

THE DESIGN AND DEVELOPMENT OF HAND-WOVEN FABRIC PRODUCTS USING THE IDENTITY OF COMMUNITIES IN THE NORTHEAST OF THAILAND

O DESIGN E O DESENVOLVIMENTO DE PRODUTOS DE TECIDO TÊXTEIS FEITOS À MÃO UTILIZANDO A IDENTIDADE DAS COMUNIDADES DO NORDESTE DA TAILÂNDIA

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Abstract

This qualitative study has three main goals. First, it gathers and reviews information and past research about the materials, production methods, design, and development of hand-woven fabrics in Northeastern Thailand. Second, it examines the region's unique identity and how it can be incorporated into fabric design and development. Third, it explores ways to design and develop hand-woven fabric products that reflect this local identity. The study focuses on hand-woven fabric entrepreneurs in Northeastern Thailand, with selected participants from Ubon Ratchathani and Amnat Charoen provinces. The

Resumo

Este estudo qualitativo tem três objetivos principais. Primeiro, reúne e analisa informações e pesquisas anteriores sobre os materiais, métodos de produção, design e desenvolvimento de tecidos artesanais no nordeste da Tailândia. Segundo, examina a identidade única da região e como ela pode ser incorporada ao design e desenvolvimento de tecidos. Terceiro, explora maneiras de projetar e desenvolver produtos de tecido artesanal que reflitam essa identidade local. O estudo concentra-se em empreendedores de tecidos artesanais no nordeste da Tailândia, com



results show that weaving in this region is a long-standing tradition with a strong cultural identity. Patterns are made using techniques such as continuous and discontinuous supplementary weft weaving, ikat, brocading, and plain weaving, alone or combined, to create a variety of unique designs. Design and development involve creating patterns based on local culture, promoting art and local identity, passing down traditional knowledge, and using technology and innovation in creative ways. The study highlights the importance of using local resources to improve the look, meaning, identity, and market value of products. Producers should consider four main factors: community resources, competitors, production abilities, and consumers or marketing. Local identity is divided into four types: natural environment, cultural heritage, craft knowledge, and beliefs or legends. Case studies of nine entrepreneurs who used natural environment themes identified five key points for product development: choosing the right techniques, making knowledge easy to share, using identity by choice, entrepreneur decision-making, and focusing on the market. Overall, satisfaction with the design and development results was very high (mean = 4.78).

Keywords: Development of Hand-Woven Fabric. The Northeast. Spatial Identity.

participantes selecionados das províncias de Ubon Ratchathani e Amnat Charoen. Os resultados mostram que a tecelagem nessa região é uma tradição antiga com uma forte identidade cultural. Os padrões são criados usando técnicas como tecelagem de trama suplementar contínua e descontínua, ikat, brocado e tecelagem simples, isoladamente ou combinadas, para criar uma variedade de designs exclusivos. O design e o desenvolvimento envolvem a criação de padrões baseados na cultura local, a promoção da arte e da identidade local, a transmissão do conhecimento tradicional e o uso criativo de tecnologia e inovação. O estudo destaca a importância de usar recursos locais para melhorar a aparência, o significado, a identidade e o valor de mercado dos produtos. Os produtores devem considerar quatro fatores principais: recursos da comunidade, concorrentes, capacidade produtiva e consumidores ou marketing. A identidade local divide-se em quatro tipos: ambiente natural, patrimônio cultural, conhecimento artesanal e crenças ou lendas. Estudos de caso de nove empreendedores que utilizaram temas relacionados ao ambiente natural identificaram cinco pontos-chave para o desenvolvimento de produtos: escolha das técnicas adequadas, facilitação do compartilhamento do conhecimento, uso da identidade por escolha, tomada de decisão empreendedora e foco no mercado. De modo geral, a satisfação com os resultados do design e desenvolvimento foi muito alta (média = 4,78).

Palavras-chave: Desenvolvimento de Tecido Artesanal. Nordeste. Identidade Espacial.

1 INTRODUCTION

The creation of the hand-woven fabric in the Isan, or the Northeast, of Thailand was for usage, which was chiefly for the household members. Apart from that, the weaving was for the purpose of making gifts, souvenirs, “somma” (Isan word referring to “apology”) articles and the exchange of goods. With the passage of time, science and technology became more advanced; the economic system and the society changed, the hand-woven fabric, which used to be made for usage in a small circle, came to be used in

a wider circle. Hand-woven fabric was a commodity in the community business system, which entailed was marketing competition and union for production and distribution with the public sector providing aid and support in order to create the grassroots economic system. This produced good effects in several aspects and several propulsion-related problems. This is in agreement with the research by Chatjariya Bailee on the situation of the problems and needs of the folk fabric product group in Loei Province. From the research, it is found that there were problems in the production of woven fabric in five aspects, that is, the problems regarding the distribution of the produced commodities, raw material provision, competition with the textile industry on a larger scale, capital, and lack of academic knowledge. As for the needs in terms of support and encouragement from the government, it was found that there existed the needs for the markets selling the produced goods, capital, knowledge and the needs in other respects, such as public relations. As for the behavior of consumers as regards the folk woven fabric products, it was found that the purpose of purchasing the products is personal use. The products were directly purchased from the production sites out of the purchasers' own decision. The decision was made with consideration of the colors and pattern.

