



Empowering Women through Non-Formal Creative Handicraft Education in Atauro Island

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Abstract

Atauro Island has been highlighted in various studies that emphasize its ecotourism potential and natural beauty. However, very few studies specifically discuss women's contributions to local development, especially through non-formal education that encourages creativity and economic empowerment through handicrafts. This study aims to analyze how the role of non-formal education in empowering women through the production of Boneca de Atauro handicrafts on Atauro Island, Timor-Leste. Using a qualitative approach and descriptive methods. There were 52 women who involved in this study. Data were collected through observation, in-depth interviews, and documentation. The results of the study indicate that amidst limited formal support from the government, women craftspeople are able to build economic and social capacity through community-based learning, intergenerational mentoring, and the use of local wisdom. This process not only strengthens cultural identity but also creates sustainable economic opportunities. This initiative also supports the achievement of the Sustainable Development Goals (SDGs), especially in the fields of education, gender equality, and local economic growth. This study confirms that non-formal education is a strategic pathway for grassroots-based development in remote areas.

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INTRODUCTION

Atauro Island, also known as Goat Island, is part of the Democratic Republic of Timor-Leste (RDTL) (Galipaud et al. 2016; Vong et al. 2024). Separated from the main island of Timor, this area has an area of approximately 141 km² and is located approximately 22 nautical miles north of the capital city of Dili (NSD-MOF RDTL & UNFPA Timor-Leste 2006). The main attraction of Atauro Island comes not only from its natural beauty and rich biodiversity such as mangrove forests, coral reefs, and rare marine animals (Da Costa et al. 2022), but also from its cultural and historical values that are still preserved today such as traditional house, atauro doll (local handicraft), and so on (Government of the Republic of Timor-Leste 2011; Silva & Bui 2021; Raka et al., 2022).

Administratively, Atauro consists of one post administrative and five sucos (villages), namely Maquili, Atauro Vila, Beloi, Biqueli, and Macadade (Guillaud et al. 2017). Several villages on the east coast of the island such as Beloi and Biqueli are known as potential tourist destinations with the presence of beaches, hot springs, and historical sites from the Japanese colonial era (de Jesus 2022). Based on the 2022 Population Census, the population of Atauro Island is 10,295 people with a relatively balanced gender distribution (Directorate-General of Statistics Timor-Leste 2022).

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In daily life, male residents generally work as farmers and fishermen, while women are involved in various productive activities such as weaving, knitting, trading seafood and agricultural products, and producing handicrafts. One of the prominent crafts is the Boneca de Atauro, a handmade doll that reflects local cultural identity and has become an important part of the souvenir industry in Timor-Leste (Cruz & da Costa 2019).

Despite its great natural and cultural resource potential, Atauro Island still faces development challenges. Based on the TL-LSS Poverty Level Survey (2014), the poverty rate in Atauro was recorded at 29.1%, although lower than the national average of 41.8%, real conditions in the field show that there are still many limitations, both in terms of infrastructure, quality of housing, and access to education and skills training (DGE-Ministério das Finanças & World Bank 2014).

In this context, the role of women in socio-economic activities is very important. The involvement of women in the production and sale of handicrafts shows the existence of learning practices that take place non-formally, such as learning independently, through communities, or from generation to generation (UNESCO 2018). This learning process not only supports the improvement of individual skills, but also strengthens social cohesion and opens up new economic opportunities (Colley et al. 2003).

Non-formal education is deeply embedded in community life and everyday social practices, as it emphasizes social participation and the role of Social Educators in facilitating learning experiences within organized civil society groups, enhancing community engagement and development (Almeida & Morais 2025; Barigai & Heravdakar 2023; Gohn 2009; Guillaud et al. 2017). Through a non-formal education approach rooted in community life and everyday social practices, women on Atauro Island contribute to sustainable development. This is in line with the Sustainable Development Goals (SDGs), especially in supporting inclusive and equitable education (SDG 4) and strengthening the role of women in economic and social life (SDG 5).

Based on the above explanation, Atauro Island has been highlighted in various studies that emphasize its ecotourism potential and natural beauty; e.g. several previous studies only focused on economic studies (Silva et al., 2023), traditions and culture (Oliveira, 2024), and tourism development (Ximenes et al., 2022). However, very few studies specifically discuss women's contributions to local development, especially through non-formal education that encourages creativity and economic empowerment through handicrafts. Meanwhile, this study highlights the role of non-formal education as an important means of transforming individual potential—especially women—into sustainable social and economic power.

