



Distributed outreach for literacy and access: Efforts to bridge accessibility, availability, and awareness of quality education for underprivileged groups to support local empowering and community development

Pratiwi Khairunnisa^{1,*}, Fairuzzidan Fadhil Hanif¹, Charly Prasetyo¹

¹ Department of Nursing, Polytechnic of Health Yogyakarta, Ministry of Health, Special Region of Yogyakarta 55293, Indonesia.

*Correspondence: tiwikhairunnisa23@gmail.com

Received Date: December 2, 2024

Revised Date: January 30, 2025

Accepted Date: January 30, 2025

ABSTRACT

Background: Unequal access to quality education for underprivileged groups in Indonesia remains a critical issue, perpetuating cycles of poverty. Marginalized groups face significant challenges, including stigma, economic and geographic disparities, which hinder their access to education and literacy. **Method:** This study employs a qualitative approach, using secondary data from journals, articles, and existing surveys to explore the challenges marginalized groups face in accessing education. **Findings:** The analysis reveals that while economic and geographic barriers are prominent, a lack of government focus on local empowerment exacerbates the problem. The existing approaches do not sufficiently address the root causes or involve marginalized communities in meaningful ways. **Conclusion:** The study suggests that a more inclusive approach is needed, such as the DORA (Distributed Outreach for liteRacy and Access) program. DORA aims to promote widely distributed education, enhance literacy awareness, and foster local empowerment and development within marginalized communities. **Novelty/Originality of this Study:** This study introduces the DORA program as an innovative solution to the persistent educational challenges faced by marginalized groups. By emphasizing local empowerment and widespread literacy efforts, it offers a fresh perspective on addressing educational inequality in Indonesia.

KEYWORDS: access; education; empowerment.

1. Introduction

Education is the key to liberation, for individuals to unlock their potential, build their capacity, and develop a brighter future. To be educated does not mean that a person is an incredibly smart person, to be educated means that every individual understands their value, able to sustain for themselves, advocate for themselves, and to have self-determination (Jimenez, 2020). To have these qualities, ensuring and providing quality education that is accessible to everyone is important to create a better living standard and quality of life.

In the status quo, the privilege to gain access to quality education or even just education in general is not granted to every individual. Especially to disadvantaged and vulnerable groups like children, women, people who deal with poverty, people who live in rural and underdeveloped areas. These circumstances can't easily be changed or even changed at any

Cite This Article:

Khairunnisa, P., Hanif, F. F., & Prasetyo, C. (2025). Distributed outreach for literacy and access: Efforts to bridge accessibility, availability, and awareness of quality education for underprivileged groups to support local empowering and community development. *Interaction, Community Engagement, and Social Environment*, 2(2), 154-169. <https://doi.org/10.61511/icese.v2i2.2025.1436>

Copyright: © 2025 by the authors. This article is distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).



point at all, which make their access towards literacy and education limited. Lack of access towards education can hinder the possibility to gain better opportunity and development.

Inequality of access to education to marginalized groups had been a long battle for Indonesia. Unfortunately, low literacy rate among the marginalized is a reflection of systemic barriers, for example a study in 2023 reports that 25% of Indonesian students drop out before they finish high school (OECD, 2023). The disparity of access to education still exists for individuals with financial difficulties. It's only harder for them to finish primary and secondary education as base, let alone enroll to a favorite or well equipped school that able to maximize their potential and provide a good environment to study

Women also struggle to gain equal access to education, especially the ones who live in less developed areas and/or conservative households. Gender role bias creates a barrier for these women to pursue higher education or even any education at all. Even if the disparity has decreased in the last 10 years, women in less developed areas are still reported to be prone to drop out before finishing secondary school (Karimah & Susanti, 2022). Children who live in rural and underdeveloped areas might not have the access to the newest gadgets, books, as well as quality teaching—not to mention they might not even have a decent classroom or school in the first place.

These vulnerable groups eventually become more vulnerable, education is out of reach and to make matters even worse the inequality to good education left them with little to no bargaining power for them to land a decently paid job, or for them to create their own opportunity. Amartya Sen (2014) shows that the inability to get good-quality education deprives people of acquiring basic capabilities needed for participation in economic, social, and political activities. It will be harder for them to explore new opportunities, such as working in a different field, migrate, or establish a business. Furthermore, with their weak bargaining power, not being able to find adequate resources for personal growth on knowledge and skill, and even worse, these individuals have no other choice but to work in a low-wage occupation because of their limited options.

Education level is highly significant to the amount of income, unfortunately most Indonesians only reach secondary education (BPS, 2024a). A study shows Indonesia is considered to be middle to low income with an estimated income IDR 3,000,000 monthly (Shi & Qamruzzaman, 2022; BPS, 2024e). Meanwhile, to land a decently paid job, most corporations or employers require a bachelor's degree even in an entry level position. Unfortunately, on average only 30% of Indonesians are able to enroll in tertiary education (BPS, 2024b). This situation makes almost 50% of Indonesians work low paying jobs which don't require such education such as service workers, fishermen, and agricultural workers (ASEAN, 2023). Inequality to education also causes these groups to have little to no financial and psychological literacy, consequently their inability to make rational decisions and proper education about managing financial matters, lots of people coming from underprivileged groups are trapped in gambling and online loans. In 2024, over 4 millions Indonesians are caught up in online gambling with transactional money of more than IDR 300 trillion.

All of the conditions mentioned combined, and the current state of market prices of essential needs for daily expenses such as foods, electricity, water, housing, and others, with average income in Indonesia, makes marginalized groups are facing difficulties to make ends meet. Let alone to be able to get access to welfare facilities to promote good quality of life—healthcare and education. All of this would eventually make underprivileged individuals have poor living conditions—malnutrition, untreated health issues, unsanitary water, and so on—even though they wanted to escape they don't have the capacity to do it, which makes them trapped in overall poor quality of life. This situation if not addressed seriously will lead to undermining of the development itself, whether it is on a personal level or even widely as a nation.

