
DIGITAL LITERACY AND ACCESS TO TECHNOLOGY IN THE EMPOWERMENT PROGRAM FOR PERSONS WITH DISABILITIES DURING THE COVID-19 PANDEMIC: THE CASE OF NATURAL DYES BATIK SMES IN TARAKAN

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Abstract: Access to and use of digital technology promise positive impacts on young adults with disabilities' social and economic integration, and on supporting their autonomy, and facilitating their inclusion into society. We conducted a scoping review and participatory approach to examine the barriers to access and utilization of digital technology to support the transition stage needs (in relation to education, daily living, community integration, and employment) of young adults with disabilities during Covid-19 pandemic. Identified barriers included affordability, availability, infrastructure, and access to community activities. The review highlights the importance of facilitators for promoting digital inclusion of 20 young adults with disabilities whose making batik with natural dyes. They are members of the Kubedistik SMEs in Tarakan. Online-based activities carried out during the Covid-19 pandemic show positive impacts, both in terms of increasing insight, skills, access to technology and literacy skills, as well as on self-confidence, work motivation, and potential for increased economic activity. Results suggested the need for greater emphasis on modeling and facilitating strategies to enhance skill, positive work-related cognitions, and appropriate non-verbal and paralinguistic styles.

Keywords : Persons with disabilities, digital literacy, facilitation, Kubedistik

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INTRODUCTION

The existence of persons with disabilities is often not accompanied by support for them to be able to work. These conditions can make people with disabilities lack confidence, and their potencies are not explored. Challenges of persons with disabilities such as economic and social problems make people with disabilities hampered in getting education and employment. Like others, people with disabilities are also spread to various ages. Children, adolescents, middle-aged, and elderly people with disabilities require special and in-depth

attention to realize the proper needs for them and raise their rights in the social community environment (Hadiati et al., 2019).

Persons with disabilities have the same rights in law and government as regulated in Undang-Undang No. 8 of 2016 concerning persons with disabilities. Which the disabled person is a part of Indonesian society who has an equal position, rights, obligations, and roles. They also have the same rights and opportunities in all aspects of life and livelihood. Disability problems arise caused by physical or intellectual disruption which impedes social, economic, and political activities impacted to reduce the rights of the disabled person (Barua and Molla, 2019).

Persons with disabilities are vulnerable to discrimination, especially in employment opportunities. The essential reasons are about the low quality of the resources owned, so people with disabilities are unable to compete in the work environment and are vulnerable to poverty. Therefore, it is necessary to plane their skills and achieve an increase in their income. One step should be taken to solve these problems, as though to empower them in business activities (Maharani et al., 2014).

One of the empowerment programs carried out in Tarakan, North Kalimantan, is to establish a business group making batik with natural dyes. The use of natural dyes in making batik is an effort which more environmentally friendly and utilizes the biological resources available in the region (Widagdo, 2017).

The higher demand in batik trades, makes the batik makers challenged to supply the needs of consumers. Thus, most of them use synthetic/chemical dyes for a rational aspect such as practical and easily found on the market. The use of synthetic or chemical dyes will have an impact on environmental and health damage (Widjajanti et al., 2011; Kant, 2012). Making batik with natural dyes material is expected to improve the skills and economic activity of people with disabilities. The opportunity among them needs to work out to achieve a steady income.

Natural coloring dyes are substances obtained from natural materials such as animals, plants, and microorganisms who have pigmented matters. According to Visalakshi and Jawaharlal (2013), natural dyes can be obtained from plants, animals, or minerals. In the dyeing process, one kind of process of absorbing dyes into the fiber called with the exothermic reaction (emitting heat) and balances. In the dyeing process, three important events occur namely migration, adsorption, and diffusion (Zulikah & Adriani, 2019).

The Category of dyes divided by pure carotenoids including canthaxanthin (red), apocarotene (red-orange), and beta-carotene (yellow-orange) (Kurniasari & Maharani, 2015; Lestari et al., 2018). The Natural dyes own very natural color effects, such as low pigment concentration, low pigment stability, and also the color spectrum is not as broad as synthetic or chemical colors. Eventually, it needs to be treated so the natural dyes possess an adequate quality such as synthetic or chemical dyes (Enggar & Yasmi, 2016). Batik artisans and traditional weaves have known plenty plants which used to dye textile materials; some of them are tilapia (*Indigofera sp.*), tea leaves (*Camelia sp.*), Angsana bark (*Pterocarpus indicus*), and avocado leaves (*Persea americana* Mill.) (Handayani & Mualimin, 2013; Kristijanto & Soetjipto, 2013; Prayitno, 2013). et al., 2014; Lestari & Satria, 2017). In

Tarakan, they usually use the mangrove tree bark, according to the potential of the coastal area.