In the past, the hand-woven fabric in the Northeast had local identities with interesting stories. This corresponds with the information provided by the Department of Cultural Promotion, Ministry of Culture (2021: online), that is, regarding the weaving of the Isan people in the past, the patterns of the fabric had outstanding local identity reflecting the way of life, beliefs and faith of Isan people, which was invented by their ancestors due to their powers of observation as regards the surrounding natural entities, namely, animals, plants, utensils, down to beliefs regarding Buddhism. The observation resulted in the inspiration for creating various fabric patterns, namely, 1) animal patterns, which are the result of observing the shapes and postures of various kinds of animals, 2) plant patterns, which are the result of nature's inspiration from vines, trees, flowers and leaves, 3) utensil patterns, some of the prominent ones being those of diamond pendant, hook, wheel, and reel, and 4) patterns inspired by beliefs, faith and imagination, such as those of hall, castle and pulpit. With the passage of time, the creation of beauty on the hand-woven fabric in the Northeast was adjusted in keeping with the time, in terms of color, pattern and weaving technique, to correspond with the needs and changes of the customers. The most obvious change is that in the patterns on the fabric. In most cases, it

was development built on traditional or antique fabric patterns with creativity added for the purpose of making the patterns valuable, beautiful and meaningful (Mo et al., 2024, An, 2024)

From the information on the past design and development of hand-woven fabric in the Northeast, it is found that those in charge of the design and development often experienced problems in searching for the concepts for the creation of hand-woven fabric works in various aspects, such as natural dyeing, improving the quality of the weaving material, developing weaving techniques, and developing patterns on fabric in a way that corresponded with the needs of the market, and also searching for spatial identities in order to connect with the idea of creating soft power in the community. With contribution of ideas and searches from the community in order to upgrade the hand-woven fabric products and propel the development of hand-woven fabric products, the development will be successful to the highest degree. This is in line with the conclusion in the research by Chuthamas Dononbao and Jirawat Phirasant (2020:38), that is, the development of products in the category of Isan woven fabric through stimulating and encouraging the entrepreneurs to learn about and have access to new innovations and turn crises into opportunities more through thinking differently and producing works that meet the market's demands can increase the sale value at a higher rate, generating potential and sustainability to the local goods, the local products, through leading the process of participatory learning with outside agencies or those of the public sector participating in the development. The most obvious thing is participation in the co-creation of hand-woven fabric with local identity became more interesting. In the design and development of hand-woven cotton fabric, a production process with identity came into existence. Regarding this matter, with the perception of this importance, the researcher conducted research on the design and development of hand-woven fabric products using the spatial identity of the Northeast of Thailand in order to study and analyze the approaches to the design and development of hand-woven fabric products using the spatial identity with the form of development with participation from the community from the beginning of the process, with cooperation in the search for the developmental approaches, the search for spatial identities and the experiment on the production of prototypical fabric products according to the study approach in order to create further developmental approaches.

In this research on the design and development of hand-woven fabric products using the spatial identity in the Northeast of Thailand, the researcher has three research objectives as follows:

1. To study and gather information, documents and research related to the material, production, design and development of hand-woven fabric in the North
2. To study and analyze the spatial identity of the Northeast and the approaches to the application of the identity in the design and development of hand-woven fabric in the Northeast
3. To study and analyze the approaches to the design and development of hand-woven fabric products using spatial identity with case studies from the sample of hand-woven fabric entrepreneurs in the Northeast

2 LITERATURE REVIEW

On the information from the study on relevant documents and research, it is found that there are research papers and information from relevant scholars and agencies. The main points of this information can be concluded as follows. Ruethaithip Rattanaphan (2019:32) conducted research on the design of fabric patterns to create products building on the information about the cultural areas of Phetchabun Province with the objective to create fabric patterns from the information about the cultural areas of Phetchabun Province with painting techniques in order to create products building on the traditional woven fabric of the Phetchabun city and for the products to be prototypes for those who are interested in applying them in practicing their profession. In the research, it is found that if white fabric that can absorb various shades well is used in creating patterns with the painting procedure and inspiration from information on aesthetics, artistic beauty, history, cultural heritage and awareness of the value of beauty in respect of way of life and lifestyle, the generation of artistic value and the preservation of cultural areas, it can be a source of a picturesque image by means of fabric pattern works with content about the local identity and way of life. The creation resulted in applied Thai patterns indicative of the local color of Phetchabun.

Purida Wipatcha and Anucha Pangkesorn (2022) conducted research on the development of hand-woven fabric products with participation from producers, designers,

distributors and consumers in Mukdahan Province. The methodology of this research is survey research and quantitative research. Regarding the research results, the findings are as follows. 1) On the current situation and potential of the hand-woven fabric business of Mukdahan Province, it is found that the hand-woven fabric entrepreneurs were experiencing problems in respect of marketing, production, competition and increasing the potential of their group for producing products in response to the needs of customers, which change in accordance with the trend of the day. 2) Most of the people who used hand-woven fabric products had some experience in using the products that were sarongs, pants, skirts, scarfs, shirts, shawls, and cloth sheets for being processed into other utensils. The opinions of the questionnaire respondents are at the highest level. That is, they preferred purchasing natural-dyed goods to purchasing chemical-dyed goods. The sellers or producers should have the information identifying the qualities and functions of the goods. The respondents chose to buy goods made from hand-woven fabric, both cotton and silk fabric, and liked patterns that were mixes between the traditional and the modern. Goods designed by designers were usually expensive but the respondents were willing to buy them, and they chose to buy hand-woven fabric with patterns and colors that were fit for various modes of fabric processing.

The National Science and Technology Development Agency, Ministry of Higher Education, Science, Research and Innovation (2023) once held a seminar titled “Thai Woven-Fabric Wisdom to Lead the New Generation to Becoming Designers” in which they talked about the management of the technology and innovations for folk woven fabric, saying that it should focus on three things. The first is the transfer of knowledge, technology and innovations that are ready for use and the technology that is capable of being modified to fulfill the needs of folk woven fabric entrepreneurs, being applied, generating added value and marketing opportunities with the highest efficiency, applying to the upstream, midstream and downstream.

The second is the development of the potential of the folk woven fabric entrepreneurs through the process of inducing awareness in respect of art and culture, local identity and wisdom from the former generations to the youth, the new generation, with development built on it through bodies of knowledge on technology and innovations so that their potential will be the major force in creating works, marketing opportunities, incomes and career stability and eventually leads to creative and sustainable community

development in the future. The third is the development of the process for managing the bodies of knowledge resulting from the transfer of technology and innovations for folk woven fabric that are actually applied. The development will result in creative and modern progress built on the bodies of knowledge with the value of the community's identity still maintained.