Acknowledging disadvantages, limitations, and challenges faced by marginalized groups, it's clear that mitigating the issue is important to ensure accessibility and quality of education will not be a luxury for these groups anymore. Equal access to education and providing better quality of education will be a significant factor for marginalized groups to

develop, empower, and improve their quality of life. To address these issues, DORA (Distribution Outreach for liteRacy and Access) program is initiated to support better distribution, improving quality, and awareness of education.

1.1 Challenges

1.1.1 Limited access to education facility and resource

Accessibility of facilities and resources to education plays a big part in equity and quality of education. Accessibility not only in terms of availability of standardized reading resource like novel, text book, encyclopedia, and others, but also in terms of teaching personnel, sufficient reading and teaching facilities to cater the learning process, as well as physical access to the resource such as transportation, distances, and the condition of access itself. Key factors that hinder accessibility of education can be baareak down into three main points.

Economic barriers make it difficult for marginalized groups to gain access to quality education. In the status quo, 25 million people in Indonesia are considered poor, with the number of people living in poverty is significantly higher in suburban and rural areas (BPS, 2024c). Meanwhile, household resources determine capability to access education. Even if the tuition fees for primary and secondary school are mainly free, there are supporting facilities needed for the education process, such as meals, uniforms, school supplies and so on. Children from low income households face the threat every day that they couldn't continue their education due to financial difficulty. Parents who earn low income would prioritize survival for the family and consider education as a waste of money, which becomes an obstacle for children who want to pursue education (Rana, 2024).

Decentralization policy and regional disparity create a bigger gap on education investment. Indonesia is one of the countries that have applied a decentralized government since 2001, which means regional governments can choose sectors to prioritize and facilitate with their funds. In underdeveloped regions such as Papua, Nusa Tenggara, Sulawesi, and others with less public facility and citizens' prosperity will intuitively spend more on building and providing basic necessity that could harm the state of living, for example food resources, water facilities, housings, healthcare centers, and such. However, for these regional governments, education could be at the bottom of their list which creates a gap in investment towards school facilities, resources, and teacher quality. Disparity in investment only develops a gaping hole in accessibility to education resources.

Less investment in education necessitates insufficient and limited resources and facilities. Even though the constitution has mandated regional governments to spend at least 20% of their funding towards education, in 2019 only 25 out of 542 regions had fulfilled this requirement (Nasution & Wulandari, 2020). Lots of schools in underprivileged regions can't provide the best teaching experience because of teacher shortage, children with disabilities might not have adequate teaching aid that cater to their special needs since the government doesn't invest on their education needs (BPS, 2024d). Quality education and accessibility wouldn't reach these students since there are little to no quality education resources and facilities.

1.1.2 Low literacy and education awareness

Education and literacy always come hand in hand, to obtain knowledge one has to have certain literary skills. Unfortunately, many individuals in Indonesia are not aware about the necessity of literacy. According to PISA report in 2022, 75% of 15 years old in Indonesia are considered low performing in reading and literacy skill, only 25% of these 15 year-olds able to search further information from indirect prompt, recognize relationship between several pieces of information based on multiple criteria, as well as comparing several authors viewpoints and generate explanation. These skills may sound simple, but in the status quo, most Indonesian teens can't perform these basic sets of literacy skills and critical thinking.

Indonesia's PISA score in reading has become more and more concerning. In the 2012 survey most participants scored around 400 (Level 2), in the 2018 survey the number showed the average is around 380, in 2022 the score plummeted close to 360 (Level 1a) (National Center for Education Statistics, 2022). In the status quo, school participation rate is also concerning, Only 65% students continuing their education to high school, tertiary education (university, polytechnic, and others) only has 5% participation rate (BPS, 2023). This shows that other than financial problems that could hinder school participation, lack of awareness of the necessity of education also plays a role.

There are some factors contributing to low literacy and education awareness in Indonesia, mainly can be divided into cultural factors and facility factors, however this section will focus on the cultural factors. There are several cultural factors that affect reading culture in Indonesia. First, reading has yet been perceived as a necessity in many families and even education institutions in Indonesia. Reading is often seen as a recreational activity, purchasing books is also perceived as a luxury. Parents and teachers have yet to understand the correlation between reading culture, literacy skills, and critical thinking. Reading is also often perceived as a responsibility, task, assignment, or an activity which is only limited to academic scope.

Second, most Indonesians are accustomed to exchanging stories and information through oral conversation, such as folklore and folk song. The preference of in person and verbal interaction makes the role and position of reading in the bottom of priority lists for many individuals in Indonesia.

Third, media and technology exposure has increased these past years. Audiovisual media such as short-length videos in social media, online games, television, and other digital platforms left an engaging and addicting impression on children and even adults. This phenomenon also decreases the overall attention span, which makes reading seem tedious, slow, and labor-intensive for those who are not habituated to reading. Current situation of most Indonesian inability to stay focused for a long time explains the lack of 'reading endurance' among Indonesian these days.

Lastly, the community and society in Indonesia still rarely appreciate reading let alone encourage and promote reading. Even though book clubs, reading communities, and public libraries have developed these days, the progress mostly happens in bigger cities. Meanwhile, in less developed regions the society doesn't really promote reading as a crucial part of daily occurrence, which leads to children less likely to engage with the activity

2. Methods

2.1 Research design

Qualitative research method is used in this study to explore various challenges in accessibility of education faced by marginalized groups and to assess the DORA program as a potential solution to these challenges. This method is chosen to provide comprehensive research of social issues related to equality and accessibility of education, focusing on real-life situations, perceptions, and systemic factors (Nassaji, 2015). Barrier to education can be explored and understood through this approach, as it provides in-depth insights regarding policies and socio-economic status of a community and individual can impact ability to obtain access to literacy and education.

2.2 Research data sources

This study relies exclusively on secondary data, which are sourced from credible academic databases, government reports, and Non-Governmental Organization (NGO) publications. The data sources include peer-reviewed journal articles (Scopus, Google Scholar, ResearchGate), government statistical reports (Badan Pusat Statistik, Ministry Reports), International Organization (OECD, WHO), and Non-Governmental Organization and policy papers.

