

COMPACT MULTIPURPOSE WORKING DESK DESIGN FOR NEURODIVERGENT GRAPHIC ARTISTS ON TAB SPACE

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Abstract

The phenomenon of inclusive art for artists with disabilities, especially neurodivergent, has been gaining more attention in Indonesia. One of the art studios that supports neurodivergent artists is Tab Space, which provides a place and facilities for artists to work. However, until now, *Tab Space has faced problems in providing adequate facilities, especially in terms of personal work areas for artists and also storage of large-scale works, given the limited space in the studio. This study uses a design thinking approach with the stages of empathize, define, ideate, prototype, and testing to design a solution that can overcome this problem. The results of this study are in the form of a proposal for a compact multipurpose working desk design that can provide a personal work area for neurodivergent artists, also provide a place to store large-scale works, while meeting functional needs and space efficiency. The benefits of this study are to provide design solutions that support the sustainability of neurodivergent artists' creativity, increase their comfort and productivity, and strengthen the inclusive arts ecosystem in Indonesia.*

Keywords: Multifunctional Furniture, Compact Furniture, Inclusive Design, Neurodivergent Artists.

INTRODUCTION

Graphic art is an inclusive and expressive medium for diverse community groups. With its concept of inclusivity, graphic art offers opportunities for everyone, including individuals with disabilities, to access and participate in it (Fajrie et al., 2024). This also applies to neurodivergent artists, as art plays an important role in stimulating ways of thinking, enhancing self-expression, and fostering personal and professional development (Damiani, 2017). In this regard, graphic art provides opportunities for neurodivergent artists to build connections with the broader art community, thereby fostering a sense of belonging and validating their experiences—which ultimately supports their mental and physical well-being (Gentle & O'Brien, 2021).

To support the creative potential of neurodivergent artists, the existence of inclusive art studios becomes crucial. Law No. 8 of 2016 emphasizes the importance of the rights of persons with disabilities in various aspects of life, including education, employment, and accessibility. Government Regulation No. 42 of 2020 also mandates that all public facilities must be accessible to people with disabilities, including those with visual, auditory, physical, and intellectual disabilities. This aligns with Goal 10 of the Sustainable Development Goals (SDGs), which focuses on “Reducing Inequality.” One

of the targets of this goal is to ensure that everyone, including persons with disabilities, has equal access to public facilities and social spaces. However, in reality, data from the Ministry of Social Affairs of the Republic of Indonesia (2022) shows that although there are over 22.5 million people with disabilities in Indonesia, only a few public facilities are adequately accessible to them. This issue also extends to art spaces—such as galleries, art studios, and exhibition areas—which often face a range of physical and non-physical barriers, from entryway access to the availability of appropriate facilities within.

One Supported Art Studio that advocates for neurodivergent artists in Indonesia is Tab Space, located in Bandung. Tab Space serves as a platform that helps neurodivergent artists express themselves and create their work optimally. Its commitment is reflected in its efforts to provide standardized facilities and create an inclusive and supportive environment tailored to the needs of neurodivergent artists. In recognition of these efforts, Tab Space has received the Sensory Inclusive Certification from Better Community Certified. This certification affirms Tab Space's success in creating a sensory-supportive environment that provides comfort and ensures safety for artists as they work. This is in line with the principles of Neuro-inclusive design, which emphasize the creation of environments that cater to the sensory and perceptual needs of neurodivergent individuals (Boyd, 2024).

Despite the progress Tab Space has made in fostering an inclusive environment, several challenges still hinder the optimization of its facilities for artists. One of these is the limited space, which requires artists to share worktables. This situation impacts the artists, as shared workspaces can lead to difficulties such as inadequate lighting, inappropriate noise levels, and limited personal space—all of which can impede the creative process of neurodivergent artists (Allen et al., 2023). Additionally, neurodivergent artists often have specific needs related to sound or lighting, or require comfortable tables and chairs. Therefore, they need workspaces that are specially designed to help them work comfortably and more productively (Zare et al., 2022). Currently, Tab Space accommodates 15 neurodivergent artists, but they all must share the same worktable, even though they work at different times. This poses its own challenges, as the limited space still affects their comfort and productivity, even when working separately. Another issue faced by Tab Space is the lack of storage space for large artworks, especially canvases with dimensions of 1x1 meter or more. As a result, artists using such media cannot leave their work at the studio and must take it home, since no suitable storage area is available for large-sized pieces.