METHOD

The research was conducted on Atauro Island, Maquili village, which is part of the Municipality of Dili, Timor-Leste (see Fig. 1). This study uses a qualitative approach with a descriptive method (Creswell & Creswell, 2018). This approach was chosen to deeply understand the non-formal learning process that takes place among female Boneca de Atauro artisans on Atauro Island, Timor-Leste, and how this process contributes to the social and economic development of the community, especially within the framework of achieving the Sustainable Development Goals (SDGs).



Figure 1. Map of the research location

The subjects in this study were female Boneca de Atauro artisans as much as 52 participants, who were actively involved in the handicraft production process, both individually and in artisan community groups. The sample technique used is purposive sampling.

In Data collection was carried out through direct observation, in-depth interviews, and documentation. Direct observation was used to observe the learning process, social interactions between artisans, and the environment in which they work. In-depth interviews were conducted with female artisans, community leaders, and parties involved in the development of handicrafts as part of local socio-economic activities. Documentation, including photos of activities, Boneca de Atauro's work, and supporting documents such as community profiles, activity reports, or data from local institutions. Then, data were analyzed thematically, starting with the process of data reduction, data presentation, and drawing conclusions. Researchers identified the main themes that emerged from the results of interviews and observations, especially those related to the non-formal learning process, skills transfer, strengthening social networks, and their impact on the economic and social lives of women on Atauro Island. To ensure the validity of the data, this study used triangulation techniques of sources and methods, namely by comparing data from various sources and different collection methods (observation, interviews, documentation). In addition, member checking was carried out on several informants to ensure that the interpretation of the data was in accordance with the reality in the field.