Secondary data chosen to be used for this study was driven by some considerations. This study aims to discuss and evaluate systemic barriers, including trends of socio-economic, policy-making, and implementation. Secondary data from NGOs, governmental reports, and peer-reviewed journals provide a broader viewpoint to accommodate the limited timeframe for data collection of the study.

2.3 Research data collection and analysis

A systematic literature review method was implemented to explore, analyze, and draw out conclusions according to concepts or findings from experts in regard to the problem being studied (Farrukh & Sajjad, 2023). The process of literature review was done by keyword searching, screening and selecting to ensure relevance of the sources, then data collected will be analyzed by theme, lastly conclusion of analyzed data is inserted to this study to strengthen the arguments. The research flow can be seen in Figure 1.

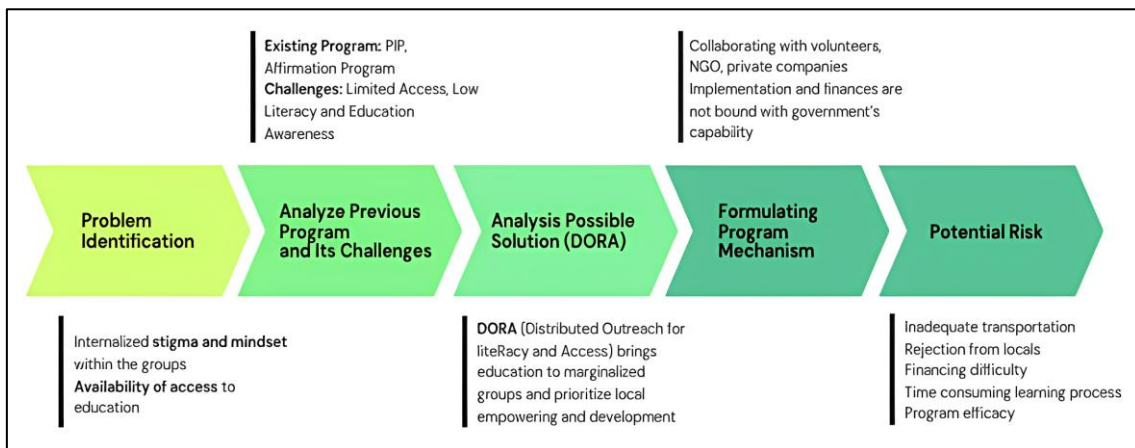


Fig. 1. Step-by-step research framework

3. Results and Discussion

3.1 Existing gap

After understanding the challenges around access and quality of the education to the underprivileged group, notice that the government has created and implemented some programs, such as PIP, KIP, Affirmation Program and others. However, the program made by the government still lacks the equality aspect itself for the marginalized groups. Some of the examples are financial aid such as Smart Indonesia Program/*Program Indonesia Pintar* (PIP) and Affirmation Program.

PIP or Program Indonesia Pintar is a financial aid given to students that meet a certain category, especially for those who have financial difficulties. The Ministry of Education and Culture has reported to distribute financial aid to over 9 million students in 2024, which is a very small amount to the number of students enrolled in 2024 which exceeds 53 million students. The number of 9 million students only covers those who are considered poor or very poor by the government (Kementerian Pendidikan dan Kebudayaan, 2024). In reality students who might find financial difficulties in education often also come from the middle income household, in which the family lives from paycheck to paycheck and often can't give quality education to their children, let alone let them explore different kinds of knowledge and discipline. The amount of aid also varied for each level of education, for example in high school and vocational high school is about 1 million IDR per year. This amount as reported by the Head of Implementation Team of PIP, Sofiana Nurjanah only covers 20% of the student needs during their education.

Another example of educational aid is the Affirmation Program which targets equity access and quality for students. ADEM (*Afirmasi Pendidikan Menengah/Secondary*

Education Affirmation) and ADIk (*Afirmasi Pendidikan Tinggi*/Higher Education Affirmation) transfers selected students from underdeveloped areas such as Papua, Papua Barat, West Sumatra, North Sulawesi, and other regions to continue their education in bigger cities (Direktorat Sekolah Dasar Kementerian Pendidikan dan Kebudayaan, 2024). Especially students from Papua are transferred to cities in Java, e.g. Jakarta, Surabaya, D.I Yogyakarta (Gustiani et al., 2022). Students from Sumatra, Sulawesi, and Kalimantan who are privileged to be the awardee of this program usually comes from less developed regions of the province, they are transferred to the provincial capital cities such as Banda Aceh, Padang, Kupang, Manado, and Pontianak. There were 500 students from Papua and West Papua who were transferred to developed cities in Java and Bali, there were 200 more students from Sumatra, Sulawesi and Kalimantan who were transferred to the provincial capital cities (Kementerian Pendidikan dan Kebudayaan, 2023). Alas, both PIP and Affirmation Program had the same trait in common which is small area of distribution and impact to the marginalized groups.

Both of these programs only cater to a small number of people in need of equity access and standardize education. Instead of bringing the development and empowerment by quality education to the impacted group directly, so everyone can have access towards such facilities. These programs usually take away the best students from their hometown to more developed regions to pursue education with better quality than their area of origin. The goal of equity access towards education to all is not necessarily achieved with these kinds of programs, instead it creates disparity between the marginalized groups themselves. Darling-Hammond (2015) notes that most traditional education reforms have not been focused on the underlying root causes of inequity and point towards the need for community-driven solutions.

DORA (Distributed Outreach for liteRacy and Access) in the other hand, utilize available resource, provide better access and mobility to reach as much unprivileged students and individuals as possible, as well as empower locals by the facilitator of our program to build peer and community-based education and literacy group to ensure better literacy and local development. In addition, the DORA program is in line with Biesta's (2015) description of education as a 'beautiful risk,' since it entails taking new measures to achieve transformative results in society.

3.2 Objectives of DORA program

The DORA Program is a community-based literacy and learning approach, which is one of the most sustainable ways to fulfill the goal of promoting and advocating literacy for marginalized groups. Innovative education within the marginalized groups not only promotes better quality of life, but also creates empowerment in the community (Wagner, 2015).