With a total of 15 artists and a limited workspace of only around $\pm 13 \text{ m}^2$ at Tab Space, it is not feasible to provide each artist with a personal workspace using conventional desks. However, each artist requires a personal working area to support their comfort and productivity. To address this issue, a potential solution is the design of a multifunctional modular working desk specifically tailored for neurodivergent artists. This desk would offer a flexible working area that can accommodate various

media, such as paper and canvas, as most artists at Tab Space use both. Additionally, the desk would be equipped with storage space capable of holding canvases up to 1x1 meters in size, allowing artworks to be stored in the studio without needing to be taken home. This type of furniture would also allow for space efficiency, as it can be reconfigured or folded when in use or stored, providing flexibility without sacrificing functionality.

Through this research, it is hoped that a furniture design solution can be developed that optimally accommodates the needs of neurodivergent artists, while still taking into account the existing space limitations. The aim is to support Tab Space as a supported art studio in providing a work environment that is inclusive, comfortable, and conducive to the productivity of its artists.

RESEARCH METHOD

This research adopts a design thinking approach, which follows the stages of *empathize, define, ideate, prototype, and testing* (Sánchez Vallejo et al., 2024). The application of design thinking in this study begins with the empathize stage, which involves understanding the needs, desires, and challenges faced by the users. This is followed by the define stage, where the problems encountered by users are clearly articulated, leading to the generation of alternative ideas (*ideate*) for solving these problems. The next stage is *prototype*, in which the ideas are developed into a design concept, which is then subjected to testing and evaluation.

The data collection methods used in this study include observation, interviews, and literature review. Observation is the process of recording visual representations with the aim of documenting a condition, making it easier to present and understand visual elements (Soewardikoen, 2021). Interviews are a method of gathering information through direct questioning with informants, focusing on relevant topics to obtain qualitative data (Sahbuki Ritonga, 2023). A literature review is a systematic examination of existing academic sources to provide a comprehensive overview of current research in a particular field. This process analyzes the relationships among various works, identifies knowledge gaps, and synthesizes relevant information to contextualize new research (Goertel, 2023). Literature reviews also play a key role in ensuring the quality and credibility of academic work. By establishing a solid foundation, literature reviews enhance the rigor and impact of the research being conducted (Afianti, 2024).

The data obtained through the collection process will be processed and analyzed using various approaches. This involves brainstorming techniques to generate creative ideas, and a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) to evaluate relevant aspects of the data. The combination of these methods is intended to ensure a comprehensive and in-depth understanding of the data, allowing the analysis to yield strategic insights that support better decision-making

RESULT AND DISCUSSION

Empathize

Tab Space is an art collective founded in 2022 by Imaniar Rizki, Nurul Lathifah, and Rizka R. Safitri, with a focus on supporting neurodivergent artists through a wimba approach in reading visual language. This idea originated from Imaniar Rizki's experience as a child drawing researcher and art facilitator since 2017. Tab Space aims to be a support system for neurodivergent artists so they can develop professionally and earn income from their work. Initially, Tab Space recruited four neurodivergent artists, namely Adryan Adinugraha, Claudia Panca Fadilla, Angkasa Nasrullah Emir, and Nauval Rizki Mochammad, who had previously been mentored at other art institutions. Tab Space's studio was first located at Gelora Space Braga, then moved to the Fragment Project Building before settling on Jl. Rambutan No.19, Cihapit, Bandung.



Figure 1. Tab Space Studio

Source: Personal Documentation

The location of Tab Space, situated away from the main road in a quiet area, creates a conducive environment for neurodivergent artists to work creatively. The building, adapted from a residential house, provides a familiar and comfortable atmosphere for the artists. The studio's commitment to creating a space that supports sensory needs is recognized by the Sensory Inclusive Certification from Better Community Certified, affirming the safety and comfort of the environment at Tab Space.