The Covid-19 pandemic period in Indonesia, which began in March 2020, has impacted in all social activities at outside to be temporarily stay at home. The government has announced widely as though some activities should be focussing on doing at home (Wajdi et al., 2020). Similarly, the pandemic also impacts on the implementation of the *Kelompok Usaha Bersama Disabilitas Batik* (Kubedistik) programs in Tarakan. Therefore, an understanding and facilitating of digital access and technology for people with disabilities is needed to continue working in their home. The purpose of this research was to observe the effectiveness and potencies of digital access intended for persons with disabilities while continuing to improve product quality, increase the capacity of batik craftsmen with natural dyes, as well as institutional strengthening, especially for the target groups of the empowerment of *Kelompok Usaha Bersama Disabilitas Batik* (Kubedistik) programs in the Tarakan City.

LITERATURE REVIEW

Digital literacy defined as knowledge and skills to use digital media, communication tools, or networks in finding, evaluating, making information and using it in a wise, intelligent, accurate, precise, and law-abiding manner in order to foster communication and interaction in daily life.

Digital literacy is an opportunity for people with disabilities, especially during the Covid-19 pandemic to minimizes direct and/or simultaneous activity. The current global facts regarding persons with disabilities according to the International Labor Organization (2020) are as follows:

- About 15 percent of the world's population are people with disabilities, or more than one billion people. They are considered the largest minority group in the world.
- Around 82 percent of people with disabilities are in developing countries and live below the poverty line and often face limited access to health, education, training, and decent work.
- People with disabilities classified as more vulnerable to poverty in each country, whether measured by traditional economic indicators such as GDP or, more broadly, in non-monetary financial aspects such as living standards, such as education, health, and living conditions.
- Women with disabilities have a greater risk than men with disabilities. Their poverty is related to their very limited opportunities for education and skills development.
- Nearly 785 million women and men with disabilities are of working age, but the majority of them not in work. Those who work generally have a smaller income, compared to non-disabled workers in the normal economy with little or no social protection.
- The exclusion of persons with disabilities from the workforce results in a loss of GDP of 3 to 7 percent.

- Persons with disabilities are often excluded from education, skills training, and job opportunities.
- More than 90 percent of children with disabilities in developing countries do not attend school (UNESCO) while only 1 percent of women with disabilities can read (UNDP).

According to PUSDATIN data from the Ministry of Social Affairs, in 2010, the number of people with disabilities in Indonesia was 11,580,117 people, including 3,474,035 people with visual disabilities, 3,010,830 people with physical disabilities, 2,547,626 people with hearing disabilities or deaf, 1,389,614 people with mental disabilities, and 1,158,012 people with chronic disability. In the future, support to obtain productive and decent work for persons with disabilities is needed to realize their aspirations, improve their living conditions and so they can participate more actively in society. Besides, a disability perspective is expected to be realized in all aspects of labor policies and regulations as well as effective law enforcement, implementation and enforcement of effective laws and disability policies, and provide equal employment and training opportunities. These can be factors that contribute to poverty reduction and the inclusion of people with disabilities socially and economically in Indonesia (ILO, 2020).

One effort to support empowerment programs for persons with disabilities is to develop micro, small and medium enterprises (MSMEs), which have high competitiveness so they can be developed into creative economic activities until they develop more broadly on a digital basis. The creative economy is a concept in a new economic era where intensifies information and creativity by relying on ideas and knowledge from human resources as the main factors of production. John Howkins defines the creative economy as the creation of value as a result of an idea, so that intellectual property rights become an important pillar in developing the creative economy (Howkins, 2001).



Figure 2. Shifting economic activities for Craft-based MSMEs

Based on these concepts various aspects can be identified to reflect the performance of the MSME-based creative economy development strategy. In-between, The uniqueness of the product brand, the characteristics of the product, the quality of the product design, and others (Rufaidah, 2015). For this reason, the involvement of all stakeholders, including academics, the private sector or industry, the community, and the regional government, is very necessary to realize excellent MSME products that will be developed in an area.

