MOTION GRAPHIC DEVELOPMENT TO PROMOTE EMPLOYMENT OPPORTUNITIES FOR THE DISABLED COMMUNITY AT JARO VIA CDIO

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ABSTRACT

This research explores the development of a motion graphic as a strategic communication tool to promote employment opportunities for the disabled community at Johor Area Rehabilitation Organisation (JARO). Despite the increasing awareness of inclusivity in the workforce, persons with disabilities (PWDs) still face significant barriers to employment, largely due to limited exposure, public awareness, and prevailing societal misconceptions. This study aims to address this gap by leveraging the power of visual storytelling through motion graphics, designed using the CDIO (Conceive, Design, Implement, Operate) framework as a qualitative method. The motion graphic content was developed collaboratively with JARO representatives, and design students, ensuring that the narrative accurately reflects the voices and lived experiences of the disabled community. The CDIO framework guided the development process to ensure a structured, user-centered, and outcome-oriented solution. The motion graphic highlights the skills, talents, and contributions of disabled workers at JARO while addressing societal stigma and promoting inclusivity. The project not only enhances public perception but also serves as an educational resource and promotional material for awareness campaigns. This research contributes to the intersection of media design, social advocacy, and inclusive employment, demonstrating how multidisciplinary approaches such as CDIO can be adapted beyond traditional engineering contexts to create meaningful social impact. By using motion graphics as a medium, this study underscores the potential of digital storytelling to amplify marginalized voices and foster a more inclusive workforce ecosystem. Future work may explore broader applications of similar visual campaigns to other social enterprises supporting PWDs.

Keywords: *motion graphic, disabled community, CDIO, employment, JARO*

INTRODUCTION

Persons with Disabilities (PWDs) are individuals who have long-term physical, mental, intellectual, or emotional disabilities that can restrict their full and 17 effective participation in society. This term encompasses a wide range of conditions, including but not limited to physical disabilities, cognitive impairments, sensory impairments, and mental health conditions (Table 1). Persons with disabilities (PWDs) are individuals who experience long-term physical, mental, intellectual, or sensory impairments that may hinder their full and effective participation in society on an equal basis with others. According to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), PWDs have the right to work in an inclusive, accessible, and supportive environment. However, in reality, they continue to face numerous barriers to accessing employment opportunities. Social stigma, lack of awareness, and limited public exposure to the capabilities of PWDs often contribute to misconceptions that reduce their chances of being employed. Therefore, JARO despite its longstanding commitment to empowering the disabled community, faces challenges in reaching a wider audience to promote its cause and the skills of its workers effectively.

Table 1: Definition of PWDs

Author (Year)	PWDs
Othman et al. (2019)	Individuals who have long-term physical, mental, intellectual, or emotional disabilities that can restrict their full and effective participation in society. This term encompasses a wide range of conditions, including but not limited to physical disabilities, cognitive impairments, sensory impairments, and mental health conditions.

Hasbullah et al., (2022)	Individuals who suffer from long-term physical, mental, intellectual, or sensory impairments that prevent their full and effective participation in society when faced with challenges
Mustafa et al. (2023)	Individuals who are categorized as part of the marginalized group, specifically those with disabilities.
Sari et al., (2023)	Individuals who have physical, mental, or emotional differences from typical individuals.
Kalimuthu et al. (2023)	Individuals impacted by one or more forms of impairment that prevent them from living an ordinary life like others.
Hariri et al., (2023)	Individuals with long-term physical, mental, intellectual, or sensory impairments that, in interaction with various barriers, may hinder their full and effective participation in society

The Johor Area Rehabilitation Organisation (JARO) is a local community-based organization and well-established non-governmental organization (NGO) in Johor Bahru, Malaysia, dedicated to supporting persons with disabilities (PWDs) through rehabilitation, skills training, and meaningful employment (Figure 1). JARO is an organization that drives individuals with disabilities to work. Since its founding in 1952, JARO has played a vital role in creating opportunities for individuals with physical, mental, and visual impairments, enabling them to lead independent and dignified lives. It serves as a platform for disabled persons to enhance their abilities, skills, and self-confidence through various programs and initiatives (Fairuz et al, 2017). As both a sheltered workshop and a social enterprise, JARO provides its beneficiaries with hands-on work experience in areas such as bookbinding, tailoring, and handicraft production (Table 2). These activities not only offer a source of income for PWDs but also contribute to building their confidence, self-worth, and social integration. The organization also plays an important role in promoting the inclusion and empowerment of people with disabilities in society (Shah et al, 2023). According to Radzuan (2023), JARO plays a significant role in supporting the enhancement of heritage trails in Johor Bahru.

