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# Improving the Performance of Online Portfolio for Students With Conversion Rate Optimization (CRO) Techniques

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**Abstract.** Teachers often find students tasks with less than maximum results. One of the solutions for it is making tasks into products in creative industry. There are some ways to market those products. In this Industry 4.0 era, it allows people to communicate with each other and disseminate information through the Internet of Things (IoT), or the Internet of People (IoP). The creators of the work or what we call these creators will need a medium to expose their portfolio of works. One way is to create a website or online portfolio. In creating an online portfolio, it is important to consider how the page is publicly available. Once the portfolio page is on the first page of the search, and generates a lot of visitors, it's certainly not enough. With the use of Conversion Rate Optimization (CRO) techniques, it will attract visitors to subscribe the online portfolio and increase the conversion rate.

## 1. Introduction

In the world of education, there are many ways that can be done by teachers to deliver their knowledge. One of them by giving tasks in every course. With so many tasks assigned, these tasks often become a burden to the learner or even just to abort obligations. Thus, teachers often find students tasks with less than maximum results. This is unfortunate, because actually if the tasks are packed in more interesting way, these tasks can open the opportunity to be a work that can be marketed.

The creative industry is now one of the latest issues in the technological advancement era. Some of the younger generation today have chosen the creative industry as one of the choices of space to work. According to UNESCO, these industries take place in music, fashion, performing arts, design, film, and other creative industries.

When we talk about the world of education and the creative industry, it would be interesting if we could combine those two things. Especially in the era of all-round easy to receive and convey information, creative industries will be rapid development. Combining education and creative industries can be one of the solutions to channel creative ideas from students. At the start of lecture tasks that were only limited to the liability of the duty, can be made and done more seriously, and certainly more creative.

Then, the question arises, how to market the works? Industry 4.0 is an innovation that has been brought by the German government for some time. The aim of this innovation is to change industrial



manufacturing by utilizing the digital world and exploring the potential of new technologies (Andreja Rojko, 2017). In this so-called Industry 4.0, it allows people to communicate with each other and disseminate information through the Internet of Things (IoT), or the Internet of People (IoP). The creators of the work or what we call these creators will need a medium to expose their portfolio of works. One way is to create a website or online portfolio.

Portfolios are created to find out more about content creators. This can be a window to the head of the student, a way for students and staff to know the meaning of educational process at the level of individual learners (Leon, Pearl, & Carol, 1991). Each portfolio has a different purpose but is always in the destination and a collection of organized items (artifacts) that show the development of students' knowledge and skills over time (Kilbane & Milman, 2003). It allows students to be more creative in expanding their knowledge, experience, achievements, and projects. By creating their portfolio online, it will be more easily accessible via internet. This online portfolio also can be very helpful for those students who have orientation in applying for a job, especially in the field of art and technology.

In creating an online portfolio, it is important to consider how the page is publicly available. One of them is by using Search Engine Optimization (SEO) on the online portfolio. SEO is the activity of optimizing a website to make them search engine friendly, thus getting a great vertical extent position in search results. (Abhisek & Mukesh, 2015). With the use of SEO techniques, it is expected that the portfolio page will appear in the top search on search engines so it is easily to find by internet users.

Once the portfolio page is on the first page of the search, and generates a lot of visitors, it's certainly not enough. The next step is how we make browsers not only become visitors, but also become customers in our portfolio page. CRO (Conversion Rate Optimization) is a technique that focuses on hypotheses and transforms testing on websites to reach higher conversion rates. (Anastasia, 2016). Make the visitors leave a trail on our portfolio page. The process of visitors who leave traces or data is also called data conversion, which in this case, convert their visits into subscription. It's not easy to get visitors to leave their data and be a subscriber, so one of them is to increase visitors' belief in the pages they visit. The process will be discussed further in this paper, which will be summarized in a technique called Conversion Rate Optimization (CRO) and how CRO works on a student online portfolio page.

## **2. Literature Review**

### *2.1 Online Portfolio*

According to Arter and Spandel (1991), a portfolio is a valuable set of student's work that shows students, or other people, their efforts or achievements in one or more fields. Although portfolios are used as a method by artists to display their work, portfolios can also be used in student performance evaluations. However, because portfolios have been used for different purposes, they may differ from each individual. The definition of portfolio can change according to the user's goals and usage. (Osman & Adnan, 2007).