Tab Space is led by Imaniar Rizki as the founder and creative director, supported by Nurul Lathifah as the managing director, Rizka R. Safitri as the art & program director, and Ario Abadi as the project director. Rizka R. Safitri is responsible for managing six art facilitators who assist neurodivergent artists in the creative process, along with five designers on the design team who convert the artists' manual works into digital formats. These are then applied to various creative products such as stickers, shoes, clothing, and notebooks. Currently, Tab Space supports 15 neurodivergent artists

ranging in age from 9 to 44 years old, with diverse conditions including autism, ADHD, cerebral palsy, and epilepsy. This diversity reflects Tab Space's commitment to fostering an inclusive space that nurtures the artistic potential of every individual.

Tab Space implements an exclusive membership policy for neurodivergent artists as part of its core mission to serve as an inclusive support system. A selection process ensures that artists meet the necessary criteria before joining. Once accepted, artists work with the guidance of art facilitators who provide creative direction to help maximize their potential. The resulting artworks are then processed by the design team, converted into digital formats, and adapted to various media such as merchandise, apparel, and other creative products. These marketed works not only provide financial support for the artists but also help maintain the sustainability of Tab Space as an inclusive creative studio.

Tab Space offers comprehensive facilities to support the artistic activities of neurodivergent artists, including space, tools, and guidance from art facilitators. The studio has three main areas: a flexible communal workspace, a storage room for artworks, and a design room that also functions as an administrative office and guest reception area. Although equipped with storage shelves, the studio faces challenges in accommodating large-scale artworks such as 1x1 meter canvases, due to limited storage capacity. In terms of tools, the studio provides a full range of art supplies, including paper, canvas, markers, paints, and pencils, though artists are also allowed to bring additional materials according to their individual creative exploration. The art facilitators play a crucial role in supporting the artists, offering technical and creative assistance, and fostering positive communication to build a supportive and inclusive environment for everyone involved.

From a technological perspective, Tab Space adopts the digitalization of artworks as a primary step in expanding the artists' reach. The design team converts traditional artworks into digital formats to be applied to various products such as merchandise and apparel, while preserving the original visual character. Additionally, digital platforms such as the official website and social media are actively used to promote artworks, share studio activities, and introduce the artists' creative processes to a broader audience.

In terms of strategic planning, Tab Space aims to expand its capacity by establishing a larger studio and providing individual workspaces for each artist. This initiative seeks to enhance comfort and focus, especially for artists working on long-term projects. This step aligns with Tab Space's mission to build a more professional environment that supports the optimal development of neurodivergent artists.

Tab Space relies on various funding sources, including sales of artworks and merchandise marketed through exhibitions, digital platforms like Instagram and Tokopedia, and collaborations with stores such as Grammars, Kopi Toko Djawa, and Kineruku. Additionally, revenue is generated through partnerships with major brands

such as Uniqlo, Panasonic, and JNE, which feature the artists' works on their products. Tab Space also participates in the Wirausaha Muda Mandiri (WMM) program initiated by Bank Mandiri for additional financial support and receives funding from the British Council, which supports two productive artists over a two-year period.

To broaden their reach and showcase the artists' works, Tab Space utilizes multiple channels, including Instagram, the official website, and the Tokopedia marketplace. Collaborations with retail shops and creative spaces allow the artworks to be displayed in areas with strong art communities. Partnerships with well-known brands like Uniqlo and JNE help distribute the artworks more widely. Participation in art exhibitions, events, and public workshops also serves as an effective strategy to introduce inclusive values and build a broader community network.

Tab Space serves various groups of end users who benefit directly or indirectly from the artists' works and the studio's programs. The primary group includes neurodivergent artists—individuals with autism, ADHD, cerebral palsy, and epilepsy—who receive workspace, guidance from art facilitators, and access to professional opportunities in the art world. Art collectors and enthusiasts who value diverse expressions are also end users through the purchase of artworks and merchandise. The art community, creative spaces, and galleries collaborating with Tab Space benefit by exhibiting inclusive art, helping promote the representation of neurodiversity in the arts. Brands like Uniqlo, Panasonic, IKEA, and JNE leverage these works for social campaigns and to strengthen their inclusive brand image. Educational institutions and social organizations use the works as tools for inclusivity education. The general public also serves as end users, exposed through exhibitions, social media, and workshops, thereby raising awareness of the importance of diversity in art.