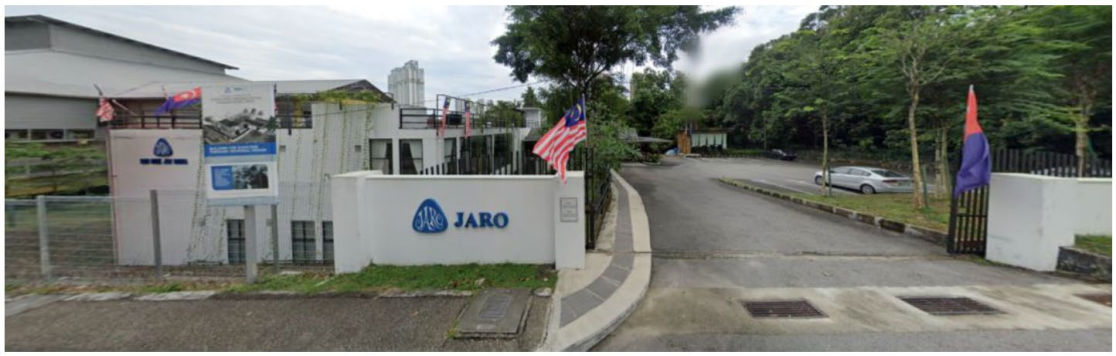


Figure 1: JARO building

Table 2: Activities at JARO

	Visual workshop JARO where disabled workers are assigned to work.
	Visual of weaving, bags, binding books and souvenirs produced by OKU at JARO.

	
	Visual of production of handbags using batik fabric by disabled female workers.

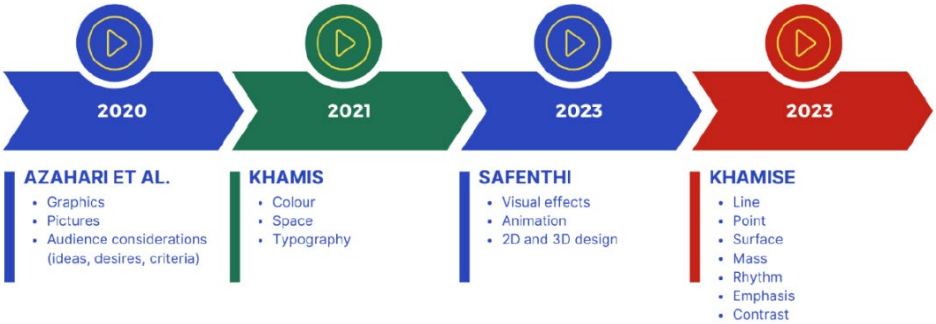
Source: Authors, (2024)

One of the key challenges for JARO lies in promoting employment opportunities for PWDs in a compelling and accessible way. JARO is experiencing a workforce shortage due to trainees finding jobs elsewhere, relocating, losing interest, or limited new applications. This decline began in 2021 but intensified in 2024. The organization recruits through traditional methods like the Social Welfare Department and existing trainee networks. There is no fixed timeframe for hiring since PWDs can apply at any time and if eligible, they are included in the training program. However, JARO faces constraints, as the total hires are capped at 60. Currently, JARO's workforce is 45 out of the maximum capacity of 60. In order to address this, proposing digital promotional content through motion graphics is suggested as a solution.