A study in 2025 reveals that a similar initiative in Indonesia is proven to be effective to meet these goals, since it's easier to gain attention of target groups through value-driven implementation, also its flexibility to mold and accommodate the needs in education of a certain community (Novrita et al., 2025). This shows that community-based literacy programs remain as one of the best suited ways to mitigate education accessibility and quality for developing countries such as Indonesia. To understand this initiative better, acknowledging the relation between objectives and wanted outcome is important for further implementation.

Accessibility is the fundamental base towards better development and the DORA program itself. Accessibility is needed to overcome physical, social, and economic obstacles which hinder the access to quality education for underprivileged individuals. Isolation due to geographic conditions, inadequate facilities, and financial barriers also become a major problem for marginalized groups (Muttaqin, 2018). To address these issues, DORA brings educational resources directly to these communities. In line with the name of the program itself 'Outreach' meaning that the program will reach out to the community that needs accessibility of quality education, whether it is a remote, rural, suburban, or even in dense

urban areas. Freire (2014), who observes that education only becomes relevant when learners can avail it in their own environment. In this sense, the mobile literacy unit becomes an empowerment tool against distance barriers. This approach will eliminate the need for individuals to travel, or relocate their learning facilities such as schools or libraries. It's also impactful for individuals who have restricted capacity to be mobile such as children, individuals with disabilities, and even women in restricted environments.

Accessibility of the learning and educational materials addressing the inclusivity issue of education, for diverse cultural, values, and economic needs (Buabeng & Amo-Darko, 2024). DORA transforms the reality of hardly reached education for underprivileged communities into an accessible and empowering one. This effort ensures that everyone has the same access to education and literacy, it's meant to improve school participation and retention, literacy rate and skills, and create opportunities for local development for better socioeconomic mobility.

As important as accessibility is, literacy culture also plays a major role in the DORA program. Building this culture is necessary to promote and shift the perspective of reading and education among marginalized groups. Literacy is not only about the ability to read and write, it's a set of skills that includes critical thinking, creativity, and rational decision-making. Unfortunately, lack of resources, systemic constraint, and culture that the marginalized communities have often become a huge barrier to achieve this goal. Community-based approach is fit for this objective, its ability to reach to the grassroots communities to address cultural and socio-economic limitations is better than other approaches (Ghimire, 2024).

One of the main focuses is to promote and increase interest in reading in its program, incorporating engaging and appealing materials, like illustrated storybooks, encyclopedias, as well as multimedia tools that will spark curiosity to learn for all ages and backgrounds. Interactive and welcoming environment of the learning process will shift how reading and literacy is perceived by these individuals, making it an enjoyable, fun, and enriching activity. Creative methodologies in teaching are a key to gaining the interest of students who frequently find themselves being left out by the conventional system (Robinson, 2015).

Other methods such as storytelling, group discussion, and peer learning could also be an advantage to bridge the cultural gap and to create a relatable experience. Educating about the necessity of literacy culture isn't merely given to the children, parents and community are also involved in the process. Values and the role of literacy also need to be advocated to parents and community to create a supportive environment to children, even adults. Through this approach, DORA will cultivate a lifelong habit and culture that promote curiosity, creativity, and critical thinking

However, the urgency of education is still underappreciated by the marginalized groups. To achieve personal, community, or even nation level development, education is very much needed. In *Pedagogy of Hope*, Paulo Freire emphasizes the major role of education. It's mentioned, "*The process of writing and reading the word, which is what they were doing in the course of their understanding of discourse, emerged from, or was part of, a larger, more meaningful process*". Reading, writing, and discussing are parts of the learning process, it helps individuals to understand better, to be able to exchange opinions, these are needed to foster development and to create new opportunities. By actively campaigning on how education is the essential tool to empowerment personally and as a community. Community-based literacy approaches will be able to achieve the implementation can be personalized and diverse, also promoting the targeted groups to be more engaged during the learning process and give them a supportive learning environment (Ghimire, 2024).

DORA not only provides external human resources to instill the importance of education, but also shows the experience of people that obtained financial security, escaped poverty, and later improved their quality of life. This also aims to tackle deeply rooted stigma of limitation to pursue education, especially in terms of financial capacity and physical capacity. This approach is hoped to change the perception and advocate the marginalized groups to at least invest their time into learning, creating a new viewpoint of

education as a shared asset of the community to achieve a shared goal and also hoped to increase awareness of education's role in development.

Culture and awareness is not enough to achieve empowerment and development, the learning process and education need to be longstanding and continue even without the help of DORA in the future, ensuring a growth mindset not only to the volunteers or social figure, but also to all members of the community to reform education (Dweck, 2016). To give a long-term impact for the society, DORA aims to create a self-sustained learning ecosystem within the marginalized groups, which create a safe space for these individuals to collaborate, exchange ideas, knowledge, and opinion, and also become a support system in their learning journey. Peer-led initiative facilitated by DORA intervention can create an inclusive and familiar environment for the underprivileged groups, making their learning experience feel more safe and relatable.

Different types of activities can be done to promote sustainable learning, such as reading club, skill-based workshops, discourse about current issues can also help more people to engage. Other than traditional literacy as mentioned, sustainable learning communities can also involve health education and financial literacy, which are perceived more applicable in real life and initiate people to discuss their own experience. It's a brilliant move to increase critical thinking and problem-solving ability. Since it is community based and mostly run by the locals, a sense of belonging will motivate and push people to join, and eventually without DORA's intervention the community can continue to foster this habit of learning and curiosity, creating an inclusive education for all.

3.3 DORA framework analysis

Framework of this program is built by analyzing challenges, the gap in the education system, the objectives and expected outcome of the DORA Program. This part will include the mechanism of implementation of the program, elaborating the benefits and outcome, also potential risk analysis for future implementation and research.

3.3.1 DORA program mechanism

In this regard, education is needed to enhance the chances of marginalized groups or areas in ways that would not have been possible without the strong partnerships involving a diverse range of stakeholders who share a common vision with regard to improving education in these communities. As Fullan (2014) emphasizes, effective leadership and community involvement are critical to the successful implementation of any transformative educational program like DORA. DORA's mechanism will be broken down into several steps.