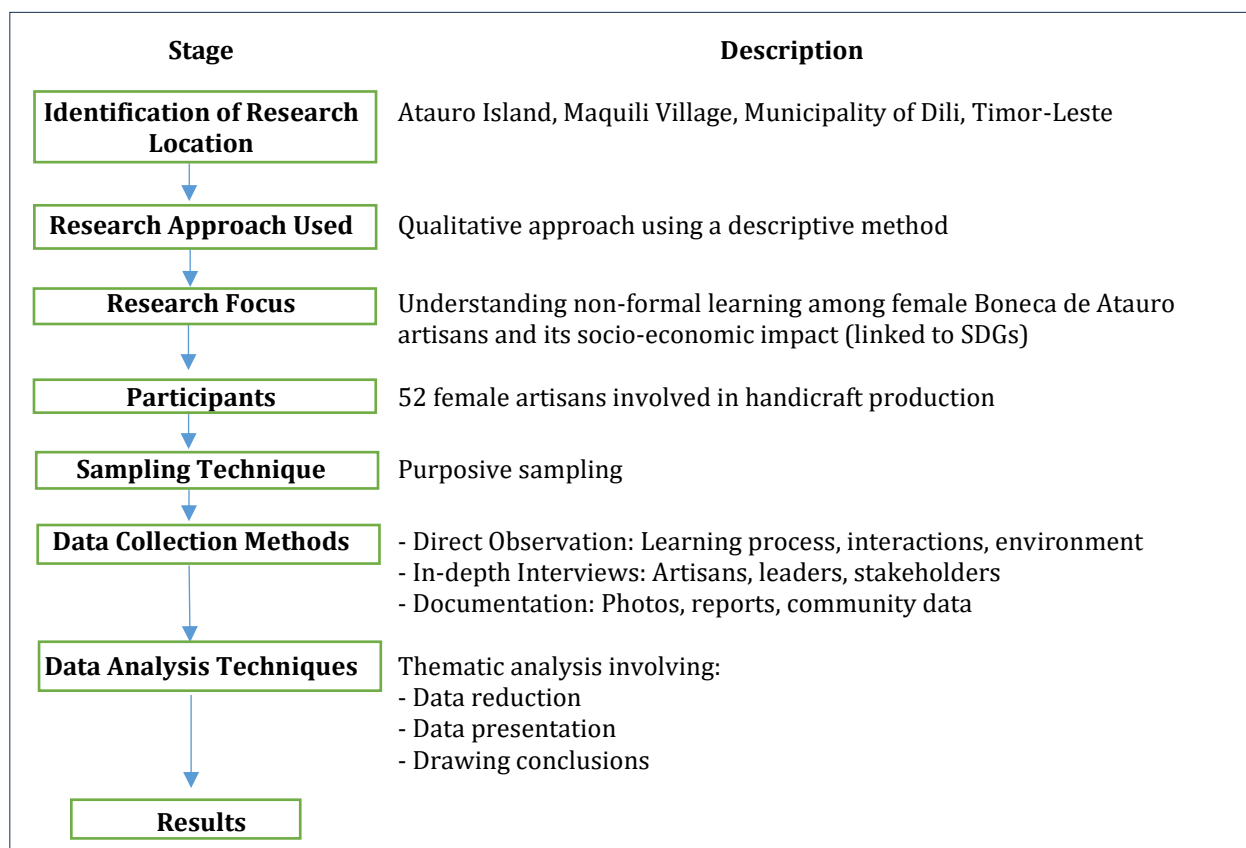


Figure 2. Research Flowchart

RESULTS AND DISCUSSION

The Boneca de Atauro community is a real example of non-formal education that supports women's empowerment and contributes to the achievement of the Sustainable Development Goals (SDGs), especially Gender Equality and Decent Work and Economic Growth. The Boneca de Atauro community exemplifies this by empowering women through non-formal education and creative crafts, aligning with SDGs (Pathania 2017; Sasmita & Nayak 2024).

This creative handicraft initiative consists of 52 registered members, with a very high female dominance. A total of 51 members (98.1%) are women (feto), and only 1 member (1.9%) is male

(mane), which confirms that this community is indeed focused on being a learning and empowerment space for women on Atauro Island.

Table 1. Age Distribution of Boneca de Atauro Community Members

Age Group	Number of Members	Percentage (%)
26–30 years old	8	15,4%
31–40 years old	14	26,9%
41–50 years old	18	34,6%
51–60 years old	12	23,1%
Total	52	100%

The age distribution of members shows generational diversity that strongly supports the sustainability of knowledge and skills transfer. The majority of members (58.7%) are in the middle productive age group (41–60 years), while the young age group (26–40 years) numbered 22 people (42.3%). The average age of community members is 42.2 years, with the youngest member being 26 years old and the oldest being 59 years old. This fairly wide age range (33 years) allows for cross-generational learning, where older members act as informal teachers who pass on traditional skills such as embroidery and weaving, while younger members bring new enthusiasm, innovative ideas, and the ability to adapt to contemporary technology and market trends. From a non-formal education perspective, such an age structure supports the sustainability of the community (Rogers 2019; Tilbury & Wortman 2008). The learning process occurs naturally through direct experience and collective work, not through the formal education system (Ismail 2023; La Belle 1982). Such a model is essential to ensure the sustainability of local cultural practices while opening up new economic access for women.

In terms of geographic origin, the data show a very high concentration of members in certain areas. The absolute majority of members (46 people or 88.5%) come from Suco Maquili, while the rest come from Suco Beloi (2 members or 3.8%) and Suco Bequili (3 members or 5.8%). There is also one member (1.9%) whose suco origin is unknown. Within Suco Maquili itself, members come from several aldeias such as Mashilin/Masilin (5 people), Hatulela (4 people), Raihun (1 person), Rulele (1 person), Sokneni (1 person), and Maumeta (1 person).

This geographic concentration strengthens the community's internal social networks and facilitates the organization of training activities, workshops, and knowledge sharing sessions—all of which are hallmarks of the non-formal education approach. This situation also shows the potential to expand similar initiatives to other areas using Boneca de Atauro as a model.

Non-Formal Education and Women's Economic Empowerment Through Crafts on Atauro Island

Although Atauro Island has great potential in the culture-based creative economy, formal support from the government for women's empowerment is still very limited. Field observations show that development programs specifically aimed at women, especially in the form of skills training or economic empowerment, are almost non-existent. Government assistance is limited to Direct Cash Assistance, seaweed cultivation counseling, and general motivational training without concrete sustainability.

The following statement illustrates the real conditions:

“So far, there has been no government program to provide welfare for our families. The government only comes to visit to see the crafts we make, then helps us to promote our crafts through exhibition activities. After the exhibition, there are no other activities. Until now, there has been no program that is truly pure from the government so that we can prosper. The training programs that we get are actually from NGOs or from individual initiatives.” — Zelia Ximenes (40 years old), interview October 7, 2023

Non-formal education, in this case through handicraft training, is an alternative pathway that has a real and sustainable impact on the economic welfare of local women.