METHOD

The research on the empowerment of *Kelompok Usaha Bersama Disabilitas Batik* (Kubedistik) with environmentally friendly natural dyes, was conducted in Tarakan City in February to May

2020. The research method was done through a qualitative approach with descriptive analysis. Data collection methods, includes:

1. Observation

The observation can be done direct or indirect. Direct observation was done through direct observation of the object at the place where the activity held. Whereas indirect observations were made through events as outlined in photographs, writings and so forth.

2. In-depth Interview

In-depth interviews aim to explore the information needed from respondents. There are 2 (two) ways to conduct in-depth interviews, namely structured and open interview guidelines. The interview was carried out not only to find answers, but also to construct them.

3. Survey

Survey is a method to aim the answers certain circumstances to get certainty of information. The survey in this study consisted of several types, namely exploration, explanation and descriptive. Survey activities were targeted at obtaining data on persons with disabilities, regional potentials, institutional analysis, and the effectiveness of online programs.

4. Documentation review

This technique was carried out to obtain secondary data by collecting data sourced from archives and relevant documents contained in institutions or managers directly related to the program.

5. FGD (Focus Group Discussion)

FGD was one of the participatory methods that can be used in a qualitative approach. In conducting FGDs, data were obtained directly from the community in an interactive forum, where opinions from one another are mutually reinforcing, so they do not only look at one aspect.

Data analysis

The data analysis to be used in this study is a qualitative analysis from Miles and Hoberman (2014), using an (interactive model analysis) which consists of three components of analysis, namely:

- (1) *data reduction*,
- (2) *data display*, and
- (3) *conclusion drawing*

Next, the analysis was done by combining (interactively) the three components. In general, data analysis can be described as follows:

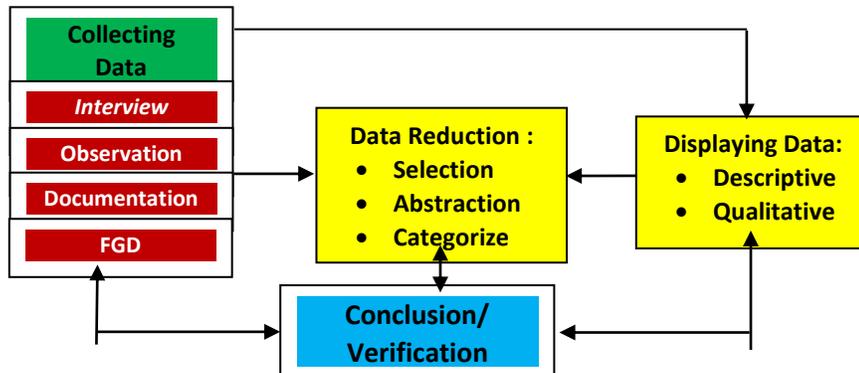


Figure 1. Data Analysis Framework

Data obtained in the field was presented in narrative form. The results of data collection were reduced by collecting incoming information under the problems and needs in drawing conclusions, thus finding themes and points considered relevant to research. In order to be able to see the whole design or a certain part of the research, data must be arranged systematically.

Data reduction and data presentation are two components of the analysis carried out with the data collection process. Data reduction can be interpreted as the process of selecting a focus on simplification, abstracting and transformation of rough data arising from written records in the field. Thus data reduction is an analysis of data that sharpens, classifies, directs, discards unnecessary, and organizing data in such a way that conclusions can be verified.

The next process is drawing conclusions and verification. The Data obtained from the beginning tried to conclude. The conclusions obtained at first are very tentative, vague, and doubtful. By the reason, they are only interpreted simply, then the conclusions are temporarily directed to draw broader conclusions. The process is quite simple, with the data increases continuously, conclusions determined to focus on the problem.

RESULT AND DISCUSSION

Since 2019, the *Kelompok Usaha Bersama Disabilitas Batik* (Kubedistik) was formed which was supported by Pertamina EP (PEP) Asset 5 Tarakan Field as a form of concern for vulnerable community groups and preserving the environment in improving the batik craft business. The activity is also an effort to develop local potential in the field of batik craft. In the early years of the formation of the group, there were 20 disabled batik workers. This group was fostered by Sonny Lolong, who was a batik craftsman. The activity was centered on RT. 03 No. 05 Kelurahan Kampung 1 Skip, Tarakan Tengah District, Tarakan, North Kalimantan.

Kubedistik provides opportunities for people with disabilities in working place, motivates people with disabilities to be able to synergize with the surrounding environment, develop typical batik Tarakan with more environmentally friendly, and increase the economy of people

with disabilities so they can be independent. Supporting activities carried out in the form of training to improve the Human Resources (HR) of group members, as well as procurement of facilities and infrastructure for batik production.