In today's increasingly visual and digital world, motion graphics have become a powerful medium for communication, advocacy, and education. These animated visual narratives offer an engaging way to deliver complex messages in a simple, memorable format. In this context, motion graphics a form of digital animation that combines text, imagery, and audio can serve as a powerful communication tool. Motion graphics are widely recognized for their ability to simplify complex messages and deliver them in a visually engaging, emotionally impactful format. The impact of digital motion graphics in a social media context is under scrutiny for its effect on attention and recall. According to Knox (2019), the researcher highlights the growing influence of digital motion content in social media advertising, asserting its superiority in memory recall and capturing attention compared to static content. The findings suggest that motion graphics play a pivotal role in driving search traffic and have witnessed substantial growth in 8 usages across social media. By leveraging motion graphics, JARO can showcase the talents and contributions of its disabled artisans, raise awareness about inclusive employment, and encourage public support and collaboration.

According to Azahari et al. (2020), motion graphics is a type of animation that is used for conveying information and awareness messages to the public. It is a form of visual communication that involves creating an illusion of movement or changing the appearance of visual elements, often paired with sound, and is commonly used in electronic media such as TV, cinema, and web-based contexts. That's why Safenthi (2023) and Khamise (2023) define motion graphics as the art of combining animation and graphic design. It combines cinematic language with graphic design and incorporates various components such as 2D or 3D to convey information and communicate ideas. Motion graphics are a potent tool in advertising and marketing campaigns (Bui, 2021). The researcher underscores the efficacy of motion graphics in effectively conveying messages, crafting impactful advertisements, and enhancing brand recall. The study goes further to illustrate this effectiveness through specific examples, showcasing instances where motion graphics have been successfully employed in branding and storytelling to promote various products and services. Hanna et al., (2021) also said that motion graphics are effective for promotional purposes, helping brands convey messages with clarity and simplicity to consumers.

Figure 2: Fundamentals of motion graphics



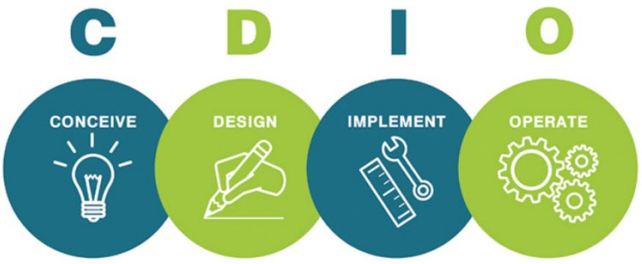
In addition, Ibrahim (2022) states the benefits of incorporating motion graphics into public awareness advertisements. The researcher underscores that motion graphics possess the ability to captivate attention and evoke emotions, simplifying the presentation of intricate concepts through visual storytelling. The utilization of motion graphics facilitates seamless communication with target audiences, as the visual elements become instrumental in enhancing the interaction and reception of the advertising message. Given these advantages, the researcher strongly advocates for the adoption of motion graphics in awareness advertisements, emphasizing its potential to enhance engagement and effectiveness in conveying messages to the public.

Persons with Disabilities (PWDs) continue to face significant challenges in gaining equal employment opportunities, often due to public misconceptions, limited awareness, and lack of exposure to their skills and capabilities. The Johor Area Rehabilitation Organisation (JARO), a non-profit organization that supports and employs PWDs, has long worked to provide meaningful work opportunities and promote independence in this community. However, despite its efforts, JARO struggles to effectively communicate its mission, values, and the potential of its disabled workforce to the wider public, especially in today's digital-driven society. Traditional promotional methods such as printed brochures, social media posts, or static visuals have limited impact in capturing public attention or creating emotional engagement. There is a need for more dynamic and impactful communication tools that can increase visibility, change perceptions, and inspire support for inclusive employment. One such tool is motion graphics, which combines animation, storytelling, visuals, and audio to deliver messages in a concise and engaging manner. However, the development of such media must follow a structured and user-focused approach to ensure its effectiveness and inclusivity. Therefore, this study explores how the CDIO (Conceive, Design, Implement, Operate) framework can be applied in the development of a motion graphic to support JARO's mission and promote greater public awareness and understanding of the abilities of PWDs in the workforce. Therefore, this research explores the use of motion graphics as a strategic medium, developed using the CDIO (Conceive, Design, Implement, Operate) framework, to enhance JARO's outreach efforts and promote sustainable employment for the disabled community it serves. Despite various national efforts to create inclusive work environments, public awareness, and societal support for the employment of PWDs remain limited. Misconceptions and lack of visibility continue to hinder their access to meaningful job opportunities.