The success story of women's empowerment through Boneca de Atauro handicraft products (Fig. 3) cannot be separated from the role of Father Luis, an Italian missionary who has lived and worked on Atauro Island since 2009. He identified the potential of local women in weaving and embroidery, then developed a non-formal education-based approach to shape their skills and business capacity.

"Father Luis saw the socio-economic conditions of the community, especially women. The mothers on Atauro Island have the potential for handicrafts such as embroidery and weaving. So he provided training and guidance in making Boneca which has economic value to help the family economy." — Sra. Virginia Soares, President of the Boneca de Atauro Community, interview October 7, 2023



Figure 3a. Boneca de Atauro Production Center



Figure 3b. Final Process of Making Boneca de Atauro



Figure 3c. Various Forms of Boneca de Atauro Production

The training was given intensively for six months, assisted by a professional trainer from Switzerland, Ester Viera. This initiative formed a community of women who were economically and socially empowered, even without direct support from the government. The training and mentoring gave birth to craftsmen such as Sra. Bendita Sarmento, an active member of the Boneca de Atauro community since 2010, who said:

"I have been working making Boneca de Atauro craft products since 2010. I earn an average income of \$150–\$200. The money is an addition to our family: for the children's school fees and daily needs." — Sra. Bendita Sarmento (41 years old), interview October 7, 2023

This story shows that non-formal education, based on practical skills and community, can improve the standard of living of families, especially for women (Ahmadi 2020; Irwan & Vrisca 2022). The process of making Boneca de Atauro is not only a production line, but also a collaborative learning system that teaches discipline, aesthetics, technical skills, and marketing. The skill stages include training for community members, designing designs, cutting fabrics based on patterns, sewing processes, and finishing and adding accessories.

The Boneca de Atauro community, which is now part of the Kooperativa Polibolente cooperative, has become one of the drivers of a sustainable local economy. Since 2015, this cooperative has managed its own finances and has sales revenues of \$500–\$1,000 per day, with an average income of \$100–\$300 per month for each craftsman.

This empowerment model contributes to the achievement of several Sustainable Development Goals (SDGs), including gender equality (SDG 5), decent work and economic growth (SDG 8), quality education (SDG 4), and responsible consumption and production (SDG 12). This non-formal education-based initiative is evidence that social and economic transformation can be achieved through a grassroots approach based on local culture and skills (Almeida & Moraes 2025; Hafid et al. 2024).

Representation of Non-Formal Education and Local Wisdom of Boneca de Atauro

Atauro Island has been highlighted in various studies that emphasize its ecotourism potential and natural beauty. However, very few studies specifically discuss women's contributions to local development, especially through non-formal education that encourages creativity and economic empowerment through handicrafts. This study highlights the role of non-formal education as an

important means of transforming individual potential especially women into sustainable social and economic power.

According to [Purnomo \(2016\)](#), creativity is the core of the creative economy, namely the ability to create something new. Creativity does not always mean absolute originality, but also the ability to combine existing elements into something of social value ([Hidayat 2018](#)). In this context, non-formal education on Atauro Island, which appears in the form of community-based training, direct learning, and collective activities, has succeeded in facilitating this process.

Boneca de Atauro craft products are the real result of non-formal learning that emphasizes skills, local culture, and collective work. These dolls are made by depicting the identity of the Atauro Island community, with traditional tais clothing, local physical characteristics, and cultural stories passed down orally.

In addition to Boneca, the community also produces wooden statues from the Mackuli tribe (tribal woodcraft), tais woven cloth, and nature-based temporary housing such as eco-lodges and homestays, all of which are reflections of local creativity. Handicrafts are the result of a process that combines perseverance, skill, and high dedication. Non-formal education has become a space where these values are instilled and developed, not only as technical skills, but also as a form of social and cultural meaning ([Pavicevic & Petrovic 2015](#); [Susiana & Setiawati 2024](#)).

Field observations show that the Boneca de Atauro craft group has grown from one unit to a community of around 42 women, including housewives and young women. Learning is not carried out structurally-formally, but through direct practice, mentoring from senior members, and sharing experiences between members.