Later on, to preserve the culture and utilize surrounding natural resources, the use of natural dyes from plants and animals was also enforced. Natural dyes are often used by local people of Tarakan City to dye fabrics. An example is the abundant and easily available mangrove tree trunks on the coast of Tarakan City which are used as raw materials for making batik handicrafts (Pringgenies, et al., 2013). In terms of motives, to preserve the culture of the City of Tarakan, it could be performed with the culture of the Tidung tribe, then developed a unique Tidung motif, such as the fern batik motif, squid batik motif, and other batik motifs in accordance with the natural wealth and local culture.

Cooperate with the Tarakan City Social Service, a data collection on persons with disabilities was conducted. 250 people with disabilities lived in the City of Tarakan. Twenty individuals found in Kampung Satu, Kampung Empat, and Kampung Enam (Table 1). They formed some group in the City of Tarakan under the name of the *Kelompok Usaha Bersama Disabilitas Batik* (Kubedistik).

Table 1. Data Collection of Persons with Disabilities in Tarakan

No.	Name	Recidence	Disabilities
1	Khomsan N	Kampung Enam	Mentally disabled
2	Arif Rahman Hakim	Kampung Enam	Mentally disabled
3	Sri Asih	Kampung Enam	Physically disabled
4	Shella	Kampung Enam	Deaf
5	Rahayu	Kampung Empat	Mentally disabled
6	Dita Prastika	Kampung Empat	Physically disabled and Mentally disabled
7	Cristina Adam	Kampung Satu	Mentally disabled
8	Fergi Andriani	Pamusian	Deaf
9	Chandra R.	Kampung Enam	Deaf
10	Hadi Sulistyawan	Karang Anyar	Deaf
11	Diana	Sebengkok	Deaf
12	Delas	Kampung Empat	Deaf
13	Aprita	Kampung Empat	Deaf
14	Randha	Kampung Enam	Deaf
15	Sipianus	Karang Anyar	Deaf
16	Bareni	Karang Anyar	Deaf
17	Aldi	Markoni	Deaf
18	Rezky	Karang Anyar	Deaf
19	Hairunnisa	Memburungan	Deaf
20	Arlina	Sebengkok	Physically disabled

Note: 1) Mentally disabled: Below-average intelligence, 2) Physically Disability: Physical deformities and deficiencies, 3) Deafness: Obstacles in hearing function.

Through this group, it is expected to be one of the models to improve the welfare of persons with disabilities. As well, always sustain the environment by using natural batik dye raw

materials, and to make the Tarakan batik motif as a superior motif in North Kalimantan. In addition, during the Covid-19 pandemic, the development of access to communication, technology and digital literacy for persons with disabilities continued, as flows to being part of the efforts to respond the future challenges in the industrial era 4.0.

Persons with disabilities who are members of the Kubedistik, continue to carry out activities when the Covid-19 pandemic period occurs. Some activities take place online, such as batik learning activities, training in designing batik motifs, and seminars. In addition, on several days in April, the activities were also interspersed with making masks, distributing masks, and digital literacy programs related to the enrichment of study in batik coloring techniques and waste treatment (Table 2). The ease of digital access for people with disabilities is a challenge as well as innovation that must be developed to improve the ability and usability for people with disabilities (Hutari, 2019).

Table 2. Digital Literacy Program and Access to Digital Technology in Kudebistik during the Covid-19 Pandemic (February-April 2020)

Month	Program activity
February	<ul style="list-style-type: none"> - <i>Focus Group Discussion</i> (FGD) environmentally friendly batik program - Discussion of the results of a comparative study to the Palbatu Batik House in Jakarta - Participating in an environmentally friendly batik talk show with the theme "Kaltara Culture" organized by RRI Tarakan - RRI Tarakan's media visit to the Batik Production House - Kubedistik coach (Sonny Lolong) becomes Chairperson of BPD ASEPHI (Association of Indonesian Handicraft Exporters and Producers) of North Kalimantan
March	<ul style="list-style-type: none"> - Making new motifs and their philosophies - Creation of Copyright documents - Following the Indonesia Green Awards 2020
April	<ul style="list-style-type: none"> - Online Training on Designing Batik Motifs and Practices for Making Batik Motifs, as well as developing natural color batik. - Introduction to making batik motifs with computer program - Online Seminar: Millennial Generation of Literacy Batik by Rumah Batik Palbatu Jakarta
May	<ul style="list-style-type: none"> - Making batik catalogs with the content of natural dyes and innovations for batik-friendly houses with disabilities - Facilitate digital reference tracking on internet and use software for designing new motifs - Creating Kubedistik Talk Apps