When taking education, whatever the course is, we must have produced many works. Whether it's writing, graphics, a movie, and so on, at least we've got it done with college assignments. Therefore, it takes a container to store the results of our works. Portfolio here is very necessary as a container to accommodate students' work. (Collins, 1992) point a portfolio as “a container of collected evidence with a purpose. Evidence is documentations that can be used one person or group of persons to infer

another person's knowledge, skill, and/or disposition". In creating a portfolio, keep in mind what content should be listed in the portfolio. Description of how the work was made, what was the purpose of making the work, until what opportunities can be generated from the work, become important parts of a portfolio. Inclusion of evidence of activities that have been followed in relation to the works is also one of the important things to convince the reader that the work is originally made by us. Having made believe in the validity of our works, we must think about how to package the portfolio to be interesting. For example, if our work is an article, then think about how to compose a title that matches the article and certainly interesting so that readers are eager to read the article we have created. If our work is a research, find an interesting topic that has never been discussed before. Prove that the research has a big impact in solving a problem. If our work is in the arts, make sure the work has deep meaning and is packaged in an interesting way to be seen. Because humans are visual beings and are easily attracted to the things they see.

In creative fields, such as advertising, photography, writing, etc., a portfolio requires companies to hire their employers to see how their previous work in the similar field. The profession (employment) portfolio holds the skills, knowledge, and personal characteristics for the position (Michael, 2010). Many things to consider in making a portfolio, especially in applying for job. Some works that are varied with the same purpose, can be considered attractive companies in choosing employees. In this case, quality is better than quantity. Show the best works relevant to the desired job position. Make sure that the data displayed is not too much so as to facilitate reviewers in reading the portfolio. The key to the portfolio process is in understanding that the portfolio is the process of working. Create a portfolio gradually and do not need to list all the works at one time. Portfolio will be good if we can arrange it based on the market that we will go. Those are the things that need to be considered by students in making portfolio in fieldwork.

An electronic portfolio is a digital records or set of artifacts (text, coursework, audio/video clips, and graphics) that appear for the creator of the electronic portfolio, it can be personal, group, or institution (Marilyn, 2006). In addition to its function in the world of work, an electronic portfolio or online portfolio can be an alternative in the world of education. Teachers or lecturers can assess students' work by evaluating from the works they make. This is the main idea of portfolio evaluation: students can arrange their best work in math, writing, art, science and even community service and present a clear record of what they do (Niguidula, 1993). Zeichner and Wray (2001) declare that those teachers who have formerly had personal experience of using a professional portfolio use a larger range of different evaluation tools and have more specified notes on their students' learning development. In this so-called Industry 4.0, it allows people to communicate with each other and disseminate information through the Internet of Things (IoT) or the Internet of People (IoP). This matter can be used to share our portfolio in the internet. The construct of Industrial Internet has been raised in North America by the General Electric company in 2012. It is seen as a merger of digital and physical worlds that integrates big data analytics with the Internet of Things. (Rojko, 2017). This is what makes online portfolio important in today's era.

## *2.2 Conversion Rate Optimization*

Conversion rate optimization (CRO) is a systematic process to increase the action of website visitors to the websites they visit. The action can be either fill out a form, become a customer, or vice versa. CRO is a combination of science and art to attract the attention of visitors and bring them closer to the

desired destination. Systematically, website conversion optimization deals with Web experience which is explained as the consumer's total impression about the online company (Watchfire Whitepaper Series, 2000). A web experience is important not only for main parameter of customer effects on e-Retailers but also as Web sites marketing products or services. Web experience involves of five components; 1) usability; 2) interactivity; 3) trust; 4) aesthetics; and 5) marketing mix (Constantinides, 2004). The conversion optimization just begin to obtain fame among other online marketing tools and has already gradually increased the return of investments for the online promotion costs for an example businesses that have decided to perform the conversion optimization framework (Heathman, 2013). Conversions are a generic term for visitors who accomplish the purpose of our page. The goal can be various forms. It could be purchase transactions, account registers, or lending transactions, depending on the purpose of the website. Conversions are divided into 2 types, namely macro and micro conversion. Some examples of macro conversion are purchasing products from the site and subscription to a service. Meanwhile, some examples of micro-conversion are either registering an account or adding items to the shopping cart. Conversion rate is a quantity expressed in percentage value that represents to the number of total website visitors divided into the number of visitors who have carry out a target action (Anastasia, 2016). Site conversion rate is the number of times a user resolves a target divided by the site's traffic. If a visitor can convert at each visit (such as a subscription), divide the number of conversions by the number of sessions (the unique amount of time visistors bring to the site). If you rent products, divide the number of conversions by the number of renter. Conversion rate optimization happens after a single visit to website. Conversion rate is the percentage of visits on a particular website that ends up in the wanted behavior. It can be buying of a product or ordering a newsletter. Namely, it is the calculation of visitors who were transformed from a passive visitor to an active visitor or a customer of the website (Ratia & Ruoho, 2016). Conversion rate is calculated as the following formula:

$$\text{Conversion rate} = \frac{\text{Number of conversions}}{\text{Visitors}}$$

For example, there are 500 total sessions on the site in a day, and there are 10 conversions daily, so the conversion rate will be 2 %. Conversions are normally calculated in number of clicks, but also in metrics such as rate of return to the site and resulting income or time spent on the site (Risto, 2017).

After understanding the definition of conversion rate optimization, to complete this paper, a review of the results of previous studies to compare the results of one study with others related to CRO. Previous studies were conducted in several organizations with different types of organizations. The study proves that CRO can be applied in various types of website objectives. Here are the results of CRO implementation done by previous studies:

1. Soonsawad in his paper entitled Developing a New Model for Conversion Rate Optimization: A Case Study, in 2013. The test is done on the company's website software, SAAS Software by moving the form page to the main site. The form page was moved to the main site URL to reduce chaos. The form page was edited with a vivid introduction of the free trial. The number of form fields is reduced to decrease anxiety. The conversion rate is increased from 4.89% to 9.55.

2. Soonsawad also conducted a research on ABC skin care website. The company wants people to buy their products. Some changes were made at the product level pages and category to point the unique value of the products to new visitors. The conversion rate is increased from 5.01% to 5.63%, while revenues increase 18%.
3. In Anastasia Berezhnaya's study entitled Conversion Rate Optimization of Visual Neuro Programming Principles in 2016, a price off badge was formed to test how emphasizing value proposition would influence the conversion rate. At that time, the client also made a marketing strategy with discounted pricing, that was a comprehensive choice to test the hypothesis. The results of this experiment obviously show the difference in conversion rate from 3,88% to 5,16%.
4. In the research of Miramaria Ratia & Vilma Ruoho in 2016, a children's show Veggie tales increased its income by 38 % per visitor by making changes to its website. The changes included deleting navigation from their checkout page using A/B testing as a CRO method and changing the website's conversion system. They made it harder for the visitors to step back from the last step, therefore it can stimulate them to buy a product.
5. In the research of Pim Soonsawad, in 2013, The CRO model is applied in the business to business (B2B) industry. After conducting interviews and research on a phone systems and Services Company, a new micro-site was created and advertised through an email blast. As a result, the company experienced a 200% increase in its conversion rate.
6. In Anastasia's research in 2016, Multivariate campaign, this campaign was put to the best-selling product. The badge show that the product is going out of stock. Because of that, the urgency aspect was occurred and the value of this product was increased. This experiment can increase the conversion rates by 1.36%.

CRO uses persuasive techniques to increase site visitors' belief and give some actions to the website because they have experienced the good site design, captivating copy, unique selling proposition (USP), and irresistible calls to action. (Andrew, 2008). Aesthetics can cause powerful and positive motives for visitors to stop, explore and possibly give an action to the site. Aesthetics involves style/ atmosphere, design elements, and presentation quality (Soonsawad, 2013).