The essence of handicraft lies in the process, not just the end product. In the process of making Boneca de Atauro, women experience a learning process full of precision and creativity, while strengthening their cultural and social identity ([Hidayah 2024](#); [M. Mishra 2021](#); [Siyukhova et al. 2022](#)). Boneca de Atauro not only functions as an economic product, but also as a cultural representation that has a deep philosophy. The word “Atauro” is believed to come from two words: Ata (ordinary people) and Uro (heart of gold), which symbolizes a simple but value-rich society. This craft product uses local raw materials such as kapok (ailele), plant fibers, wood, and traditional fabrics, creating a close connection between ecology, economy, and culture. Utilizing local resources not only demonstrates environmental sustainability but also strengthens community-based economies—making it a practice that supports SDG 8 (Decent Work and Economic Growth), SDG 5 (Gender Equality), and SDG 4 (Quality Education) ([Putri & Putri 2022](#); [Setiawati et al. 2024](#)). Thus, non-formal education in the context of handicrafts becomes an effective bridge between strengthening local identity and achieving global goals.

Non-Formal Education Opportunities in the Boneca de Atauro Community

The Boneca de Atauro Community is a non-formal learning space that allows women to access training, guidance, and entrepreneurial skills directly through daily practice and social interaction. The non-formal education that takes place in this community not only covers technical aspects in craft production, but also managerial and leadership skills, which are important provisions in the process of empowering women towards social and economic independence—in line with the achievement of the Sustainable Development Goals (SDGs), especially SDG 4 (Quality Education) and SDG 5 (Gender Equality).

One form of non-formal education that stands out in this community is the intergenerational mentoring system. As conveyed by Agita Fatima de Araujo Soares (36 years old):

“At Boneca de Atauro, we implement a mentoring system where more experienced members guide new members. I myself was initially just an ordinary craftsman, but was given the opportunity to coordinate sewing technique training. We also often discuss decision-making or provide ideas such as criteria for new members and what their performance evaluations are like. Personally, I feel that I can lead or manage others. The opportunity to manage human resources in this community has opened our awareness that women can also be good leaders.” (01/03/2025, 10:00 WTL)

This statement was reinforced by Adelina Saldanha (55 years old), another senior member, who described the mentoring structure within the community:

“Here we have a ‘big brother’ system where each new craftsman is paired with a senior craftsman. As mentors, we not only teach production techniques but also share knowledge about how the organizational structure works and how they can contribute further.” (01/03/2025, 11:00 WTL)

The survey results show that the indicator “Opportunity to get non-formal education” reached 77.9% (see figure 4), indicating that the majority of women in this community feel the benefits of non-formal training. However, this figure also indicates that there are obstacles in equalizing access to quality training, especially related to innovation and design of craft products.

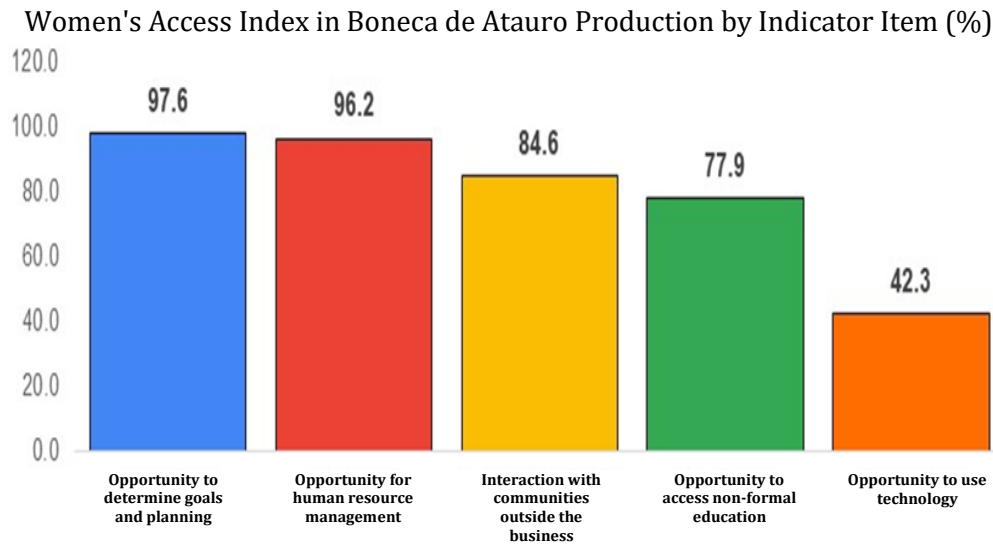


Figure 4. Percentage Results of the Access Profile of Women Working at Boneca de Atauro (Primary Data from Boneca de Atauro Research, 2025)