Supawan Pipittasombat and Patcha Utiswannakul (2023) write in an online media titled “Chula Presented the Model for the Complete Development of Cultural Capital in the Form of Woven Fabric to Upgrade the Local Brand to the International Level, Open the Way for Cultural Tourism and Support Sustainable Communities” that woven fabric is one of the arts and cultures that reflect the identity, way of life, and wisdom of people of various ethnic groups and races, with the weaving procedure, weaving material, dyeing, patterns, wearing, and so on. These are the product of the learning, accumulation and transference from generation to generation for hundreds of years of each society, and it will be regrettable if this precious culture is disrupted the way folk woven fabric has become merely products that are travel souvenirs to be worn on special occasions at present. Thus, restoring the value and keeping the cultural capital in existence in the modern world requires art and creativity in combining the old value with the modern lifestyle fittingly. This research, the researcher's scopes of research are as follows.

This research is a study and analysis of the design and development of hand-woven fabric products using the spatial identity of the Northeast of Thailand. The communities or establishments selected for case studies are those in Ubon Ratchathani Province.

- 1) Study on the material, production and forms of hand-woven fabric in the Northeast
- 2) Study on the design and development of hand-woven fabric in the Northeast
- 3) Study on the spatial identity and approaches to its application
- 4) Relevant documents and research papers

2.1 Scopes of population and sample

The population refers to the hand-woven fabric entrepreneurs in the Northeast of Thailand.

The sample refers to the hand-woven fabric entrepreneurs in Ubon Ratchathani Province. The sample was obtained by purposive sampling.

Scope of Variable

The independent variable is hand-woven fabric in the Northeast.

The dependent variable is the design and development of hand-woven fabric products using the spatial identity of the Northeast of Thailand.

Scope of Time

From January 2024 to September 2024

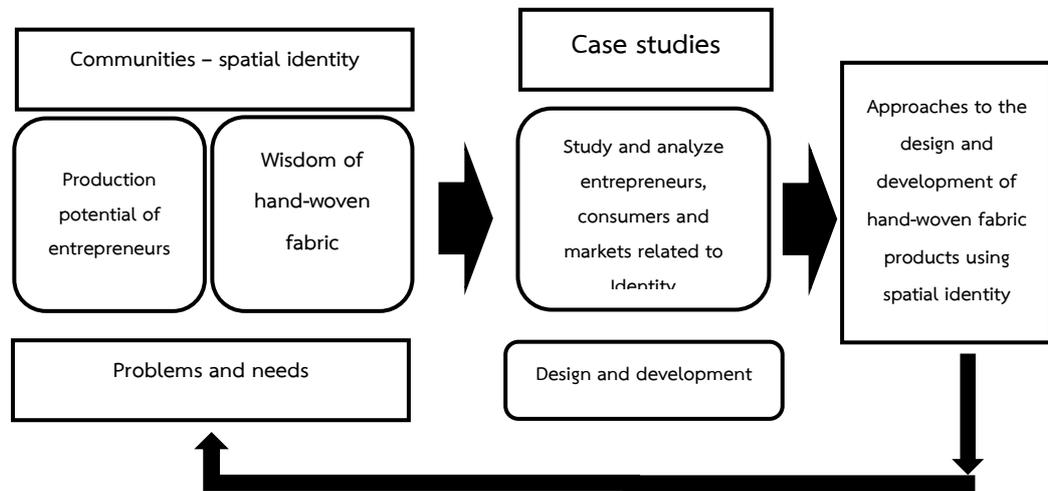
3 RESEARCH METHODOLOGY

This research is qualitative research. It was conducted in the following sequence.

1. Study and collect information on the local wisdom regarding hand-woven fabric production, the material, hand-woven fabric development and other things pertaining to the design and development of hand-woven fabric in the Northeast of Thailand
2. Analyze information on the spatial identity in the Northeast, the process of the design and development of hand-woven fabric, approaches to spatial identity decoding and the application of identity in the design and development of hand-woven fabric in the Northeast
3. Design and develop hand-woven fabric products using the spatial identity of the Northeast of Thailand. The sample was obtained by the purposive sampling method for the case studies in the research. The sample was divided into groups by the type of spatial identity with difference in terms of production technique and type of identity.
4. Produce prototypical works using the spatial identity that is in line with the potential of the establishment
- 5) Evaluate the results and form a conclusion about them in order to determine the guidelines for the design and development of hand-woven fabric products using the spatial identity of the Northeast of Thailand
- 6) Write the research report, a book or textbook for wide dissemination and write an article for publication in an international database

3.1 Research conceptual framework

In this research, in order to achieve the determined research objectives, the researcher determined a research conceptual framework that is divided into three major parts. The first part is studying and collecting information relevant to the communities and their overall spatial identity from relevant documents, online media and research, focusing on the study of the production potential of entrepreneurs in the Northeast, the wisdom regarding the production of hand-woven fabric and the material selection for the production in order to find out the problems and needs in the development of hand-woven fabric in the Northeast. The second part is studying from case studies of a sample of entrepreneurs in the Northeast in order to evaluate the design and development of the hand-woven fabric using spatial identity, and the third part is a conclusion of the approaches to the design and development of hand-woven fabric products using spatial identity, which is the application of the conclusion from the experiment with the sample for the purpose of bringing about approaches for future application. This is as Figure 1 shows.

Figure 1*Research conceptual framework*

Source: Sakchai Sikka, 2024

3.2 Definitions of specific terms

Spatial Identity means increasing the value of local things. The meaning of the scope of spatial identity covers both the aspects of geographical context and identity sign. Identity analysis allows differences with regard to community culture to be perceived. (Jenkins, 2000; Kalandides, 2011)

Identity Decoding refers to the study of the distinctive characteristic of something that is an important part and conveys the individuality of that entity in order to select some part for creative utilization. The distinctive characteristic or identity may be in the form of shape, pattern, texture, or tone, or several of these forms.

Hand-Woven Fabric refers to fabric that is produced as a handcraft with the use of simple devices and requires craft and expertise for its production. Most hand-woven fabric is produced by communities that pass on the production skills from generation to generation.

3.3 Research results

The findings of the study and collection of the information from documents and research related to the material, production and upgrade of hand-woven fabric in order to use it as information in the design and development of hand-woven fabric in the Northeast can be concluded in two parts as follows.