First, to ensure smooth implementation, working with volunteers who are very committed to alleviating educational inequalities, and who fully comprehend the mark that quality education leaves in shaping the future of these underrepresented areas, makes such people undertake the processes very fervently and brings in local knowledge, which becomes crucial for grass-rooting the change.

To protect the rights, ensure favorable and engaging approaches, working closely with Non-Governmental Organizations (NGOs) is an important step of the mechanism. NGO will be able to provide a unique insight into the obstacles confronted by the marginalized and often socially excluded communities, many times providing resources and means to make the education programs sustainable and effective. Partnerships with organizations that have long-standing experience in the field enable us to draw on their networks, knowledge, and influence to extend the reach and influence of our program.

Engaging with private companies whose investments and activities are in line with our objectives of promoting education and social development will also sustain the mechanism of the DORA Program. Most modern businesses are increasingly embracing Corporate Social Responsibility (CSR) towards education and, even more so, toward underdeveloped regions. It is through such firms that we could acquire financial support, technological

resources, and innovative ideas that will further strengthen our efforts and scale up the results.

Most importantly, the facilitation and actual implementation of our programs will be in conjunction with local governments. For the purpose of our programs, close communication and cooperation will be carried out to ensure cohesion and consistency in approaches toward the penetrating issue of educational disparity in marginalized areas and to align with government policy and education frameworks. Such a powerful coalition could be formed by combining the efforts of volunteers, NGOs, private companies, and local authorities to bridge the gaps in education awareness and actual access to education for marginal areas/people. Fullan & Quinn (2016) also emphasize the fact that in order for initiative programs such as DORA to succeed, there needs to be a coordination of efforts between the government, businesses, and local communities.

3.3.2 DORA program efficacy analysis

The Distributed Outreach for liteRacy and Access (DORA) program is a creative approach to bridging learning divides by making quality education accessible through community based. Traditional Education models tend to pass over marginalized populations due to geographical location, financial reasons, and strongly rooted social stigma. With the implementation of mobile learning units, vocational training, inclusive education methods, and strategic partnerships, The program's effectiveness rests on a number of fundamental mechanisms, each of which is playing an important role towards its effectiveness and long term success. This section will elaborate the likelihood of DORA to achieve its objectives, which is to improve accessibility, availability, and awareness of education for targeted groups.

One of the simplest yet most effective aspects of DORA's efficacy is its mobile learning unit model, which offers a welcoming, adaptive, and community focused learning environment. The mobile units provide diverse study resources, texts, computer programs, and comfortable seating accommodations to satisfy students of various ages and demographics. This technique is particularly successful in overcoming the social and psychological barriers to education, especially in individuals who would have been disrupted by traditional school or feel disconnected by traditional models of education. By offering a secure and welcoming setting, DORA inspires students to feel included, empowered, and welcome to engage in the learning process. Similarly, Archer & Newman (2016) argue that education programs designed with local engagement foster empowerment and lead to sustainable societal change. By this program, we want to build a deeper understanding of the importance of education among local communities and not just to provide educational resources, nurture a culture of learning and empowerment of the local communities.

Another significant mechanism whereby DORA's efficacy is enhanced is its route planning and rotational visit system. In contrast to stationary educational facilities, which often struggle to reach different communities on a regular and systematic schedule. Every mobile unit runs a carefully planned schedule, such that every area to be reached is visited often rather than sporadically. This frequency helps build confidence among communities, encourages active participation, and supports a culture of lifelong learning. Moreover, by adjusting its routes according to the needs of communities, DORA remains responsive and dynamic, such that even the most remote or marginalized groups enjoy constant access to learning services. DORA's ability to adapt to various geographic and social contexts allows it to function effectively in both crowded urban areas and isolated rural regions. By utilizing different modes of transportation, such as vans for well-maintained roads and motorcycles for challenging terrains, DORA demonstrates remarkable flexibility. Moreover, the program's capacity to modify its curriculum to fit local customs and social frameworks enables it to integrate smoothly into diverse communities without disrupting cultural practices.

Along with basic literacy and numeracy education, DORA also aims at vocational and life skills education, as most marginalized groups face severe economic challenges that counteract long-term education participation. Education is useless if individuals lack the necessary daily skills to improve their economic status and standard of living. To address this, DORA provides experiential learning in financial literacy, small business management, agriculture, health education, and information and communications technology. The training is meant to provide trainees with hands-on skills that prepare them for employment and enable them to be capable of contributing to their economies at the local level. By integrating vocational training with general education, DORA ensures that education is not just an academic pursuit but a pathway to economic independence and socio-economic mobility.

One of the most innovative and successful features of the DORA program is its emphasis on inclusive education, particularly for people with disabilities. In large parts of the world, individuals with disabilities are systematically excluded from mainstream schooling due to inadequate infrastructure, lack of professional resources, and social stigma. Gorski (2017) suggests that opportunity gaps, not achievement gaps, are what need to be addressed in order to ensure marginalized students receive the tools necessary for success. DORA combats such exclusion positively by training facilitators to implement adaptive pedagogy that is effective for students with different needs. This includes sign language for hearing impaired, audio aids and visual equipment for visually impaired, and differentiated instruction methodologies for cognitively disabled. By prioritizing accessibility, DORA turns learning into a right, not an entitlement, and guarantees that none are left out due to cognitive or physical impairments because the disparities have a direct impact on their quality of life and directly influence their social inclusion (Sari & Siagian, 2021).

DORA's long-term sustainability also can be ensured by its strategic partnership with key stakeholders, volunteers, NGOs, private sector partners, and local governments. The program relies on collaborative effort, tapping grassroots knowledge, financial resources, and policy support to amplify its reach and impact. Volunteers and local teachers contribute first-hand knowledge of community needs, making DORA's interventions culturally appropriate and contextually relevant. NGOs provide advocacy, research, and more funds, while corporate partners, through Corporate Social Responsibility (CSR), provide technological advancements and more funds. Additionally, integration with the government policy puts the activities of DORA into national policy in education, ensuring that it is sustainable and scalable. The multi-stakeholder approach enables DORA to scale up its coverage, optimize its impact, and create systemic change in the world of education.