METHODOLOGY

This study employed a qualitative research approach using the CDIO (Conceive, Design, Implement, Operate) framework to guide the development of a motion graphic aimed at promoting employment opportunities for the disabled community at JARO. The development of the motion graphic to promote employment opportunities for the disabled community at JARO was guided by the CDIO (Conceive, Design, Implement, Operate) framework, ensuring a structured and impactful approach (Figure 3). The CDIO framework has existed for around two decades, and it has been used at numerous universities to develop, redesign, and manage engineering education programs (CDIO Initiative, 2021) for thorough descriptions of the framework and presentations of implementation examples. The CDIO framework was designed for engineering education, but there are examples of extensions and applications of the framework to disciplines outside engineering (Fahlgren et al. 2018) was probably the first example of application within the biomedicine field. In the Conceive phase, the team identified the core problem of low public awareness and limited support for disabled workers and engaged with stakeholders at JARO to define objectives and gather real-life insights. During the Design phase, a storyboard, script, and visual style were crafted to reflect JARO's values and to ensure an inclusive and authentic representation of the disabled community. The Implement phase involved producing the animation using professional tools, incorporating voiceovers, subtitles, and accessible visuals, with continuous feedback from JARO to refine the output. Finally, in the Operate phase, the completed motion graphic was launched via JARO's digital platforms and community events, where it received positive feedback and increased public engagement. This process demonstrates how CDIO can effectively be applied beyond engineering contexts to develop creative solutions that promote social inclusion and employment advocacy.

Figure 3: CDIO framework

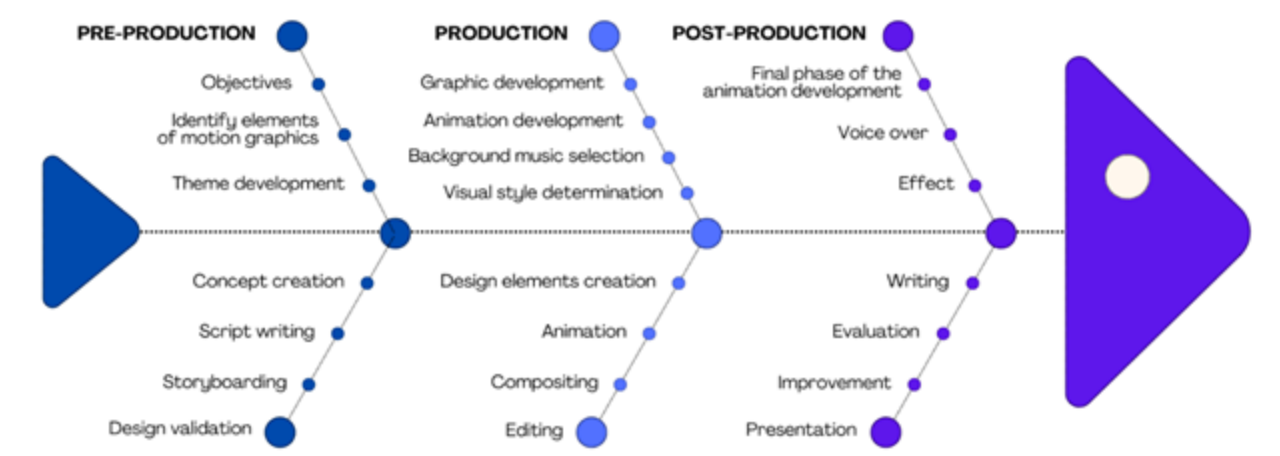


Source: The User-Centered Design Principles. https://www.productdevelopment.se/education/our-mission/