Group members of Kubedistik do some activities at home during the Covid-19 pandemic, although they are monitored by the coach. In addition, group activities are also continued through online discussions. Activities at home have been carried out in accordance with the

recommendations of several persons with disabilities who have been able to make batik and have facilitated batik equipment at their homes, so with this virus outbreak, persons with disabilities can still carry out their activities at home. An evaluation of Kudebistik activities in the Covid-19 pandemic period can be seen in the following Table 3.

Table 3. Evaluation of Kubedistik Activities during the Covid-19 Pandemic

No.	Programs	Outcomes
1	Conducting online-based activities, in the form of training and seminars to limit gathering activities during the Covid-19 pandemic	a. An increase in the skills of group members in designing batik motifs and the philosophy of batik motifs. b. An increase in the insight of members in understanding the potential of batik as a cultural treasures and economic activity.
2	Facilitation of supporting facilities and infrastructure in the process of making batik that is more environmentally friendly and disability-friendly, including access to information	a. The space and equipment for making batik are adjusted to the needs of persons with disabilities, so they are more comfortable to working b. Internet facility device to browse various references needed
3	Apps used and improvement to facilitate communication	Communication using digital media on text form messages (WhatsApp) and the use of the Voice-to-Text application specifically for the deaf. Namely, "Kubedistik Talk"

"Kubedistik Talk" is a digital application designed to help people with hearing impairment or hearing loss. The application makes use of automatic speech recognition technology from Google, and Kubedistik Talk runs the transcription of speech and voice in real-time on the screen, so users can participate more easily in ongoing conversations around them. Users also enable to actively participate in conversations by typing responses on the screen.

Kubedistik Talk is expected to optimize communication among 19 people with disabilities who are natural color batik artisans and members of the Kubedistik business group. In the future, this application expected to be used by various groups, including 52 people with hearing impairment in Tarakan City. Access to technology for people with disabilities is something that needs to be developed to increase their space to improve their ability to work (Karellou, 2019). Kubedistik Talk designed to facilitate communication for the disability group. Making this application makes it easy for them to maintain communication even at home, especially when the Covid-19 pandemic occurred. Besides, from the psychological view it also build and increase the confidence of people with disabilities in the digital era nowadays (Seo and Perry, 2019).

To developing digital literacy, especially in the Kubedistik group environment, it is necessary to pay attention to several essential elements (Belshaw, 2012), including:

1. Cultural, to understanding the various contexts of users in digital world. Although in Kubedistik itself, most people with disabilities are deaf, but each of them have different backgrounds, as well as the supervisors and program assistants;

2. Cognitive, which is the mind power to evaluating content, here means to expected the substance given and discussed in the digital literacy program. Whether it is selected or not which can stimulate the cognitive abilities of members, especially those relating to the development of design and management of batik businesses;
3. Constructive, the creation of something valuable and actual. This element is to follow-up to the discussion process that went well, such as the realization of the design of new batik motifs after training, the implementation of the idea of making masks and soaps with natural dyes to be shared during the Covid-19 pandemic, and the use of the internet and software for tracking references and designing new motifs;
4. Communicative, which is understanding network and communication performance in the digital world, which can be sharpened through Kubedistik Talk communication facilities;
5. Be creative, do new things in a new way during the Covid-19 pandemic, including various online-based activities, as well as the implementation of creative ideas that arise due to pandemic conditions, such as the manufacture of masks and soap products with natural dyes that are packaged in batik bags as part of the campaign against Covid-19;
6. Critical in responding to content in online-based activities. These achieved by discussing the substance of each activity in various discussion opportunities with the coach and facilitator.

The involvement of various stakeholders is needed to support Kubedistik MSMEs to developing a creative economy and a digital economy. Important stakeholders should be involved include universities, companies, communities, and the government (Hudani & Dhewanto, 2015). This is parallel with The Quadruple Helix concept who applied on the creative economy needs. It is remain to involve the four main stakeholders (Rufaidah, 2015), specifically:

1. The Universities. Who applied the tri dharma of high institutions, namely the development of education, research and community service in the field of Creative Economy.
2. The Companies. As an actor in the creative economy industry, or a company that supports creative economic activities through its social responsibility programs.
3. The Government. Take the role of regulator and facilitator in the development of the creative economy, in this case the government at the ministerial, provincial, regional and city levels, as well as the sub-district levels.
4. The Association Communities. As a forum that unites the interests of business actors in the industry to meet the wishes of the local stakeholders.