While DORA addresses the pressing issue of educational inaccessibility, its long-term viability hinges on overcoming systemic obstacles like economic limitations, educational stigma, and policy changes. By embedding itself within national education frameworks and partnering with both governmental and non-governmental organizations, DORA ensures that its influence is lasting. Additionally, the inclusion of vocational training and local collaborations fosters self-sufficiency, empowering communities to sustain educational efforts even after direct support concludes.

Even if its potential impact is promising, continued monitoring and assessment are called for to ensure that DORA remains effective, responsive, and dynamic in addressing shifting educational needs. The program has an overall system of data collection and assessment that tracks student achievement, community participation levels, and overall program coverage. Facilitator reports, community feedback questionnaires, and pre- and post-literacy assessments help identify areas of implementation gaps and enhance teaching approaches. Additionally, longitudinal surveys are conducted to measure the quantitative long-term effects of the program, assessing literacy gain, employment opportunities, and socio-economic improvement among the beneficiaries. Such a commitment to routine monitoring guarantees that DORA is not a temporary solution but an instrument that causes long-term education advancement.

To further highlight DORA's advantages, the table below compares its key benefits with those of other educational programs, including mobile libraries and government-led literacy initiatives.

Table 1. DORA efficacy and benefit comparison with other initiatives

| Criteria | DORA program | Mobile libraries | Government literacy programs (e.g., ADEM, PIP) |
|------------------------------|--|--|--|
| Geographic flexibility | Adapts to rural, urban, and remote areas with multiple transport modes | Limited to well paved roads | Stationary and have limited range |
| Community engagement | Integrates local leaders and models of participatory education | Limited interaction beyond simply lending books | Standardized approach with minimal customization |
| Financial stability | Blend of CSR, government and NGOs support, and self finance | Relies on government funding and donations | Mainly funded by the government, making it vulnerable to policy shifts |
| Vocational and life skills | Cover financial literacy, entrepreneurship, and practical skills | Only emphasizes books and reading | concentrates on the academic curriculum with minimal vocational training |
| Inclusivity for disabilities | Facilitators are trained to use adaptive teaching methods | Lacks specialized support for learners with disabilities | Offers some support, but infrastructure challenges limit accessibility |
| Monitoring and evaluation | Employs data-driven taking and assessment of impact | Only tracks the number of books that are lended | Focus on enrollment and dropout rates than actual learning outcomes |

All in all, the DORA program is a high-impact and sustainable high-performing model to bridge gaps in education among disadvantaged communities. Its mobile learning model, strategic outreach planning, integration of vocational abilities, inclusive schooling practices, collaboration with stakeholders, and rigorous impact assessment mechanisms combined together ensure education is not merely accessible but meaningful, empowering, and transformative as well. In overcoming systemic barriers to learning and instilling a culture of lifelong education and improvement in skills, DORA sets the stage for a more inclusive, informed, and independent society. As the program develops and expands further, it holds the immense ability to transform the access to learning globally, ensuring that no individual is ever denied the opportunity to learn, grow, and prosper.

3.3.3 Potential risk

DORA (Distributed Outreach of liteRacy) is an innovative program which aims to improve access to education in rural and remote areas, unprivileged groups, and more. DORA operates by utilizing mobile units equipped with a variety of education services and resources. By using this approach, DORA is expected to provide equity for all individuals, particularly children, to foster knowledge, literacy, as well as quality education they need to reach new opportunities and a better future. Even though we have analyze and meticulously develop this program, there are some risk that could be a reference in the future

One of the biggest possible obstacles in implementing this program is deteriorating and inadequate road infrastructure especially in remote and underdeveloped areas. As this program uses mobile units to cater for communities in less accessible areas, the road is one the determining factor for smooth implementation. This challenge not only will impose time efficacy but also can be a safety risk for the facilitators involved. Conducting initial mapping and establishing a collaboration with local governments to attain better understanding of field conditions and plan the safest and most effective routes. To tackle this, other types of mobile units such as motorcycles are on our list to provide flexibility on accessing hard-to-reach areas. Additionally, this approach aligns with sustainability principles, reducing dependence on larger motorized vehicles and positively impacting the environment. Through these measures, DORA strives not only to tackle infrastructure challenges but also

to ensure that we can deliver quality educational services to the communities that need them most.

Another possible risk is that locals are not always welcoming to foreigners that come to their areas. Resistance of the local community needs preventive and mitigation measurements. Locals might not have aligned vision and mindset with DORA, seeing education as something irrelevant to their needs, possibly even a threat to their culture and values. This can be mitigated by involving them in planning, catering to their worries and needs, as well as building a strong relationship with the community. Sense of belonging by aligning both parties' visions can be a strong supporting factor to mitigate the risk of rejection.

Funding issues also pose a significant challenge to the sustainability of DORA. Without adequate financial support, the program will struggle to operate and deliver consistent services. Therefore, it is crucial to establish partnerships with various stakeholders, such as government agencies, non-governmental organizations, and the private sector, to secure the necessary funding. Additionally, creative and transparent fundraising strategies must be implemented to attract donors' attention and ensure the program's sustainability.

Educational process doesn't happen overnight, learning takes patience and consistency to reach significant results. This issue also needs to be in consideration regarding implementation of this program. To ensure sustainability and best possible result of the learning program, DORA must design a sustainable and measurable standard which is equipped with regular evaluation. Assessing teaching effectiveness will be possible, so both facilitator and student will be able to understand their needs to provide best teaching methods and experience

Efficacy has to be continuously monitored and evaluated to ensure current progress is inline with the established goals of DORA. Feedback and impact analysis from participants, local communities, as well as facilitators plays a crucial role to advance the program's quality from time to time. DORA will be able to adjust to improve and ensure educational services it offers create actual impact and significant benefit towards the marginalized groups. This will ensure sustainability as the program is able to address the needs of literacy and education for those who need it the most.