The CDIO approach aligns well with the motion graphic development process through its integration with the phases of pre-production, production, and post-production (figure 4). In the Conceive phase, activities such as research, identifying elements of motion graphics, theme development, concept creation, and problem identification take place, aligning with pre-production, where the team defines objectives and creates the script and storyboard to promote employment opportunities for the disabled community at JARO. The Design phase overlaps with late pre-production and early production, involving the visual planning of characters, scenes, and accessibility features like subtitles and inclusive imagery. During Implement, which corresponds to the production phase, the animation is created using motion graphic software, with voiceovers, music, and continuous feedback integrated to refine the content. Finally, the Operate phase aligns with post-production and deployment, where the motion graphic

is finalized, will be launched on JARO's platforms, and assessed for impact and audience engagement. This integration ensures a structured yet flexible creative process that supports both technical quality and meaningful social advocacy.

Figure 4: Stage of development using CDIO



FINDING AND DISCUSSION

The development of the motion graphic to promote employment opportunities for the disabled community at JARO followed the CDIO framework, and each stage offered unique insights and findings. During the **Conceive** stage, the research identified a clear gap in public awareness regarding the capabilities of persons with disabilities (PWDs) working at JARO. Stakeholder interviews and initial needs analysis revealed that traditional communication tools were not effective in conveying the mission and impact of JARO to the wider public. This stage highlighted the importance of using emotionally engaging and visually dynamic media to capture attention and change perceptions. The researchers meticulously conducted on-site observations before entering into an interview session, selecting JARO as the designated fieldwork site. It offers the researcher a unique chance to gather ongoing and live information in their natural ways and in their natural setup of a social and cultural environment regarding a thing, event, person, or phenomenon (Satapathy, 2023). Throughout the observation process, the researchers gained valuable insights, recognizing that JARO is a place that fosters inclusivity and empowers individuals with disabilities.

In this study, the researchers employed the participatory observation method to look into the depth of knowledge and information about JARO, including its products and services. In addition to employing the observation method, this study utilizes interviews to gather essential information. Specifically, face-to-face interviews are conducted, involving direct interaction between the researcher and the subject. This method allows the researcher to obtain information instantly, similar to the observation method. The interview process is instrumental in acquiring factual data and understanding the requirements necessary to achieve the research objectives. Given the need for instant and active interaction between the researcher and the subject, a semi-structured interview approach is adopted. The semi-structured interview is usually conducted in a face-to-face setting which permits the researcher to seek new insights, ask questions, and assess phenomena from different perspectives (Jilcha, 2019). All the data gathered from observation and interviews are analyzed using visual analysis and mind mapping (Figure 5).

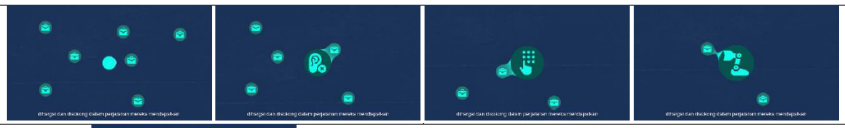
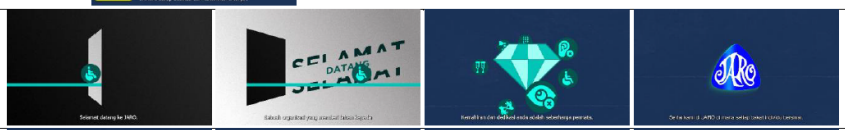
Figure 4: Information analysis activity

Source: Authors, (2024)

The developed motion graphics is the stage that contains the implementation of five elements, namely animation, audio, design elements, narrative, and typography (Figure 5). Animation is the moving icons or graphics that bring the motion graphics to life, making it visually engaging. Audio is the sound, including music, voiceovers, and sound effects that complements the visuals and enhances the overall experience. Design elements are the visual components like shapes, colors, and icons that create the overall look and feel of the motion graphics. The narrative is the mood or feeling conveyed by the motion graphics, influenced