For the first part, the weaving culture in the Northeast is a heritage of culture and wisdom that has been passed on for a long time. It has manifested the cultural prosperity with identity. The patterns on the fabric are produced by the methods of continuous supplementary weft usage, ikat, discontinuous supplementary weft usage, brocading and plain-weave weaving. Both the single-technique method and multiple-technique method are applied. This results in many fabric patterns with identity. Moreover, it is found that in the current changing situation, communities of hand-woven fabric producers should also change by applying creative thinking in designing, and the creation should involve the consideration of three elements, namely: 1) identity or uniqueness, 2) creative thinking or application of knowledge to give rise to novelties and 3) creating the meaning that can clearly define the user. As for the study of the wisdom of hand-woven fabric in the Northeast and the development of the types of hand-woven fabric in the Northeast, the material in the production of hand-woven fabric in the Northeast, the origins of the fabric patterns in the Northeast and the structural forms of the fabric patterns in the Northeast, it is found that the design and development of hand-woven fabric can be implemented with various approaches, such as designing a fabric pattern for product creation built on the information on a cultural area, inducing awareness in respect of art and culture, local identity and wisdom from the former generations to the new generation, building on resources with bodies of knowledge on technology and innovations and building on resources in a creative and modern manner.

Figure 2

Khit cushions in the Northeast



Source: <https://www.facebook.com/srijoomon/>

Figure 3

Khit pattern



Source: <https://dogcan-rt.blogspot.com/>

Figure 4

khit-patterned fabric, hand-woven fabric in the Northeast, a heritage of culture and wisdom - Checkered fabric

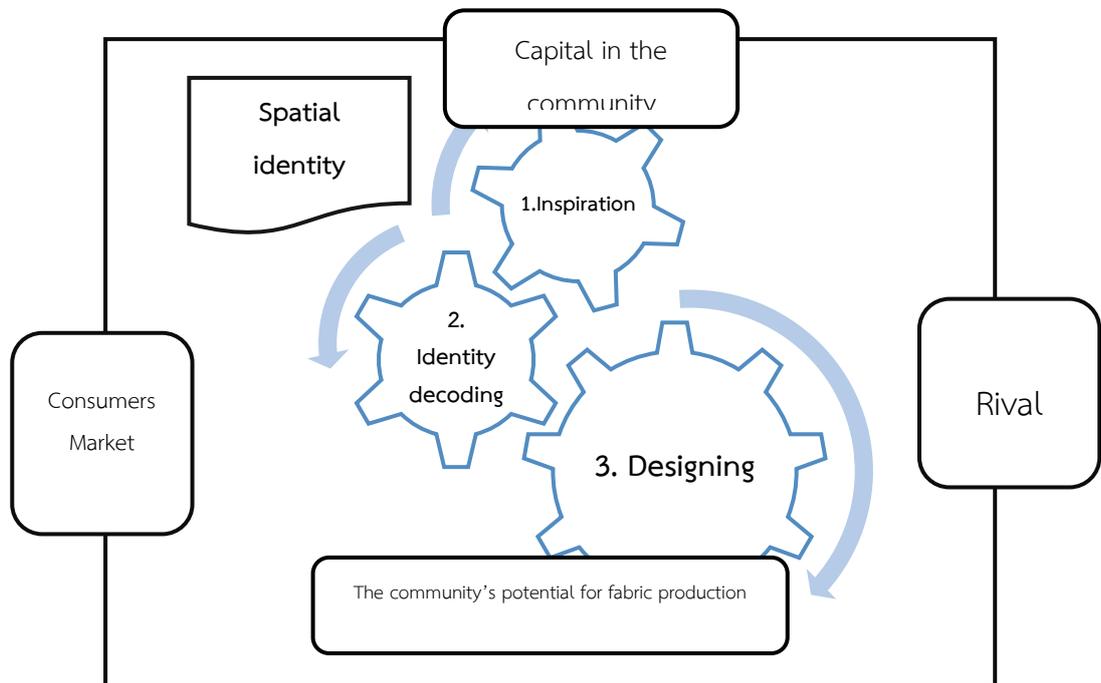


Source: Prathabjai Suwanthada, 2024

Figure 5*Figure 3 plain-weave-patterned fabric used in the way of life of Isan people*

Source: [https://www.google.com/search?q=%E0%](https://www.google.com/search?q=%E0%00)

The second part is the content about the study and analysis of the spatial identity in the Northeast and the approaches to the application of the identity in the design and development of hand-woven fabric in the Northeast. It is found that the study of the spatial identity is the search for the existent local capital in order to utilize it in upgrading products, affording them beauty, meaning, and distinctive identity and permit distribution at a higher price. In using spatial identity as inspiration for design, there are four matters that producers of hand-woven fabric need to consider in relevant contexts: 1) capital in the community, 2) rival, 3) the community's potential for fabric production that is to be developed, and 4) consumers and marketing. These matters are interrelated and they are the important elements that will make the application of spatial identity in the design and development possible and most beneficial. The diagram of the method of thinking can be displayed as follows:

Figure 6*Relationship of the inspiration for design under relevant contexts*

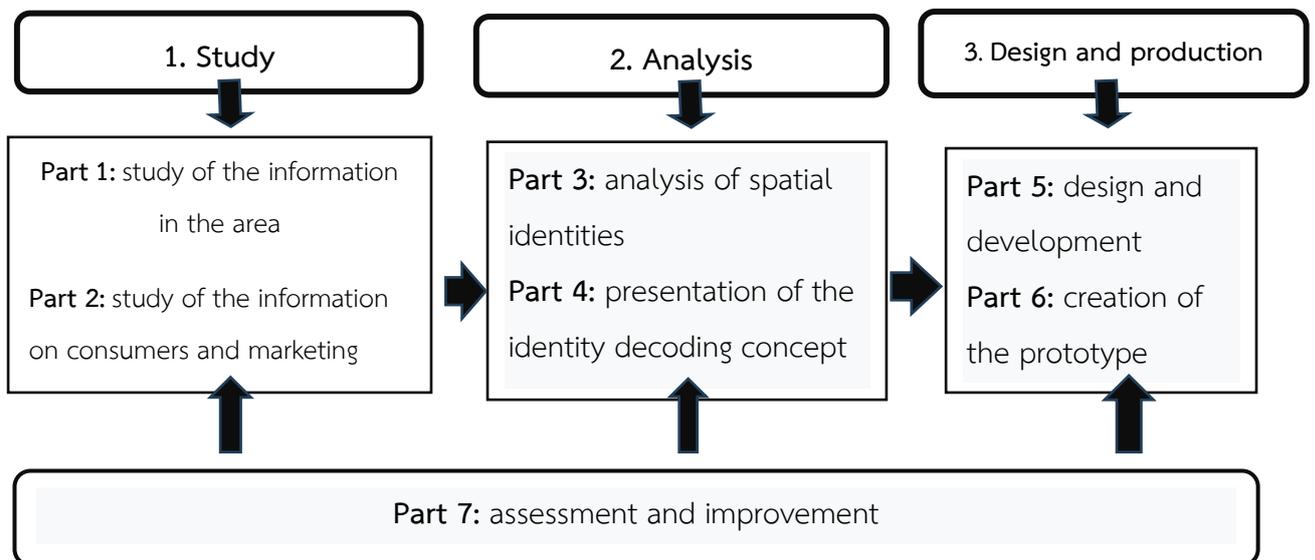
From the illustration exhibiting the relationship of the inspiration for design under relevant contexts, it is found that the search for inspiration for design is under the following relevant contexts. The first one is capital in the community, which is the distinctive characteristics of the community or what the community already has, such as community identity, the architecture in the community, local wisdom in the community and raw material in the community. The second one is rival, which means in the design and development of hand-woven fabric, the marketing rivals must be taken into account for the purpose of determining one's direction of development so that the marketing position can be suitably determined. The third one is the community's potential for fabric production that is to be developed. The skills, competency, proficiency and techniques with regard to production must also be considered together with the potential. 4) The fourth is consumers and marketing, which means the study of the demands of the target customers and marketing condition at the time as regard trend, economic condition, and other relevant matters. Without this, it would be impossible to attain implementation within the framework, that is, the search for inspiration for design from the site of

implementation, identity search and decoding, and lastly, design and development of hand-woven fabric.

On the spatial identities in the design and development of hand-woven fabric in the Northeast, they can be divided into four groups, that is, Group 1: spatial identities from the natural environment, Group 2: spatial identities from cultural heritage, Group 3: spatial identities from handicraft wisdom, and Group 4: spatial identities from beliefs and legends. On the approaches to the application of the identities in the design and development of the hand-woven fabric in the Northeast, the person who implements the design and development should divide the work process into seven sequential parts: Part 1: study of the information in the area, Part 2: study of the information on consumers and marketing, Part 3: analysis of spatial identities, Part 4: presentation of the identity decoding concept for use in the design work, Part 5: design and development, Part 6: creation of the prototype, and Part 7: evaluation and improvement. The diagram of the method of thinking can be displayed as follows:

Figure 7

Diagram of the process of spatial identity decoding for the design and development of hand-woven fabric.

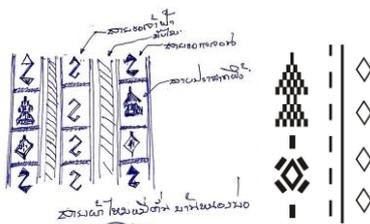


The above diagram is an elaboration to show that the process of spatial identity decoding for the design and development of hand-woven fabric can be divided into three groups, that is, Group 1: study, Group 2: analysis, and Group 3: design and production.

At the time of the assessment and improvement in the final step, assessments was performed on the entire systems, such as the assessment performed by entrepreneurs or producers in the community, which was the assessment of the operation in every step. As for the assessment by the consumers, it was focused on the possibility of commercial production in various aspects, such as beauty, utility, signification as regards identity, price, and so on.

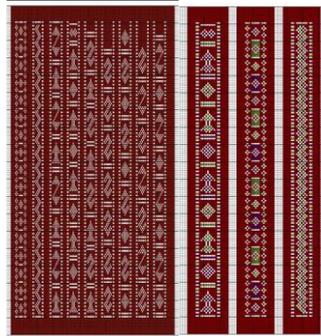
Figure 8

Examples of the identity decoding and design for production (Source: design works by Sakchai Sikka and Prathabjai Suwanthada, 2022)



Her-Royal-Highness-Princess pattern, mapmai, curved earring pattern, wax castle pattern, stripe ikat silk pattern of Ban Nong Bo

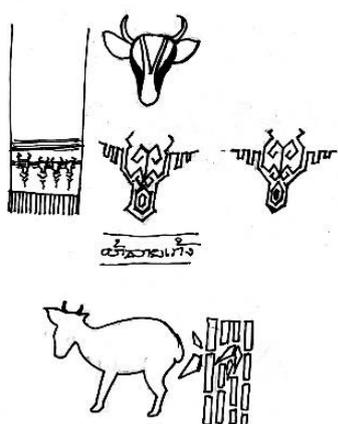
The decoding of the identity of the wax castle pattern together with the curved earring pattern, and so on, 2022



Grids for the application of ikat to create patterns



The weaving of ikat fabric with an identity pattern of Ban Nong Bo, Ubon Ratchathani Province



The decoding of the identity of the wax castle pattern together with the naga and bamboo, 2022



Grid for weaving with the continuous supplementary weft to create a pattern



The weaving with the continuous supplementary weft of the Phu Tai people of Ban Khok Kong, Bung Kha Sub-district, Loeng Nok Tha District, Yasothon Province

The last part of the content is the study and analysis of the approaches to the design and development of hand-woven fabric products using spatial identity with case studies from a sample of hand-woven fabric entrepreneurs in the Northeast. On the results of the study, it is found that the spatial identities in the Northeast are divided into four groups. In this case study, the researcher chose the first group: spatial identities from the natural environment and the second group: spatial identities from the cultural heritage that is the local capital and abounds in the Northeast of Thailand. The case studies are those of the design and development of hand-woven fabric using identities from plants and animals (spatial identities from the natural environment) of nine individuals in the sample. For the implementation, the performance was designed and the design and development were planned. The implementation was divided into three major parts as follows.