4. Conclusions

DORA (Distributed Outreach for liteRacy and Access) proposed as a potential and comprehensive solution for mitigating education issues in marginalized groups. DORA targets equal distribution of education and literacy facilities as well as resources to unprivileged individuals in Indonesia. By distributing with a soft approach, it creates a new perspective and mindset towards education which can promote learning habits, literacy culture and awareness. DORA combines the best of both worlds: mobile library and community-based learning to cater and mitigate various challenges such as regional and geographical disparity, limited availability of education resources, and low awareness of education significance, which were not able to be overcome by previously existing similar approach programs.

Even though challenges and potential mitigation measurements have been analyzed, it doesn't erase the possibility of risk factors that will impact the program: inadequate infrastructure especially in terms of transportation, rejection from the local community, financial difficulties, time-consuming learning process, and efficacy of the program itself. Risk analysis is expected to be a future reference for implementation as mitigation measurements. In the long run, this program is looking forward to fostering a better overall education culture and perspective to marginalized groups. Understanding of the necessity of education will create and plant organic change in Indonesia towards better quality human resources, development, and overall quality of life.

However, there are some limitations to this study. As it exclusively relies on secondary data, it will limit the depth and intricacy of the analysis. The absence of longitudinal data also adds some constraints to evaluate the sustainability and impact of the program

proposed framework on achieving its objective. In the future, this study will benefit from adding more primary data and longitudinal studies to improve the analysis of the DORA initiative.

To summarize, DORA is projected to be a promising and potentially innovative program to solve accessibility issues of education in marginalized groups in Indonesia, propose better distribution, raise education awareness, and foster habits related to education. This educational program hopes to raise more future concern in education initiatives, as well as opening new opportunities for similar innovative educational programs in the future.

Acknowledgement

The authors sincerely thank all contributors, including researchers and institutions whose data supported this study. Special appreciation goes to our colleagues, mentors, and families for their invaluable guidance, encouragement, and support throughout this research.

Author Contribution

Conceptualization, P.K., C.P.; Methodology', P.K., C.P.; Results, P.K., C.P.; F.F.H.; Discussion, P.K., C.P.; F.F.H.; Writing – Original Draft Preparation, P.K., C.P.; F.F.H.; Writing — Review & Editing, P.K., C.P.; F.F.H.

Funding

This research received no external funding.

Ethical Review Board Statement

Not available.

Informed Consent Statement

Not available.

Data Availability Statement

Not available.

Conflicts of Interest

The authors declare no conflict of interest.

Open Access

©2025. This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third-party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit: <http://creativecommons.org/licenses/by/4.0/>

References

- Association of Southeast Asian Nations (ASEAN). (2023). *Asean Statistical Yearbook 2023*. The Asean Secretariat.
- Archer, D., & Newman, K. (2016). *Communication and Power: The Role of Education in Development*. Routledge.
- BPS. (2023). *Angka Partisipasi Murni (APM) Menurut Provinsi dan Jenjang Pendidikan, 2021-2023*. Badan Pusat Statistik. <https://www.bps.go.id/id/statistics->

- <table/2/MzA0IzI=/angka-partisipasi-murni--apm--menurut-provinsi-dan-jenjang-pendidikan.html>
- BPS. (2024a). *Tingkat Penyelesaian Pendidikan Menurut Jenjang Pendidikan dan Provinsi, 2021-2023*. Badan Pusat Statistik. <https://www.bps.go.id/id/statistics-table/2/MTk4MCMY/tingkat-penyelesaian-pendidikan-menurut-jenjang-pendidikan-dan-provinsi.html>
- BPS. (2024b). *Gross Enrolment Ratio (GER) in Tertiary Education by Urban-Rural Classification, 2023-2024*. Badan Pusat Statistik. <https://www.bps.go.id/en/statistics-table/2/MTQ0NSMY/gross-enrolment-ratio--ger--in-tertiary-education-by-urban-rural-classification.html>
- BPS. (2024c). *Jumlah Penduduk Miskin (Ribu Jiwa) Menurut Provinsi dan Daerah, 2024*. Badan Pusat Statistik. <https://www.bps.go.id/id/statistics-table/2/MTg1IzI=/jumlah-penduduk-miskin--ribu-jiwa--menurut-provinsi-dan-daerah.html>
- BPS. (2024d). *Jumlah Sekolah, Guru, dan Murid Sekolah Dasar (SD) di Bawah Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Menurut Provinsi, 2023/2024*. Badan Pusat Statistik. <https://www.bps.go.id/id/statistics-table/3/VWtKTmFFbDZaSFJWWVhOYU16WmhaRzICYIM5Wlp6MDkjMw==/jumlah-sekolah--guru--dan-murid-sekolah-dasar--sd--di-bawah-kementerian-pendidikan--kebudayaan--riset--dan-teknologi-menurut-provinsi.html?year=2023>
- BPS. (2024e). *Rata Rata Upah Gaji (Rupiah), 2024*. Badan Pusat Statistik. <https://www.bps.go.id/en/statistics-table/2/MTUyMSMY/rata-rata-upah-gaji.html>
- Biesta, G. J. (2015). *Beautiful risk of education*. Routledge.
- Buabeng, I., & Amo-Darko, B. (2024). Bridging the Gap: Enhancing Equitable Access to Quality Education for Marginalized Communities in Ghana. *American Journal of Educational Research*, 12(11), 427-438. <https://doi.org/10.12691/education-12-11-3>
- Darling-Hammond, L. (2015). *The flat world and education: How America's commitment to equity will determine our future*. Teachers College Press.
- Direktorat Sekolah Dasar Kementerian Pendidikan dan Kebudayaan. (2024). *Program Afirmasi Sekolah Dasar*. Direktorat Sekolah Dasar Kementerian Pendidikan dan Kebudayaan.
- Dweck, C. S. (2016). *Mindset: The New Psychology of Success*. Ballantine Books.
- Farrukh, A., & Sajjad, A. (2023). A Critical Review of Literature Review Methodologies. *Advancing Methodologies of Conducting Literature Review in Management Domain*, 2, 103-123. <https://doi.org/10.1108/S2754-586520230000002006>
- Freire, P. (2014). *Pedagogy of Hope: Reliving Pedagogy of the Oppressed*. Bloomsbury Academic.
- Fullan, M. (2014). *The Principal: Three Keys to Maximizing Impact*. Jossey-Bass.
- Fullan, M., & Quinn, J. (2016). *Coherence: The Right Drivers in Action for Schools, Districts, and Systems*. Corwin Press.
- Ghimire, S. (2024). *Importance of community-based initiatives in promoting literacy in the underdeveloped nations*. Frost & Sullivan Institute.
- Gorski, P. (2017). *Reaching and Teaching Students in Poverty: Strategies for Erasing the Opportunity Gap*. Teachers College Press.
- Gustiani, D., Marom, A., & Nurcahyanto, H. (2022). Efektivitas Program Afirmasi Pendidikan Menengah (Adem) Papua dan Papua Barat (Studi di SMA Katolik Pendowo Magelang). *Journal of Public Policy and Management Review*, 11(3), 661-669. <https://doi.org/10.14710/jppmr.v11i3.34863>
- Jimenez, R. L. (2020). Educated: A Memoir. *Harvard Educational Review*, 90(1), 145-147. <https://doi.org/10.17763/1943-5045-90.1.145a>
- Karimah, A., & Susanti, H. (2022). Gender inequality in education and regional economic growth in Indonesia. *Jurnal Ekonomi Pembangunan*, 20(1), 1-14. <http://dx.doi.org/10.29259/jep.v20i1.17841>
- Kementerian Pendidikan dan Kebudayaan. (2023, July 16). *200 Siswa ADEM Daerah Khusus di Enam Provinsi Jalani Pembekalan Wawasan Kebangsaan*. Biro Kerja Sama dan