### 3. Discussion

After reviewing previous studies about CRO, we can conclude that CRO is about how to make the visitors take actions to our page. Next step is analyzing how if CRO is applied in an online portfolio. Dietz (1995), recommends that portfolios be presented in different formats, it depends on the aim of the portfolio. Portfolios could be divided into four categories: (1) presentation portfolios, (2) working portfolios, (3) learner portfolios, and (4) professional development portfolios. These four categories indicated a similarity in making online portfolios interesting. Making online portfolios interesting can be a trigger to optimize the conversion rate of the online portfolio. So, the first thing to do is to collect factors that make portfolio interesting. Each factor will be divided into actions we can do to fulfill those factors. Considering from the students perspective, here are the actions to make an online portfolio interesting with CRO techniques:

**Table 1.** CRO Techniques

<b>Factors</b>	<b>Actions</b>	<b>Highlight</b>
Good Quality of Contents	Demonstrate your skill with video, then show it in your online portfolio. Over 70% of hiring personnel avoid to see photographs. (Michael, 2010)	Video Demonstration
	It allows for students in selecting sections they think most representative to be shown on their portfolios, and to set up specification for their selections. Also, it makes students to have responsibility for always make sure their portfolios up to date. (Osman & Adnan, 2007)	Representative and Updated Contents
	The products have to carry information that indicate students' engagement in self-reflection. (Leon, Pearl, & Carol, 1991)	Representative Contents
	In Professor John Bourne's paper, Web-based, electrical engineering/management of technology course at Vanderbilt Engineering School need online portfolios from his students that contains all assignments done during the semester. (Sharp, 1997)	Comprehensive Contents
	Trustworthy websites that are responsive and can be accessed quickly, have higher conversion rates. Use trigger words designed to have a connection with visitors. Make attractive	Persuasive/trigger Words

Credibility	benefit-oriented contents that focus on visitor goals and needs. Credible websites are successful because they can find solutions of obstacles and answer questions to their target market and even adjust to the different character of the targeted customers (Andrew, 2008).	
	Use feedbacks and rewards to increase the possibility that customers will give their information. Use free online tools and multimedia downloads to convince the visitors. We can also ask for contact information from the visitors, in exchange for content. Exchange in the form of asking for contact information after the fact has been indicated to be more successful in getting detailed contact information than reward. (Gamberini, 2007)	Exchange Information
	Use headlines that contains words that explicitly express the most notable benefits that the product or service offers. (Andrew, 2008)	Interesting Headlines
	Credentials or certificates (Michael, 2010). One way to prove the credibility of that ability is by taking a certification program.	Credentials/ Certificate
	Expose the titles and education of the staff on website to increase the competence effect on credibility. Mention any studies, books, and articles that the staff has produced. (Andrew,	Social Proof



	2008)	
	<p>Web are based on some psychological theories. Awards and Testimonials use social proof to obtain the wisdom of the crowd, free white papers exchanged for contact information use feedback. (Andrew, 2008)</p>	Testimonials and Social Proof
	<p>According to Robert Cialdini's Influence: Science and Practice (2001), there are six persuaders: consistency, social proof, reciprocation, liking, scarcity, and authority.</p>	Social Proof
	<p>Use social proof elevate credibility on the Web. Magnificent client lists and third-party seals of authority are set of social proof. Complimentary testimonials can meet the same result. (Andrew, 2008)</p>	Social Proof
	<p>Some studies have found that attractiveness is the most notable factor in growing credibility. Testing the same content with low and high aesthetic treatments, a study showed that a higher aesthetic treatment increased credibility. (Robins &amp; Holmes, 2008)</p>	Testing Attractiveness
Site Quality	<p>Ease of use/efficiency. Make an online portfolio easy to use for administrators or other viewers. For more convenient entry, the URL was reduced significantly in length by using an URL generator or other potentially</p>	Short Url

<p>usable URL shorten platform. (Hartwick &amp; Mason, 2014)</p>	
<p>Robins and Holmes (2008) said that having a professional look and feel can grow visitors' belief. Well-structured content with intuitive navigation allows visitors to find what they are looking quickly and comfortably. Use optimized layouts for measuring how visitors view and absorb information from the Web.</p>	Well-structured Content
<p>Combination of visitors' personality allow us to target different types of personality conversion rates. We can discover the personnel of our visitors by running user interviews, observing focus groups, and analyzing search behavior (Andrew, 2008).</p>	User Personas
<p>The site design should support the visitors to get where they want to go easily and quickly with a minimum number of clicks. Write captivating, benefit-oriented link text to push visitors to click to the products or services. Longer link text has been shown to convert effectively than shorter link text (Andrew, 2008).</p>	Minimum Number of Clicks
<p>To help visitors, use a logical hierarchy and site maps that is less-exhaustive. Visitors would rather have tabbed navigation to other forms of web navigation (Burrell &amp; Sedan, 2006).</p>	Site Maps