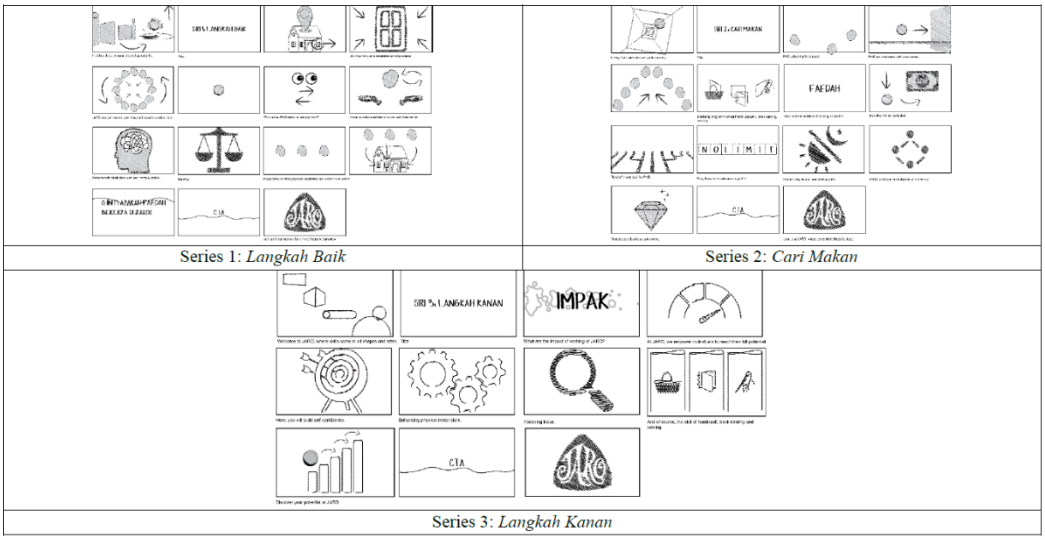
by the style, pacing, and content. The aspect of typography is a technique of selecting and arranging letters to create a certain impression in conveying a message or information. Typography refers to the careful selection and arrangement of fonts to effectively communicate key information and evoke specific impressions.

Figure 5: The developed motion graphics

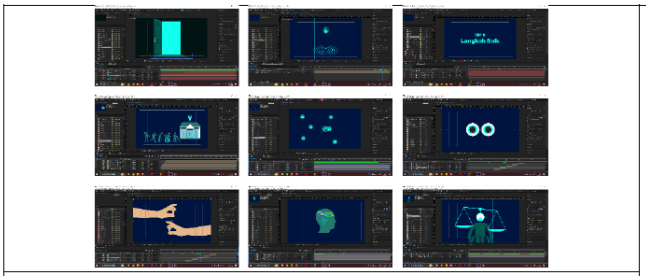
No.	Element	Result
1	Animation	
2	Audio	 • Background music • Sound effect • Voiceover
3	Design elements	 • Icon • Colour • Contrast • Layout
4	Narrative	
5	Typography	

In the **Design** stage, the findings emphasized the importance of inclusive and purposeful visual planning. Storyboarding, scriptwriting, and visual style choices were guided by the goal of making the content accessible and engaging for diverse audiences. The design process revealed that integrating elements such as clear narration, high-contrast colors, meaningful symbols, and culturally relevant visuals significantly improved the emotional appeal and clarity of the message (Figure 6). Feedback from early concept testing indicated that viewers connected more strongly when the motion graphic featured real stories and personalized narratives of JARO's disabled workers.