- Hubungan Masyarakat Sekretariat Jenderal Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. <https://www.kemdikbud.go.id/main/blog/2023/07/200-siswa-adem-daerah-khusus-di-enam-provinsi-jalani-pembekalan-wawasan-kebangsaan>
- Kementerian Pendidikan dan Kebudayaan. (2024). *Penyaluran Program Indonesia Pintar 2024*. Pusat Layanan Pembiayaan Pendidikan Kementerian Pendidikan, Kebudayaan, Riset Dan Teknologi. <https://pip.kemdikbud.go.id/penyaluran?tahun=2024>
- Muttaqin, T. (2018). Determinants of unequal access to and quality of education in Indonesia. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning*, 2(1), 1-23. <https://doi.org/10.36574/jpp.v2i1.27>
- Nassaji, H. (2015). Qualitative and descriptive research: Data type versus data analysis. *Language teaching research*, 19(2), 129-132. <https://doi.org/10.1177/1362168815572747>
- Nasution, M., & Wulandari, S. (2020). *Analisis Ringkas Cepat Belanja Pendidikan Indonesia Belanja Besar Belum Optimal*. Pusat Kajian Anggaran Badan Keahlian Sekretariat Jenderal DPR RI 2020. <https://www.dpr.go.id/>
- National Center for Education Statistics. (2022). *Description of the PISA Reading Literacy Proficiency Levels: 2022*. National Center for Education Statistics (NCES). <https://nces.ed.gov/>
- Novrita, J., Oktavia, R., & Sari, T. Y. (2025). Making "Taman Baca'Sustainable", lessons learned from community-based non-formal education in Aceh, Indonesia. *International Journal of Educational Development*, 113, 103186. <https://doi.org/10.1016/j.ijedudev.2024.103186>
- OECD. (2023). PISA 2022 Results (Volume I and II) - Country Notes: Indonesia. OECD. https://www.oecd.org/en/publications/pisa-2022-results-volume-i-and-ii-country-notes_ed6fbcc5-en/indonesia_c2e1ae0e-en.html
- Rana, D. K. (2024). Quality Education for Underrepresented Groups: Bridging the Gap. *International Journal of English Literature and Social Sciences*, 9(1), 212-219. <https://dx.doi.org/10.22161/ijels.91.28>
- Robinson, K. (2015). *Creative Schools: Revolutionizing Education from the Ground Up*. Viking.
- Sari, N. P. A. C. M., & Siagian, T. H. (2021). Welfare Index of Person with Disabilities in Indonesia, 2018. In *Proceedings of The International Conference on Data Science and Official Statistics*, 2021(1), 632-644. <https://doi.org/10.34123/icdsos.v2021i1.225>
- Sen, A. (2014). *Development as Freedom*. Anchor Books.
- Shi, Z., & Qamruzzaman, M. (2022). Re-visiting the role of education on poverty through the channel of financial inclusion: Evidence from lower-income and lower-middle-income countries. *Frontiers in Environmental Science*, 10, 873652. <https://doi.org/10.3389/fenvs.2022.873652>
- Wagner, T. (2015). *Creating Innovators: The Making of Young People Who Will Change the World*. Scribner.

Biographies of Authors

Pratiwi Khairunnisa, Applied Bachelor Program in Anesthesiology Nursing, Department of Nursing, Poltekkes Kemenkes Yogyakarta, Daerah Istimewa Yogyakarta, 55293, Indonesia.

- Email: tiwikhairunnisa23@gmail.com
- ORCID: N/A
- Web of Science ResearcherID: N/A
- Scopus Author ID: N/A
- Homepage: N/A

Fairuzzidan Fadhil Hanif, Applied Bachelor Program in Anesthesiology Nursing, Department of Nursing, Poltekkes Kemenkes Yogyakarta, Daerah Istimewa Yogyakarta, 55293, Indonesia.

- Email: fairuzzidansatu01@gmail.com
- ORCID: N/A
- Web of Science ResearcherID: N/A
- Scopus Author ID: N/A
- Homepage: N/A

Charly Prasetyo, Applied Bachelor Program in Nursing, Department of Nursing, Poltekkes Kemenkes Yogyakarta, Daerah Istimewa Yogyakarta, 55293, Indonesia.

- Email: charlyprast@gmail.com
- ORCID: N/A
- Web of Science ResearcherID: N/A
- Scopus Author ID: N/A
- Homepage: N/A