In terms of competition, the main challenge lies in balancing the internal merchandise products with externally collaborated collections, which can affect the visibility of the artists' original creations. Meanwhile, in terms of art programs, Tab Space shares a common vision with other communities such as Jogja Disability Art (JDA), based in Yogyakarta. Although operating with a profit-oriented model, Tab Space maintains a collaborative relationship with JDA to strengthen the ecosystem of inclusive art in Indonesia.

Define

A SWOT analysis was conducted to explore the strengths, weaknesses, opportunities, and threats faced by Tab Space, with the aim of providing a clear picture of the internal and external factors that can affect the development of the studio.

Table 1. SWOT Analysis

Strengths	Weakness
<ul style="list-style-type: none">• Inclusive facilities for artists with disabilities• Creative spaces that support art• Supportive and collaborative communities• Optimal spatial constraints	<ul style="list-style-type: none">• Less than optimal spatial layout• Unfulfilled personal work area facilities for artists• Challenges in understanding or stigma towards art as therapy• Less than optimal display of photos in the 'Artist Introduction' section
Opportunities	Threats
<ul style="list-style-type: none">• Potential for collaboration with global art• Increased public awareness of inclusive art• Development of More Inclusive Interior Design	<ul style="list-style-type: none">• Financial Sustainability Challenges• Limited Accessibility of Inclusive Materials and Materials• Lack of User Awareness of Inclusive Design Functions

Based on the analysis, Tab Space possesses several key strengths, including inclusive facilities that support artists with disabilities, a creative space conducive to artistic expression, and a supportive and collaborative community. However, the studio also faces some weaknesses, such as suboptimal spatial layout, the absence of dedicated individual workspaces for artists, and challenges in public understanding and the lingering stigma around art as a form of therapy. Additionally, the photo presentation in the “Artist Introduction” section of the website is still underwhelming, limiting the potential to effectively introduce the artists and their works to the public.

On the other hand, Tab Space holds significant opportunities for growth, such as potential collaborations with the global art scene, increasing public awareness of inclusive art, and opportunities to further develop more inclusive interior design solutions. However, several threats must also be addressed, including financial sustainability challenges, limited access to inclusive materials and supplies, and a general lack of user awareness regarding the function and value of inclusive design.

Overall, the SWOT analysis reveals that despite existing challenges, there are substantial opportunities for Tab Space to grow. Improvements in facility design and more effective use of media to highlight the artists can serve as strategic steps to strengthen Tab Space’s position in the art industry, while also expanding the reach and impact of neurodivergent artists’ works.

Ideate

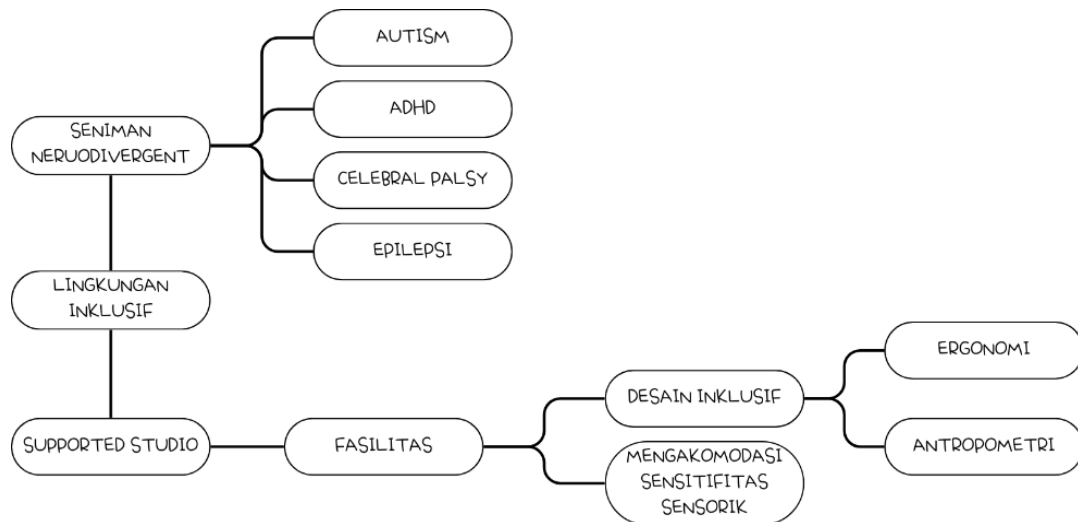


Figure 2. Mind mapping of problem-solving concept

Source: Personal Document

As a solution to the limited space and facilities in Tab Space, a multifunctional furniture design that is inclusive and compact is proposed. This furniture is in the form of a work desk that also functions as a storage space for large canvases (1x1 meter). This concept prioritizes space efficiency by combining two main functions in one element: a comfortable work desk and storage space for works in progress. This design aims to support the productivity of neurodivergent artists and address storage issues.