The group supported by all stakeholders is a necessity. The support can be formed in the policies aspect, infrastructure, capacity and institutional development, also assistance. In the medium and long term, the development of MSMEs leads to branding strategies for further enhance market promotion and demand. Based on the Quadruple Helix approach, the development of natural coloring batik in Tarakan can be seen in the following chart.

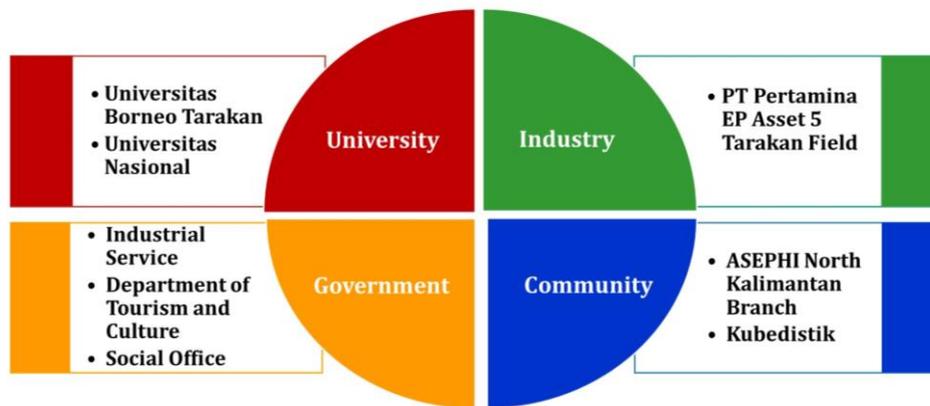


Figure 2. Branding Strategy with *Quadruple Helix* Approach

Based on the involvement of four stakeholders to implement a creative economy-based branding strategy, several steps that can be done together simultaneously. One step was the identification of several identity elements forming the uniqueness of an object (product, company, region). Creative economy-based branding strategy for Tarakan, bring the uniqueness of batik products with natural dyes from mangrove wood, with motifs that are following by local culture. The identity-forming can be supported through a policy established by the local government, for example through local regulations that specify certain batik motifs and the richness of natural dyes as part of regional superior products. Besides, support for several traditional marketing communication tools (advertising, sales promotion, public relations, direct marketing) and non-traditional (social media such as Instagram, Facebook, Twitter, etc.) is needed to introduce these concepts and superior products. The government and industry can join together to optimize the positioning strategy of an area through integrated marketing communication, to form a regional image based on a creative economy.

Entrepreneurship consists of a complex and multifaceted phenomenon, and entrepreneurs have many different roles to play. The role of an innovator is a crucial one. The notion of an entrepreneur as an innovator has been ascribed to Joseph Alois Schumpeter, who placed the entrepreneur into the core of economic progress. Economic development is a dynamic process in which the entrepreneur is the driving force (Rebernik, 2009). Likewise, with the Kubedistik group, it is hoped that new entrepreneurs can emerge from the activities in the group. Sonny Lolong as the Trustee has expected to also be able to play the role to encourage the emergence of innovation from Kubedistik members.

To build a strong branding, it depends on four decisions (Kotler & Armstrong, 2012), like brand positioning, brand name selection, brand support, and brand development. Branding Equity Batik Kudebistik Natural Dyes can be created and managed through several branding approaches, such as:

1. Through an economic approach. The Brand as part of the traditional marketing mix consisting of product components, prices, places and promotions; and how the four

elements of the marketing mix are used in North Kalimantan-based Creative Economy Branding Strategy to influence consumers.

2. Identity approach, where the brand is associated with the identity of the Kubedistik group. The process of introduce the culture and corporate construction of that identity are the main keys.
3. Personality approach, where the brand is considered as a human-like character. The personal approach is a prerequisite for and associated with a relational approach.
4. Relational approach, where the brand as a viable relationship partner. Establishing relationships with customers becomes one of the most important things in managing a brand. This can be done, among others, by forming virtual communities with customers interactively, so that customers are always informed of new motives and products offered.
5. Community approach, where the brand as the pivotal point of social interaction. The community approach is based on anthropological research called brand communities. Brand value is created through communities where the brand acts as a center for social interaction between consumers. Tarakan as a bustling stopover city in the North Kalimantan region, can make batik as a center of interaction for people who stop by before heading to various places, such as in the direction of Nunukan, Tawau Malaysia, Tanjung Selor, Berau, and other areas. Unique batik can be a liaison for various communities to interact, both in workshops and galleries.
6. Cultural approach, where the brand as part of the broader cultural fabric. This approach explains clarification through culture and how to integrate brands in the power of culture to create icons. The Tidung Dayak tribe, with its unique Kalimantan motifs, can be the strength of the brand for Tarakan batik made by Kubedistik.