3.3.1 Part 1: site visits at the establishments for data collection and detail clarification

This step is participatory work. The site visits for information collection at the establishments were done using interview forms, observation, brainstorming, exchange for learning together regarding major topics, such as the entrepreneurs' potential, material and production processes, the forms of the original products, features or outstanding selling points, production craft, special techniques and expertise, capacity, spatial

identity, consumers and markets, marketing rivals, problems, obstacles and needs, possibility of development, and other topics that were relevant. This is because the basic information is crucial to the design and development, which are next in order. If the data collection can be done comprehensively, it will be very beneficial to the operation.

3.3.2 Part 2: product design and development

This is the design and development of products according to the steps of design, which are the search for design concept or the inspiration for design, identity decoding for application in design work, creation of a conceptual sketch design, conclusion of the conceptual sketch design, design for production, prototypical work production and assessment. In the actual implementation in this research, it was found that the production of the prototypical works in all the nine establishments needed the supplementation of knowledge and production skills for all the entrepreneurs and recommendation and counseling in each step of the production to be able to produce quality works.

3.3.3 Part 3: conclusion of the implementation results

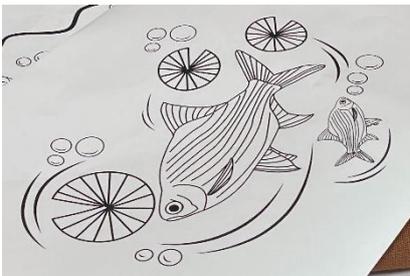
This is the conclusion of the implementation results, which consists of the analysis of the result of the implementation in each step, preparation of the report of the implementation results and conclusion of the prototypical product result, with the display of the production model, illustrations, and other elements that are relevant, such as the presentation of the works and criticism of the products by experts for future improvement and development. In the actual implementation in this research, it was found that in experiments on prototypical work production, the works should be reproduced for the entrepreneurs to become proficient and confident in production. In most cases of producing the first prototypical work, there are defects. Therefore, brainstorming in order to assess defects together for numerous instances of reproducing the prototypical work often results in a good and quality work.

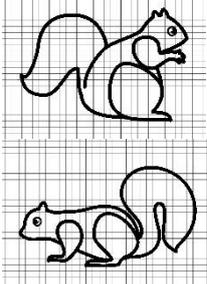
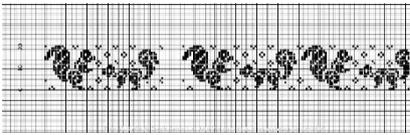
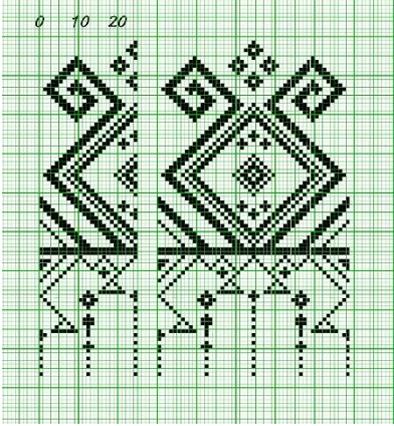
In the conduct of the implementation at the actual site, the researcher performed the role of the advisor for the development. There were implementation planning and implementation according to the plan. There were site visits in the design and

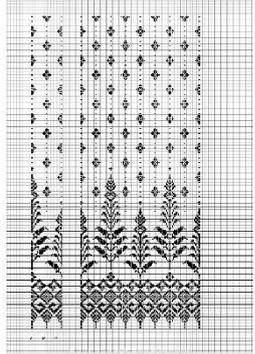
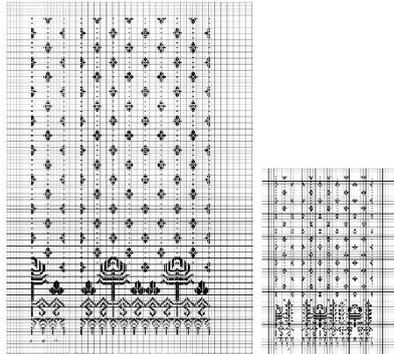
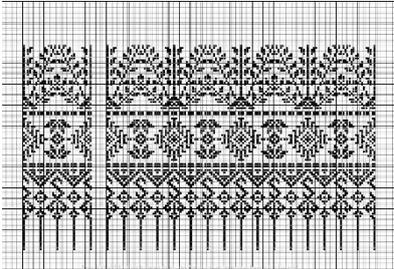
development of hand-woven fabric using spatial identity, which took place at nine establishments, which were the sample in the research. The results of the implementation can be summarized as follows.

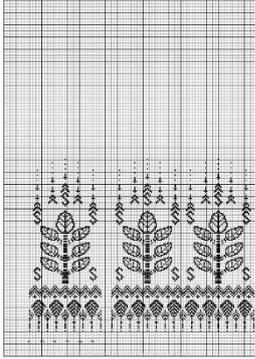
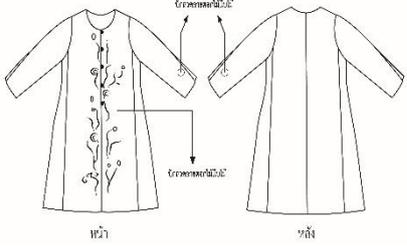
Table 1

Summary of the results of the case studies on product design and development using identity from plants and animals

No.	Entrepreneur and Inspiration for the Design	Application from Spatial Identity	Outcome of the Design and Development
1	Establishment: Olivenoi Number 20, Village No. 4, Ban Lao Sua Kok, Lao Sua Kok Sub-district, Lao Sua Kok District, Ubon Ratchathani Province Inspiration: tiger 	 Identity from the tiger's stripes Pattern for the technique of embroidery and sewing with alternating colors	 Production: application of spatial identity from an animal, that is, the tiger, choosing only the tiger's stripes in the processing by sewing with the technique of cutting and connecting the fabric to create a pattern to produce a woman's bag
2	Establishment: Suphaphorn Pha Thai Number 268/2 Sinarong Road, Nai Meang Sub- district, Mueang Ubon Ratchathani District, Ubon Ratchathani Province Inspiration: grass carp 	 Identity from the grass carp Drawing for embroidery	 Production: Application of spatial identity from an animal, that is, the grass carp, which exists in the belief and the local area, using the technique of sewing the design from the drawing, choosing to sew it on a blouse-and-skirt-in-one dress. The decorative embroidery design was positioned at the side.

