positive way. After this graphic tools get popular in creative economy people put their effort to put on this tools so this paper will give us a information about Co-creativity is a human and computer interaction software that helps people create innovative things. In this paper, we will see how people use and experience co-creativity. First, we need to understand what co-creativity is, why it is needed in today's world, and why it is developing. We will also see some of the evidence that supports co-creativity with examples (Kwon, Kim, and Lee 2017)-helps to create new software by keeping existing software, (Gopinath, Babu, and Subramanian

2019)-helps to compose new music with the help of machine and (Gross et al. 2018)-helps to create digital image by using different methods(audio, text and gesture). In the field of art design and musical generation, we also see a case study on two online platforms (Lego Idea- helps people to give idea for Lego set in this others can vote which they like, how this is helping company in positive direction and PatientsLikeMe-helps Patients to share their treatment, symptoms and outputs of the medicines here others can see and learn from it also we will see how it is useful for research) that help people give their ideas and input, which helps others learn and gain knowledge based on it. The data is also useful in the field of research to get to know how people are using it and get feedback from them.

Weave silk is a co-creative application which is used to create and design digital art, we will see how user use its control and options to do it with one picture as an example, it will also show the creativity of the user and his thinking after getting skills and knowledge from other users, his interest on creating a designs in different way. We also conducted an in-class interview among ourselves to get to know about co-creativity and how it is developing today with their opinion and point of view.

A set of questions is asked about co-creativity and its application, what people think about it, whether it makes jobs easier and more creative, and the challenges faced by users at the initial stage of using co-creative software (weave silk).

I asked the following questions to do my research.

What is the co-creativity in basic terms, favourite software if you have used and what all challenges faced by the user?

What equipment do you like or prefer while using a co-creative system. Why is it needed to human's?

Will the co-creative system have an impact on all fields around the world? Why do you think co creative systems are important at this day and age?

Paper Contributions

This paper is mainly contributing to the developing technology of co-creativity with its application(weave silk) and it also helps for the betterment of co-creativity with examples and in-depth information about creativity of humans in this developing world.

Related Work

In today's growing world, literature has expressed and explored the different aspects of co-creative systems and their design principles. Some studies have also been done regarding co-creative systems using machine learning and artificial intelligence algorithms that integrate human and computer input. Few people also studied by giving a software to user and the result which they have got after using the software.

We can also see the significance of co-creative systems in the field of product design. For example, (Kwon, Kim, and Lee 2017) developed a software which helps the user to create new product by keeping existing product has a reference. They also got to know that due to this, the users started to design a variety of products in an innovative way.

Co-creative systems play a major role in artistic designs. For example, (Gross et al. 2018) developed a system that allows users to create digital art using voice, gesture, and touch. They also found that users appreciated this system's ability to support artists throughout the world and that it helped to have a communication between participants. Similarly, (Gopinath, Babu, and Subramanian 2019) developed a co-creative system that helps for music composition and allows users to create new musical pieces by interacting with an AI system. They also found the users appreciated the system for its ability to give real-time feedback and generate new musical ideas.

We have many online platforms that were developed with keeping co-creative systems in mind. Here we will see Lego Ideas, which allows the users to submit their ideas for Lego sets. It also allows the viewers to vote on the ideas that are submitted by users, and depending on the rate of voting, the idea might turn into actual Lego sets. This process also allows Lego fans to give input on product development within a company, creating a user community. PatientsLikeMe is an online community where patients are allowed to share their health conditions and connect with others who have the same conditions. Here they can share their Symptoms, Treatments and outcome, which helps for healthcare centres to make it implement. This data will also be used for scientific research.

Co-Creativity

It is a technology developed using Machine Learning, Artificial Intelligence and Deep learning algorithms which is helping people to work together and create some thing new, and we can also say it's a human-computer interaction where they will use the technology and keep on updating it based on the user inputs. There will be implementation of new ideas and development such that it will be in a user-friendly way and help users create some innovative things using co-creativity, we can see co-creative systems field of art, music and software with a role of organising people to work together and also in online platforms like to develop company, to develop social awareness among people, We are increasing accuracy of algorithms to get good results.

Weave Silk

Weave Silk is a co-creativity software that is developed to help the people draw art in a creative way and it also helps them think creatively to come up with a great and different design. In this software, we have a lot of options where the user can create using multiple options and multiple colors, and there is an option of saving the image and sharing it with another person, where they can request for an update or they will just ask him to update and send it with some more implementation so that it will be in an innovative way. Some people are also using weave silk to reduce stress and have fun, and we can also say it's an engaging way to create art from anywhere in the world. Due to the internet and social platforms, sharing is very easy, and getting knowledge about co-creativity and learning for a creation. To access weave silk we will use <https://weavesilk.com/> below Figure:1 and controls are done by using this website

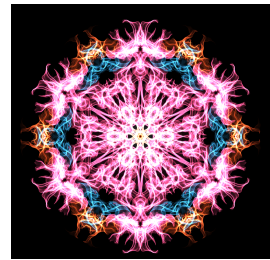


Figure 1: An Image of Mandala Created using Co-creative Application(Weave silk)

Art designed using weave silk and its controls it is called mandala art, where mandala basically means circle. We can see the creative design done by the user using a controls and colours available in the co-creative application.