Women and men with disabilities can be part of productive members of society. In developed and developing countries, the programs of economic development rather on implemented to promote a more inclusive society, and it is an opportunity for people with disabilities to get the concern. This requires better access to basic education, vocational training in accordance with the needs of the job market, jobs that are in accordance with skills, as well as interests and abilities with various adaptations needed (Shogren, 2013). Some people with disabilities also recognize the need to break down other barriers, including by making the physical environment more accessible, providing information in various forms, and changing false assumptions about people with disabilities.

CONCLUSION

Empowerment of people with disabilities in the City of Tarakan is done through the development of the SMEs of the *Kelompok Usaha Bersama Disabilitas Batik* (Kudebistik). This activity received support from PT Pertamina EP Asset 5 Tarakan Field through its corporate social responsibility program. The problems identified include affordability, availability of infrastructure, and access to community activities. The results of the study show the importance of facilitators to promote digital inclusion of 20 people in Kubedistik members who make batik with natural dyes. The results of the study also indicate the need for

greater emphasis on modeling and facilitating strategies to improve skills, positive work-related cognition, and appropriate non-verbal and paralinguistic styles. Online-based activities carried out during the Covid-19 pandemic showed a positive impact, both in terms of increasing insight, skills, access to technology and literacy abilities, as well as on self-confidence, work motivation, and the potential for increased economic activity.

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REFERENCES

- Barua, P., & Molla, M. H. (2019). Accessibility Situation of Persons with Disabilities in the Southeastern Coast of Bangladesh in Relation to Climate Change and Disaster Management. *Journal of Disability Studies*, 5(2), 41-46.
- Belshaw, DAJ. (2012). *What is 'Digital Literacy'? A Pragmatic Investigation. Durham Theses.* Durham University. <http://etheses.dur.ac.uk/3446>. [Accessed on 13 May 2020].
- Enggar, K., & Yasmi, TS. (2016). Pengaruh Fiksator Pada Ekstrak Daun Mangga Dalam Pewarnaan Tekstil Batik Ditinjau Dari Ketahanan Luntur Warna Terhadap Keringat. *Jurnal Scientech*, 2(1), 136-143.
- Hadiati, SR., Kirana, SD., Maknun, T., Rosyadah, NI., Puspitasari, HW., Meilinawati, A., & Gofur, RNRP. (2019). Empowering Program as a Special Service for the Poor Parents of Children with Special Needs (CSN). *Indonesian Journal of Disability Studies (IJDS)*, 6(2), 223-229.
- Handayani, PA., & Mualimin, AA. (2013). Pewarna Alami Batik Dari Tanaman Nila (Indigofera) Dengan Katalis Asam. *Jurnal Bahan Alam Terbarukan*, 2(1), 1-6.
- Howkins, J. (2001). *The Creative Economy. How people make money from ideas.* London, The Penguin Press.
- Hudani, H., Dhewanto, W. (2015). Quadruple Helix Mapping Collaboration for Fashion Small Medium Enterprise Development in Bandung. *Journal of Business and Management* Vol. 4, No.3, 2015: 394-406.
- Hutari, R. M. (2019). Paratransit Difa Bike As An Innovation Of Economy Empowering and Accessibility for Difabel. *Indonesian Journal of Disability Studies (IJDS)*, 6(2), 230-239.
- International Labour Organization (2020). *Inklusi Penyandang Disabilitas di Indonesia.* https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms_233426.pdf. Accessed on 4 May 2020.