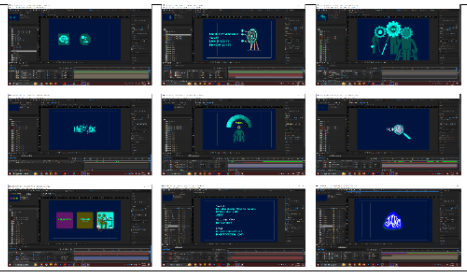
Figure 6: Development



(a) Storyboard



Series 1: *Langkah Baik*



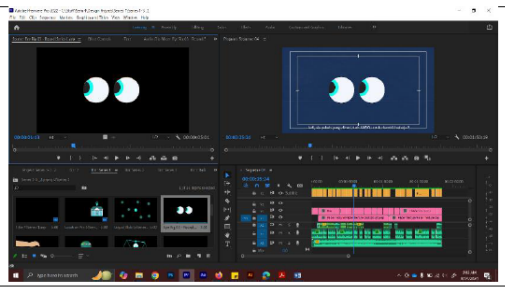
Series 2: *Cari Makan*

Series 3: *Langkah Kanan*

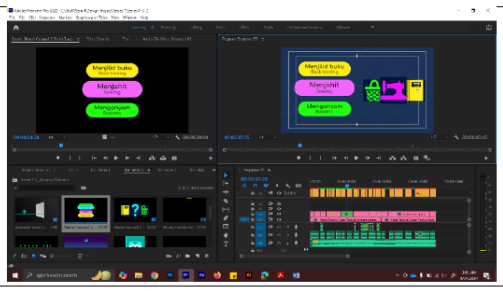
(b) Animation development

Moving into the **Implement** stage, the actual production of the motion graphic brought together animation, typography, voiceovers, and music into a cohesive format (Figure 7). A key finding at this stage was the technical challenge of synchronizing audio with visuals while maintaining pacing and clarity. The implementation phase also confirmed the need for a professional-quality voiceover and clean transitions to ensure the final product was polished and engaging. Usability testing showed that viewers appreciated the concise yet impactful presentation, though some recommended improving the voiceover volume and introducing a clearer call-to-action earlier in the video.

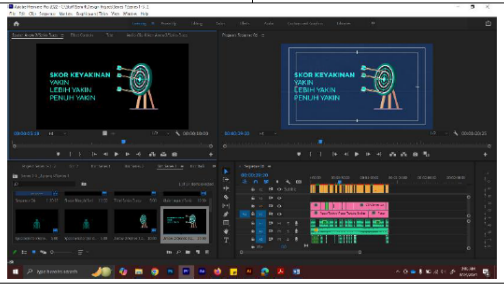
Figure 7: Rendering, editing and compositing



Series 1: *Langkah Baik*



Series 2: *Cari Makan*



Series 3: *Langkah Kanan*

Finally, in the **Operate** stage (Figure 8), the motion graphic was shared with the intended audience through digital platforms and presentations. Feedback collected post-distribution revealed that the motion graphic was effective in increasing awareness of JARO and in changing viewers' perceptions about the employment capabilities of PWDs. However, the impact was limited by the lack of wide distribution and the absence of an English version, which could have increased its reach. Suggestions for future improvements included creating a bilingual version, designing a more attention-grabbing thumbnail, and incorporating platform-specific formatting for better visibility on social media.

Figure 8: Final output

Series 1 Series 2 Series 3

Overall, this study set out to explore how motion graphics, developed through the CDIO framework, can be used as an effective tool to promote employment opportunities for persons with disabilities (PWDs) at JARO. PWDs often face significant barriers to employment due to social stigma, limited awareness, and lack of inclusive communication. As a long-standing non-governmental organization, JARO has continuously worked to empower the disabled community in Johor through meaningful job opportunities and vocational rehabilitation. However, the challenge of communicating their mission and impact to the wider public remains. The CDIO approach provided a clear structure and continuous feedback loop that improved both the development process and the final output. Each stage contributed valuable findings that not only enhanced the motion graphic's effectiveness but also demonstrated how structured design thinking can be applied to social impact communication.

CONCLUSION

By leveraging the dynamic and accessible nature of motion graphics, this project aimed to bridge that communication gap. The development process, guided by the CDIO (Conceive, Design, Implement, Operate) framework, provided a structured and user-focused pathway for identifying the communication needs, designing purposeful visual content, producing engaging multimedia, and evaluating its effectiveness in real-world use. Findings showed that motion graphics have strong potential not only to raise awareness but also to shift public perception and create empathy toward the capabilities of PWDs. In conclusion, the integration of motion graphics and the CDIO model has proven to be a valuable strategy in supporting social advocacy, especially for marginalized communities like the disabled population served by JARO. The project demonstrates that creative media when developed through a thoughtful, inclusive, and structured approach, can drive meaningful impact. Moving forward, the continued refinement and wider distribution of such content across languages and platforms can further enhance its role in advocating for inclusive employment and empowering PWDs in Malaysia and beyond.

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