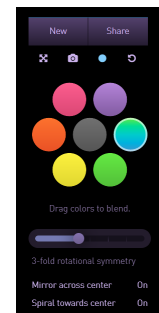


Figure 2: Picture of Controls of Co-creative software weave silk

Are the controls available in weave silk. We can see there is an option to open a new window with which we can get a new picture; the "share" option is used to share the art designed by the user, full screen helps the user see weave silk in a full screen, and to save a picture, we will use the "camera" symbol. We can also select the different colours using

the control option. We also have the undo option to go back one previous step. We also have the symmetry option, which we can set from no-fold rotational symmetry to 6-fold rotational symmetry based on it, and the designs will change. We have mirror across centre that we can turn on and off (if on, we will get a mirror of what we draw across a centre) and we have spiral towards centre that we can turn on and off (if on, we will get a spiral towards a centre for every designing move that we make).

Interview

We conducted in-class interviews to address the following research question: *How do people use and experience co-creative systems?*

Participants

It was a in-class interview conducted within Msc Data Science and Engineering studying in University of Dundee with different ages and different culture.

Materials

We used Microsoft teams to conduct interview it also provided audio to text file

Method

We come up with a set of questions about co-creativity and co-creative systems, for every questions we got the user experience answer and opinion for some questions from their point of view and this helped us to collect some data which helped us to understand the use and experience of an individual towards co-creative systems.

Analysis

First we come up with set of questions which can be asked about co-creativity and co-creative system, We conducted interview and got their opinion and experience about co-creative systems with an user experienced example(weave silk) and we will see the introduction of weave silk, its advantages with controls. We all got different opinions from different people they all answered in their point of view and we studied and come up with transcripts which helped us to make this paper in a way to show that we understood and got some ideas about co-creativity. after seeing all this data from people i got interest to do some research and i did a lot research to get to know about in-depth of co-creativity.

Results

We got some information about the co-creativity with an example, and we also got to know each and every point from their point of view, and we got to know different opinions from different people that are helping with the creation. We will also see one art design example from a user who used weave silk to do it. By this, we can get to know that it is developing in the world and that all people are sharing this kind of artistic design software with people who can learn it and do some creative things in today's world. We have also seen the controls, how people find the software at the initial stage, and how they will learn and implement it in future

days so that once they learn, they can do things in a creative way using co-creative applications.

Discussion

Here we can see the use of co-creative system has made a revolution between people to create something together by sharing ideas and discussing each other. This system also allows to share opinions and comment on the work done by people in innovative way, some people are also getting knowledge, updating their skills and experiences as well in the field of creativity to create more innovative and different outcomes. By using the power of combine and work, co-creative systems have gained importance's in the field of product and design with the betterment of their development in a creative way that is only possible with the inputs and opinion of multiple users.

If we talk about the benefits of co-creative systems, people can work together no matter what if they have good knowledge, skills they can do innovative things without even thinking of location, time or any other factors with will effect for working together. It also allows to experience real-time applications like (Lego sets and PatientsLikeMe) where multiple users can see and share experience on the same topics at the same time. This can help with the user friendly and even in the productivity and effect in a positive way of creation.

Co-creative systems can also grow community and it belongs to all the users. By collaborating ideas and creating outputs together, users can develop and build relationship, sharing of ideas which helps to create something larger which is not possible by one or two. This can be very powerful in the field of product design and digital art, where this inputs by multiple users can lead to unbelievable discoveries and new aspect.

However, we have challenges in the co-creativity systems as well. Initially, learning how the system works is challenging and interesting, but we also need to concentrate on managing the users and their ideas, which is difficult if they have different aim and goal. Equality is also an important challenge, as we know that different people have different skills and knowledge in different fields managing it is also a challenge.

Overall, co-creative systems have the ability to do revolution in the way people think, work together and do things together. By the power of working together and the technology, these systems can help the development of unbelievable and new things with making sense of community which belongs to users. It is also important to identify problems and challenges associated with co-creative systems and to develop in a way that manage more user friendly and effectively.

Conclusion

Co-creative systems are very powerful tool for multiple user creation and become very popular in all the field, including design, business and innovation. This system also helps user to increase their skills, knowledge and experience which helps to create more innovative things in almost all the fields.

The experience of using co-creative systems can be interesting, challenging for some people and updating depending on the developing world as individuals will work together to create something new.

Co-creative systems have the ability to do revolution in the world of creation because of people working together no matter what location and what they are with the great skills and knowledge they have the ability to create something new within the community which leads to the new creation and discovery.

However, It is also important to identify the challenges which are involved in co-creative systems, like managing multiple point of views, Ideas and opinions, and also appreciating all the users by providing equality in their contributions and identifying them to give rewards for their achievements.

Overall, co-creative systems are offering an opportunity to combine and work for innovative creation and also have the ability to change the working nature between the people and helps them to work together so that it will be productive, user friendly and to make new creations in the world so that they can get some knowledge and skills. Because of updating the technologies and some new technologies many more co-creative systems will develop in future and it will be very interesting to see how they will encourage people to work together to create new things.

Future Work

As we see co-creative systems are evolving and gaining popularity in today's world in all the fields, so we can suggest for future research and development. Some of them are mentioned below:

Developing algorithms which give more accurate values and more user-friendly tool for co-creation process, as technology is getting advance day by day it is important to develop tools with can be better to manage multiple user, their ideas with privacy to individual users.

After seeing co-creativity application in new fields and industries we can get to know that it has gained a popularity in all fields, especially in the field of art and product, there are many more fields where we can implement in a very improving way to support and help people.

Maintenance of individual user and group community and providing security will also matter when co-creativity is developing rapidly, it is very important to introduce effective strategies. Can also look into managing some issues like unequal participation, different goal oriented people and also managing multiple perspectives.

By looking into this areas of future research, we can continue to develop a more efficient co-creative system with providing new opportunities for combine creation across the world in all the fields

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