<p>3</p>	<p>Establishment: Chawilak Pha Tho Number 177, Village No. 4, Ban Dong Sawang, Noan Sawan Sub-district, Na Chaluai District, Ubon Ratchathani Province Inspiration: squirrel</p> 	  <p>Identity from the squirrel Grid for the technique of weaving with the continuous supplementary weft</p>	  <p>Production: Application of spatial identity from an animal, that is, the squirrel. The pattern was made with the technique of weaving with the continuous supplementary weft to make a scarf, which was used as a decoration in combination with a woman's natural-dyed blouse to generate added value.</p>
<p>4</p>	<p>Establishment: Pha Chok Kham Sam Phan Bok Number 2 Village No. 3, Ban Prong Charoen, Song Khon Sub-district, Pho Sai District, Ubon Ratchathani Province Inspiration:: Mekong fish</p> 	 <p>Identity from the Mekong fish Grid for the ikat technique</p>	 <p>Production: application of spatial identity from an animal, that is, the Mekong fish, in weaving ikat fabric, which was applied as a major part in its processing into an indigo-dyed dress</p>
<p>5</p>	<p>Establishment: Maeharn Phai Ngam Number 168 Village No. 14 Ban Bua Ngam, Bua Ngam Sub-district, Det Udom District, Ubon Ratchathani Province Inspiration: dueai kai</p>		

		 <p>Identity from the dueai kai Grid for the ikat technique</p>	<p>Production: application of spatial identity from the dueai kai in weaving ikat fabric, which was processed into a dress dyed with indigo and lac dye</p>
<p>6</p>	<p>Establishment: Warasi Pha Thai Number 57 Village No. 11, Ban Nong Bua, Palan Sub- district, Na Tan District, Ubon Ratchathani Province Inspiration: cotton and indigo</p> 	 <p>Identity from the cotton and indigo Grid for the ikat technique</p>	 <p>Production: application of spatial identity from a plant, that is, the cotton flower in weaving ikat fabric, which was processed into a blouse</p>
<p>7</p>	<p>Establishment: Son Klin Pha Thai Shop Number 88, Village No. 2, Ban Nong Thawon, Na Kasem Sub-district, Thung Si Udom District, Ubon Ratchathani Province Inspiration: pla lai phueak</p> 	 <p>Identity from the pla lai phueak Grid for the ikat technique</p>	 <p>Production: application of spatial identity, that is, the leaf stalk of the pla lai phueak by creating a pattern by weaving natural-dyed fabric with the continuous supplementary weft and applying the fabric as a major element in processing it into a blouse</p>

<p>8</p>	<p>Establishment: Wannisa Pha Fai Number 8 Village No. 9, Ban Sok Sang, Sok Sang Sub-district, Na Chaluai District, Ubon Ratchathani Province Inspiration: chum saeng leaf</p> 	 <p>Identity from the chum saeng leaf Grid for the ikat technique</p>	 <p>Production: application of spatial identity, that is, the leaf of the chum saeng in weaving ikat fabric, which was processed into a natural-dyed blouse</p>
<p>9</p>	<p>Establishment: Bounnapha Number 157 Village No. 7, Ban Pak Huai Wang Nong, Pathum Sub-district, Mueang Ubon Ratchathani District, Ubon Ratchathani Province Inspiration: wild flowers</p> 	<p>Embroidery of flowers and leaves</p>  <p>Front back</p> <p>Identity from the wild flower Pha Taem National Park Drawing for embroidery</p>	 <p>Production: application of spatial identity, that is, the beautiful wild flowers of various kinds in the Pha Taem National Park to create an embroidery on a dress, choosing to do it on the important areas of the natural-dyed dress. The embroidered areas are the sleeves, neckline and the front, along the row of buttons.</p>

Regarding the conclusion drawn from the results of the implementation of the design and development of hand-woven fabric using spatial identity obtained through analysis of the implementation results from the sample in the research by the method of observing and recording the main points in the implementation in each step with the list record forms, the conclusion can be done with five findings that are important points and should be used as the points to be considered in the next implementation as follows:

- 1) The selection of the production technique should be based on the existent skills and knowledge of the entrepreneurs. From the case studies above, it is found that for most entrepreneurs, the techniques are the development built on the existent production craft, such as the techniques of ikat, weaving with the continuous supplementary weft and natural dyeing. Since the fabric patterns that were

developed were new ones, some steps of the production techniques had to be improved and developed further.

- 2) In creating new products, the transfer of supplementary knowledge and craft for the new manner of production should be organized for the producers because the existent craft of the entrepreneurs may not allow the generation of added value to new products through spatial identity in a quality manner. The implementation should be done in a participatory manner. Brainstorming and exchange for learning together as regards the production techniques that must be enhanced should be organized. For this matter, the possibility of enhancement should also be taken into account and acceptance should also be made a need of entrepreneurs. Some of the techniques that require this are connecting fabric pieces to create a pattern on fabric, embroidery and ikat.
- 3) The application of spatial identity should be done with the entrepreneurs' volition because in developing products, the main point is the need for sustainable development with the entrepreneur being happy and satisfied with the style of development. Thus, in every step of the design and development, perception and voluntary acceptance need to be induced in the entrepreneur because acceptance tends to lead to further propulsion afterward, which will affect the worthiness of the operation. In contrast, if the design work is not willingly accepted, it will be produced only once; there will be no reproduction and no development progressing from the outcome, which affects the unworthiness of the operation. Therefore, participatory development is a very important part of the operation.
- 4) The ultimate decision-making point as regards spatial identity is at the entrepreneur because from this operation, it was found that some establishments had numerous spatial identities; in some establishments, the entrepreneurs wanted to create spatial identities in entities that they liked and considered meaningful, even though those entities may not have been so outstanding. Thus, in the brainstorm between the entrepreneur and the advisor, a search for a conclusion needs to be done together, and the ultimate decision-making point should be the decision of the entrepreneur with the advisor providing advice because the entrepreneur will be the one to propel the development in a continuous manner.