The head of the community, Virgina da Costa Saldanha (38 years old), explained these limitations:

“We are very aware of the importance of non-formal education to improve members’ skills, both in terms of production techniques and business management. However, access to quality training in Timor-Leste, especially on Atauro Island, is still limited. So far, we have rarely prioritized which crafts we should innovate, because the knowledge for this is still limited. We only rely on sales results; if one of our products sells a lot, then we focus innovation on that only, such as bag orders. So, it is not evenly distributed. We received design training from volunteer Mrs. Diana from Italy who lives in Bali.” (27/02/2025, 10:00 WTL)

As a solution to these challenges, the community initiated a strategy based on knowledge replication by sending members outside the region. Furthermore, Virgina said:

“To overcome this limitation, we took the initiative to send our members. As we have done before, one of the members lives in Bali for design training. After that, they will share their knowledge to other members or through new designs. Although there are still challenges, we continue to strive to increase access to this non-formal education.”

The non-formal education model implemented by the Boneca de Atauro community reflects a social approach that empowers women through interpersonal relationships, mentoring systems, and cross-age collaboration. Through these practices, the community not only strengthens production skills, but also forms women’s organizational and leadership capacities as agents of change at the local level, which is in line with the spirit of the SDGs.

Participation in Non-Formal Education

Women’s participation in non-formal education is an important aspect in empowering local communities that contributes to the achievement of the Sustainable Development Goals (SDGs), especially SDG 4 (Quality Education) and SDG 5 (Gender Equality) (Indriastuti et al. 2023; A. Mishra 2023; Putri & Putri 2022; Shokhista 2023). In the context of the Boneca de Atauro community, the indicator of women’s participation in non-formal education was recorded at 56.3% (see figure 5),

indicating that more than half of the women craftsmen have participated in training, courses, or seminars. Although this participation rate is considered moderate, this figure reflects the existence of structural and social barriers that limit full access to non-formal education.

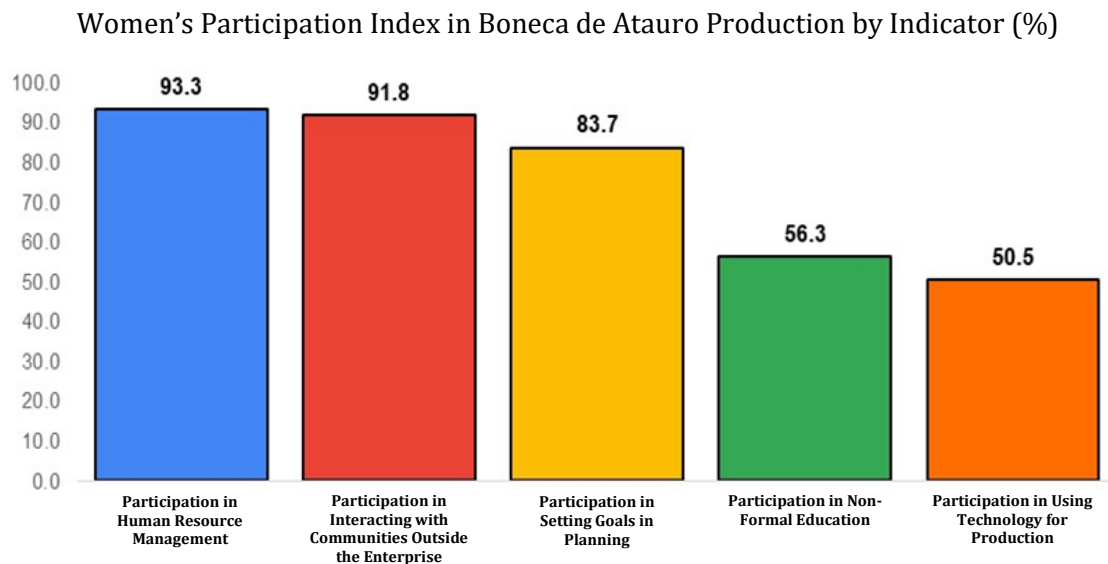


Figure 5. Percentage of Women's Work Participation (Primary Data, Boneca da Atauro Research, 2025)