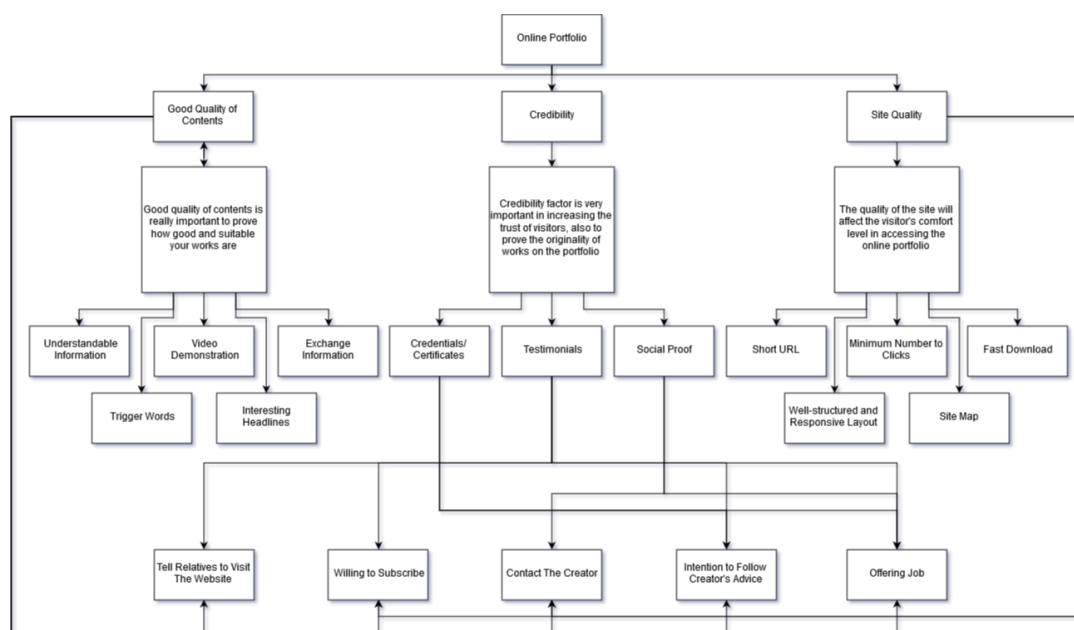
The layout of web pages can make a big difference in website conversions (Andrew, 2008).

Interesting Layouts

Locate the most important links, calls, and forms on the main page to boost click-through and conversion rates. Study shows that 76.5% of the visitors clicked on links above the fold, whereas the rest clicked on links below the fold (Weinreich, 2006).

Interesting Layouts

From the things that can make the online portfolio interesting and increasing conversion rate, a framework is developed as follows:



**Figure 1.** CRO Framework

The framework is divided into 4 sections. The first part is the factors that make online portfolio interesting. These factors can be categorized into 3 main factors: (1) Good Quality of Contents, (2) Credibility, and (3) Site Quality. The second part is a further explanation of the function and benefits of the main factors. For example, in the Credibility description, Credibility factor is very important in increasing the trust of visitors, also to prove the originality of works on the portfolio. The third part is actions that can be done to implement those three main factors. For example, to implement Good Quality of Contents, examples of actions such as providing information about the work displayed,

demonstrate your skill with video, and the selection of an interesting title in a work. The fourth part is the things that are expected to happen if the actions in the third part have been done and the factors in the second part have been met. For example, with good quality of contents, it will meet conversions such as tell relatives to visit website, willing to subscribe, contact the creator, intention to follow creator's advice, and offering job.

#### 4. Conclusion

From the results of discussions, it was concluded that CRO techniques can not only be implemented into online businesses and websites that require a transaction in it. With the framework offered, it is possible to implement non-transaction websites such as online portfolio. Having good quality of contents, enhance credibility, and improve site quality are major features of the implementation of this CRO technique. Building confidence and trust with visitors can decrease hesitation to the web. With the design of a CRO framework, this framework is expected to be key to moving visitors into action on online portfolios. The suggestion for further research is that it will be better if the framework is tested into an online portfolio thoroughly, observe and record the conversion rate regularly to prove that the framework is successful in increasing the conversion rate on the online portfolio.

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