Figure 3. Alternative design sketches

Source: Personal Document

Next, ten alternative furniture sketches were created to explore various possible shapes, sizes, and mechanisms that could meet the needs of the artists. The selection process resulted in three alternative designs that best met the criteria of storage capacity, space efficiency, and flexibility of use. An evaluation was conducted with Tab Space to assess the strengths and weaknesses of each design, and to ensure that the selected design could optimally support the artists' activities. Based on the evaluation, several inputs were provided, including adding an integrated chair storage mechanism

and ensuring storage capacity for three large canvases. Tab Space selected the second alternative design for further development, which will be the basis for refining the final design and making a prototype.

Prototype

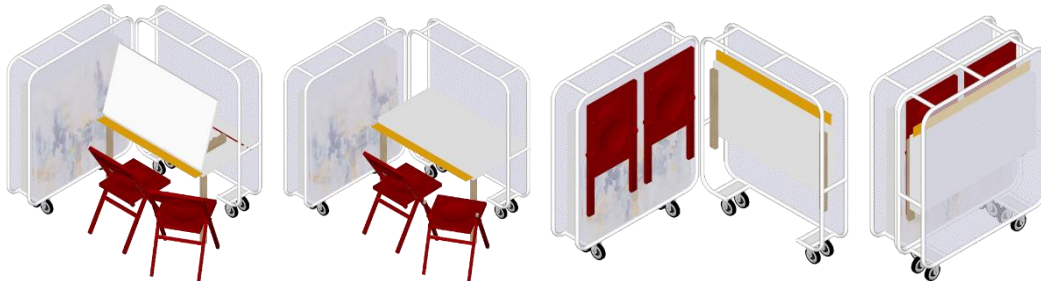


Figure 4. Prototype development
Source: Personal Document

The next stage in the design process is the creation of a prototype using the SketchUp 3D modeling application. The creation of this prototype aims to provide a more realistic visual image to clients and users regarding the furniture design that has been designed. With a three-dimensional representation, an evaluation of the proportions, functions, and aesthetics of the furniture can be carried out in more depth.

The resulting prototype not only functions as a visual aid, but also becomes the basis for the decision-making process regarding design adjustments if necessary. This step is expected to ensure harmony between the proposed furniture design and the overall layout, thus supporting the creation of an inclusive, functional environment that suits the needs of neurodivergent artists at Tab Space.

Testing

The testing stage is carried out by involving internal parties at Tab Space, especially the art facilitator and creative director. Testing is currently still limited to them due to scheduling constraints that coincide with the Christmas and New Year holidays. The test results show that the furniture design that has been designed is in accordance with the previously identified needs. However, there are some safety concerns regarding the furniture wheels, where the wheels need to be equipped with a sturdy and stable locking mechanism to avoid unwanted shifting during use. Further testing involving neurodivergent artists as end users is planned after the holidays to gain further feedback and ensure the design truly meets their needs and comfort.

CONCLUSION

The design thinking approach consisting of the stages of empathize, define, ideate, prototype, and testing can help overcome the problems faced by Tab Space, especially related to the limited facilities for neurodivergent artists in terms of personal work areas and storage of works. The results of this design process produce a solution in the form of multifunctional furniture that is designed not only as a personal work area for artists, but can also be used as a place to store works. The compact concept applied to the furniture allows for efficient use of space with a form that can be summarized when not in use, making it suitable for the limited space conditions in Tab Space.

With this multifunctional furniture, it is hoped that artists can work more comfortably and productively, especially for those working on long-term projects. In addition, this furniture supports the optimization of spatial planning in the studio so that creative activities can take place more effectively.

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