Some of the challenges identified include limited trainers, distant training locations (often in Dili or even abroad), inflexible time, and language barriers in training using Portuguese or English. In the Focus Group Discussion (FGD) activity on March 2, 2025, one of the community's internal trainers, Agita Fatima (36 years old), described this condition as follows:

"Many of us want to take part in training to improve our skills, but are sometimes hampered by various factors. For example, the human resources that provide training in Timor-Leste are limited, we have to go to Indonesia, so so far only certain members have taken part in training according to our needs, for example developing designs. What has been running so far, is usually motivational training from external volunteers. For other training such as the use of technology, there is none yet. But we do sewing training for new members ourselves for three months. If there is an invitation to training, usually only one or two people are represented because the training is held in Dili. For mothers with small children, it is difficult to leave the house for a long time. In addition, many trainings use Portuguese or English, which not all members master." (02/03/2025, 14.00 WTL)

A similar perspective was also conveyed by Tereza do Carmo (57 years old), one of the senior members:

"Most of us here are middle-aged mothers, so for now we can be skilled at sewing and producing products, that's enough for us. For other education, maybe only the young ones. For us, we lack the knowledge to understand it quickly. But if we practice directly, we are given examples of how to make products, we might be able to do it right away. For the others, our knowledge is limited, because there are also those who did not go to school." (02/03/2025, 14.00 WTL)

From these findings, it can be seen that non-formal education based on direct practice (learning by doing) is more effectively accepted by community members, especially by the older generation. This indicates that the social approach in non-formal education needs to be adjusted to the demographic conditions and educational background of the participants. Practical skills-based training, personal mentoring, and local language are key to increasing inclusive and sustainable participation. Despite facing a number of obstacles, the Boneca de Atauro community continues to show enthusiasm in making non-formal education a path to women's empowerment. The presence of internal trainers, collaboration with foreign volunteers, and adaptation of community-based

learning are manifestations of the social approach that are an important foundation in achieving the SDGs through the women's creative craft sector on Atauro Island.

This study shows that non-formal education based on hands-on practice, using local languages, and involving community trainers is more effective in increasing women's participation in marginalized areas such as Boneca de Atauro. Structural and social barriers such as limited trainers, remote training locations, and women's domestic burdens require a more inclusive and contextual approach to education. These findings provide important implications for program designers and policy makers to develop non-formal education strategies that are responsive to local conditions. Theoretically, this study enriches the study of non-formal education and women's empowerment by emphasizing the importance of community participation and local cultural values. Practically, this study offers a model of community-based training that can be replicated in other remote areas to support the achievement of the Sustainable Development Goals, especially SDG 4 and SDG 5.

LIMITATION

This study focuses on a single case study, the Boneca de Atauro community, so the generalization of the findings to other geographic or social contexts should be done with caution. Second, the data obtained are mostly sourced from narratives and field observations, which, although qualitatively rich, are still susceptible to biases of perception and subjective interpretation. Third, the involvement of formal stakeholders such as local governments or national education institutions in this study is limited, so the analysis of the dynamics of non-formal education policies has not been fully explored. Furthermore, this study has not explored in depth the long-term economic sustainability aspects of these empowerment initiatives in the face of external challenges such as market changes or the impacts of globalization. These limitations open up space for broader and more comprehensive follow-up research, either through a comparative approach across regions or by involving multi-level policy analysis to gain a more complete understanding of the contribution of non-formal education to sustainable development.

CONCLUSION

This study shows that community-based non-formal education plays a significant role in women's economic and social empowerment on Atauro Island, Timor-Leste. Through Boneca de Atauro handicraft production activities, women not only gain technical skills and economic income, but also develop social solidarity, strengthen cultural identity, and create inclusive and sustainable alternative learning spaces. Despite minimal government support, grassroots initiatives spearheaded by local communities and non-government actors have proven to be able to create significant positive impacts. This non-formal education model reflects experiential learning practices, collaboration, and local values, which have successfully driven social transformation while supporting the achievement of several Sustainable Development Goals (SDGs), especially SDG 4 (quality education), SDG 5 (gender equality), SDG 8 (decent work and economic growth), and SDG 12 (responsible consumption and production) (Islahi & Nasrin 2022; Sevcic & Reaboi-Petrachi 2024). Therefore, a similar approach is worth considering as an alternative development strategy, especially in remote areas and communities with limited access to formal education.

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