- Karellou, J. (2019). Enabling disability in higher education: A literature review. *Journal of Disability Studies*, 5(2), 47-54.
- Kotler, P., & Armstrong, G. (2012). *Principles of Marketing*. 14th edition. Boston : Pearson Education Prentice Hall.
- Kristijanto, AI., & Soetjipto, H. (2013). Pengaruh Jenis Fiksatif Terhadap Ketuaan dan Ketahanan Luntur Kain Moribatik Hasil Pewarnaan Limbah Teh Hijau. *Prosiding Seminar Nasional Sains dan Pendidikan Sains VIII* (pp. 386–394). Salatiga: Fakultas Sains dan Matematika UKSW.
- Kurniasari, ID., & Maharani, DK. (2015). Pembuatan Komposit Kitosan Alumina sebagai Agen Fiksasi Zat Warna Rodamin B Pada Kain Katun. *Journal of Chemistry*, 4(1), 75-80.
- Lestari, DW. et al. 2018. Bentonit Sebagai Zat Mordan Dalam Pewarnaan Alami Pada Batik Menggunakan Kayu Secang (*Caesalpinia sappan Linn.*). *Balai Besar Kerajinan dan Batik*, 35(2), 95-102.
- Lestari, DW., Satria, Y. (2017). Pemanfaatan Kulit Kayu Angsana (*Pterocarpus indicus*) Sebagai Sumber Zat Warna Alam Pada Pewarnaan Kain Batik Sutera. *Balai Besar Kerajinan dan Batik*, 34 (1) 35-42.
- Maharani, AEP., Isharyanto., & Candrakirana, R. (2014). Pembedanan (Embodying) Kebijakan Berbasis Kapasitas Dalam Pemberdayaan Difabel Untuk Penanggulangan Kemiskinan. *Jurnal Dinamika Hukum*, 14(1), 84-96.
- Miles, MB, Huberman, AM, & Saldana, J. (2014). *Qualitative Data Analysis, A Methods Sourcebook*, Edition 3. USA: Sage Publications
- Prayitno, RE., Wijana, S., & Diyah, BS. (2014). Pengaruh Bahan Fiksasi Terhadap Ketahanan Luntur dan Intensitas Warna Kain Mori Batik Hasil Pewarnaan Daun Alpukat (*Persea americana Mill.*). Universitas Brawijaya: Fakultas Teknologi Pertanian.
- Pringgenies, D., Supriyantini, E., Azizah, R., & Hartati, R. (2013). Aplikasi Pewarnaan Bahan Alam Mangrove Untuk Bahan Batik Sebagai Diversifikasi Usaha Di Desa Binaan Kabupaten Semarang *INFO Magazine*, 0852 – 1816.
- Rebernik, M. 2009. Quadruple Helix of Entrepreneurship and Management Education. *Review of International Comparative Management*, 10(5), 910-921.
- Rufaidah, P. (2015). Branding Strategy Berbasis Ekonomi Kreatif: Triple Helix vs. Quadruple Helix. 10.13140/RG.2.1.4132.7208.
- Seo, W., & Perry, V. M. (2019). Applying the Sense of Coherence Model to Understanding the Psychological Strength of People with Disabilities: A Systematic Literature Review. *Journal of Disability Studies*, 5(2), 25-32.
- Shogren, K. A. (2013). A social-ecological analysis of the self-determination literature. *Intellect Dev Disabil*, 51(6), 496-511. doi:10.1352/1934-9556-51.6.496

- Visalakshi, M., & Jawaharlal, M. (2013). Healthy Hues-Status and Implication in Industries – Brief Review. *Journal of Agriculture and Allied Sciences*, 3(2), 42-51.
- Wajdi, M. B. N., Kuswandi, I., Al Faruq, U., Zuhijra, Z., Khairudin, K., & Khoiriyah, K. (2020). Education Policy Overcome Coronavirus, A Study of Indonesians. *EDUTECH: Journal of Education And Technology*, 3(2), 96–106.
- Widagdo, J. (2017). Pemanfaatan Sumber Daya Alam Sebagai Bahan Pewarna. *Jurnal Disprotek*, 8(1), 67-80.
- Widjajanti, E., Regina TP., dan Utomo, MP. (2011). Pola Adsorpsi Zeolit Terhadap Pewarna Azo Metil Merah dan Metil Jingga. *Prosiding Seminar Nasional Penelitian, Pendidikan dan Penerapan MIPA*. hal K115-K122, UNY: Fakultas MIPA.
- Zulikah, K., Andriani. (2019). Perbedaan Teknik Mordanting terhadap Hasil Pencelupan Bahan Katun Primiissima Menggunakan Warna Alam Ekstrak Daun Lamtoro (*Leucaena leucocephala*) dengan Mordan Kapur Sirih. *Gorga Jurnal Seni Rupa* Volume 08 No. 01 January-June 2019, 209-213.