5) The consumers and marketing must always be important because the design and development are operation with the aim to give rise to sale and generate incomes to community businesses. Thus, studying information about the consumers and marketing has a role that is significant to the design and development both before and after the operation. Therefore, in design work, study and analysis should be done in order to definitely find out about the needs of the target consumers and target markets in order to determine the developmental approaches together.

All the five points above are the important elements that must be considered circumspectly on every occasion of design and development implementation.

In this research, the researcher conducted a satisfaction assessment on the nine individuals in the research sample, who were either the chairpersons of the groups or business owners, using nine inquiry topics, namely, utilization, correspondence with demands, assessment of the skills, knowledge and competency of the research team, willpower, attentiveness in the implementation of the research team, convenience and rapidity in each step of the operation, punctuality according to the plan, suitability of the implementation site and readiness of the tools, documents, and devices in the implementation. It is found that the satisfaction with the design and development was at the very good level ($\bar{X} = 4.78$).

4 RESULT DISCUSSION

In the study and analysis of the spatial identity of the Northeast for application in the design and development of hand-woven fabric, it is apparent that the division of the sources of spatial identity into four sources, that is, the natural environment, cultural heritage, handicraft wisdom and beliefs and legends was for convenience in searching for the spatial identity. This is in agreement with many pieces of past research, such as that of Ruethaithip Rattanaphan (2019: titled “Designing Fabric Patterns to Create Products Built on Information on the Cultural Areas of Phetchabun Province”), which is the research on designing fabric patterns using spatial identity from information on the culture and way of life of Phetchabun Province. For another piece of research, the one by Piyawan Prommak and Noppadol Inchan (2020:1-2) titled “Design and Development by

Using Mee Khan Khor Nari Pattern for Fashion Business as Related to Superstitions” is research on designing fabric patterns with reduction of the woman-stripe-ikat-silk pattern and usage of the spatial identity from the shapes in folk art in combination with modern art and beliefs as the concept in the design and marketing based on superstition. There is also the research by Rangsan Naiprom and Sakhon Chaluaysi (2023:108) titled “The Development of Local Wisdom on the Locally Woven Clothes to Community Innovation in the Border Communities in Ubon Ratchathani Province”, which includes a field data survey showing that the cultural capital of the border communities in Ubon Ratchathani Province that has a prominent character and reflects the identity of the local people is the wisdom of folk woven fabric that resulted from the creative wisdom of the community members in terms of the local wisdom of inventing weaving devices and also the local wisdom of fabric-weaving industry and handicraft leading to the design of patterns with spatial characteristics, which are derived from nature and the environment surrounding the communities, such as the circle ikat pattern, bakchap ikat pattern, Spanish cherry ikat pattern, lozenge ikat pattern, rain ikat pattern and rice plant ikat pattern. As for the khit patterns, there are the floral khit pattern, butterfly khit pattern, elephant khit pattern, Mekong giant catfish pattern and Pha Taem khit pattern.

In the study of the process for the design and development of hand-woven fabric using spatial identity with case studies from the sample consisting of nine hand-woven fabric entrepreneurs in the Northeast, who has designed and developed hand-woven fabric using identities from plants and animals (spatial identities from the natural environment), regarding the results of the study and implementation, the knowledge discovered can be concluded as five guidelines for the design and development of hand-woven fabric as follows. 1) The selection of the production techniques should be based on the existent skills and knowledge of the entrepreneurs. 2) In some cases, the knowledge and craft in respect of new styles of production should be transferred for the creation of new products. 3) The application of spatial identity in design work should be done with the volition of the entrepreneur. 4) The decision-making point in spatial identity selection is at the entrepreneur. 5) The consumers and marketing must always be important to the design. Moreover, the sample exhibited the process and approaches regarding the design and development, which consisted of the study of local information, study of information on the consumers and marketing, analysis of spatial identity, presentation of the concept of

identity decoding for use in design work, design and development, prototype creation and assessment and improvement. In this implementation, those who were in charge of the design and development could apply these in a manner that was appropriate and in keeping with the conditions of the project providing the budget support. This is in accordance with the notion of Purida Wipatcha and Anucha Pangkesorn (2022:2830) in “Developing Hand-Woven Fabric Production through the Participation among Producers, Designers, Distributors and Consumers in Mukdahan Province”, which discovers that with regard to the consumers’ opinions and value regarding hand-woven fabric products, the reasons they chose to purchase products made from hand-woven fabric was the prices of the goods that were suitable for the quality and the neatness and beauty of the sewing and weaving. The consumers preferred purchasing natural-dyed goods to purchasing chemical-dyed goods. They often chose to purchase goods made from hand-woven fabric, both cotton and silk fabric. They liked patterns that were combinations of the traditional and the modern. The goods designed by designers are usually expensive, but the purchasers were willing to purchase them. Lastly, they liked to purchase woven fabric with patterns and colors that were fit for many forms of processing. Furthermore, it is found that in the views of the producers and middlemen, designers and developers are important to the development of hand-woven fabric because designers are experienced and more imaginative in designing with creativity and developing fabric with modernity than the local people. Therefore, those who are in charge of the design and development are important people and have a role towards the propulsion of hand-woven fabric development to a great extent, and they should learn the processes and approaches for development that can create quality works. Only then can they upgrade the hand-woven fabric goods using the spatial identity.

In this study, the researcher’s recommendations are as follows.

In designing and developing hand-woven fabric using spatial identity, the approaches from this research can be applied. The implementation process may be modified by means of consolidation or elaboration for correspondence with the context and the conditions of the funds received for the implementation. Some spatial identities may be identical or similar. Therefore, in the design and development of hand-woven fabric, it is advisable to study relevant information and search for approaches to creating creative differences.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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