



Multisensory Method Training in Craft Arts (Fabric Marbling) for Students with Hearing Impairments

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Abstract: *Students with deaf disabilities often have difficulty understanding verbal instruction, but have significant advantages in visual and motor aspects. This service activity aims to apply multisensory methods through Suminagashi craft art training (cloth marbling) to improve students' fine motor skills and creativity at SLB B Yakut Purwokerto. The implementation method uses a descriptive qualitative approach with a "see-learn-do" strategy involving 20 high school students. The learning process integrates visual stimulation through structured demonstrations and tactile stimulation through the exploration of material textures. The results of the activity showed that the multisensory approach was effective in bridging the barriers of deaf students with disabilities in communicating due to hearing limitations. Students demonstrate a high level of visual focus and are able to replicate marble motif making techniques with precision without relying on complex verbal explanations. The combination of cue instructions and direct touch experiences has been proven to minimize miscommunication and improve understanding of abstract concepts of the material. This activity recommends the use of visual-tactile strategies as an adaptive inclusive learning method to support the vocational independence of deaf people.*

1. INTRODUCTION

Sensory disabilities, especially deafness, are conditions that limit individuals from receiving auditory information and communicating verbally (Sebayang et al., 2024). This condition often creates barriers to social interaction and learning in educational settings (Rachman et al., 2022). However, people with deaf disabilities have advantages in visual and motor aspects that can be optimally developed through the right learning approach (Sebayang et al., 2024). The achievements of deaf children can be explored to the maximum if there is good collaboration between parents and teachers in recognizing the visual potential (Santoso et al., 2024).

National data shows that around 67.33% of adult people with disabilities in Indonesia do not have adequate skills and jobs (Safitri & Ratnasari, 2022). This condition emphasizes the urgency of providing skills from an early age to support the independence and economic readiness of people with disabilities in the future. Economic empowerment through the

processing of creative textiles, such as the manufacture of marble-motif fabrics, has proven to be one of the innovations with economic value for the community (Ratulia et al., 2024). In practice, learning for deaf students still often experiences obstacles due to the use of less effective verbal instruction methods. Verbally dominant teacher communication patterns often create semantic barriers for students with hearing impairment (Tsalisa et al., 2024). The oral explanation method is difficult to access optimally by students with hearing impairments, so the process of understanding the material is less than optimal. In fact, the use of visual literacy media, such as drawing series, is a crucial educational right to ensure information understanding for deaf children (Sriwidiastuty et al., 2025).

Observations at SLB B Yakut Purwokerto show that although students have received basic skills training such as sewing and painting, the learning methods applied are still dominated by verbal approaches and have not fully accommodated the characteristics of the nonverbal learning style of deaf students. In addition, the variety of learning creative skills that are exploratory and applicative is still limited. This condition is in line with the findings (Putra et al., 2024) which states that the learning process in an extraordinary school has a significant difference from regular schools, both in terms of facilities and teaching methods. Theoretically, deaf people are identified as visual learners who tend to rely on direct vision, gestures, and physical experience in learning efforts. The contextual visual approach "images speak in images" has proven to be a powerful paradigm in effectively transferring visual information (Wang et al., 2023). Therefore, learning methods must be adapted to develop students' social interaction and understanding through a non-verbal approach (Tat et al., 2021).

Given their heightened sensitivity to visual stimuli and practical activities, deaf students require alternative educational approaches that optimize their visual and physical strengths. One relevant solution is orienting deaf students to fabric marbling techniques, particularly the Suminagashi method. Marbling technique training has been proven to be effective in improving the quality of learning and competence of vocational students (Sukmawaty & Damayanti, 2025). In addition, Suminagashi (painting on water) also has therapeutic value that can be used as a healing medium and a fun self-expression (Sumarsilah et al., 2022).

Multisensory techniques emphasize visual processes and motor activity through the creation of color patterns above the surface of the water that are then transferred to the fabric medium. The quality of Suminagashi's motifs is greatly influenced by the precision of the technique and the selection of materials, such as the type of fabric and the level of water viscosity, which require observant visual observation (Widyaningrum & Syamwil, 2022). The learning process is carried out through hands-on demonstrations, visual observations,

exploration of material textures, and repetitive practice without reliance on complex verbal explanations. The application of multisensory stimulation (visual, auditory, tactile) is not only relevant in the context of product branding (Legia & Nurfarina, 2024), but also in creating immersive learning experience. This approach facilitates skill transfer while encouraging creativity, confidence, and active engagement.

Based on these problems and potential, this activity aims to implement a multisensory method in teaching fabric marbling art to deaf students at SLB B Yakut Purwokerto. This program is expected to enhance students' fine motor skills and creativity, while demonstrating the effectiveness of the visual-tactile approach as an inclusive, adaptive, and sustainable learning strategy for people with hearing disabilities.

2. METHODS

This community service activity applied a qualitative descriptive approach. This method was chosen to describe in detail the implementation of the training, the interaction between facilitators and participants, and the students' responses during the activity. The descriptive qualitative approach allows the researcher to understand the phenomenon contextually and in-depth through direct observation of the research subject (Hamzah et al., 2022). Besides this approach aims to comprehensively explain the implementation of craft arts learning training through multisensory methods for students with deaf disabilities, including the dynamics of activities, participant involvement, and the learning process that takes place during the service program.

The subjects in this service activity were students of the Deaf Yakut Purwokerto Special School (SLB) at the Senior High School level with a total of 20 participants. The activity was carried out at SLB B Yakut Purwokerto, which is located in Purwokerto City, Banyumas Regency. The selection of subjects is based on the need for deaf students to a learning model that suits their learning characteristics, particularly in learning that emphasizes visual and hands-on experiences.

The implementation of service activities was carried out in three meetings which included the stages of preparation, implementation, as well as results and evaluation, with the following details:

Preparation Stage

In the preparation stage, the service team prepared visual teaching materials in the form of presentation materials. These materials were delivered using projector media and PowerPoint. The material is structured by adjusting the characteristics of deaf students, with

an emphasis on the use of clear, simple, and easy-to-understand visuals. In addition, the team coordinates with the school to adjust the schedule and technical implementation of activities.

Implementation Stage

The implementation stage was carried out in the form of craft art learning training through multisensory methods. The activity involved 5 students as facilitators, under the supervision of 1 supervisor. At this stage, students are presented with learning materials delivered through visual presentations, followed by hands-on practice involving the senses of sight and touch. The multisensory method is applied to help deaf students understand the material through direct experience, so that the learning process becomes more meaningful and in accordance with the needs of students (Rusli et al., 2024). Recent research also confirms that multisensory approaches have a significant positive effect on learning outcomes and student engagement in inclusive learning (Ismi et al., 2025).

Results and Evaluation Stage

The results and evaluation stages were implemented to assess the implementation of activities and see the students' responses to the training that has been given. The evaluation process was conducted through teacher reflection and observation of students' work. Moreover, this stage aimed to identify the effectiveness of multisensory methods in learning craft arts as well as as a basis for improving future activities.

3. RESULTS AND DISCUSSION

Result

Implementation of the Visual Approach

In this program, the sense of sight is used as the main means in the process of delivering material. The communication method that was previously in the form of long verbal explanations was transformed into a series of demonstrations rich in gestures and gestures, in line with the characteristics of deaf students who have a high sensitivity to visual stimuli. The knowledge transfer process is conducted through the "see-learn-do" method. Each stage in the suminagashi technique, starting from the preparation of a dye solution with CMC, the technique of dripping paint, to the use of skewers or tool combs to form motifs, is demonstrated by the implementation team. The demonstration was carried out with systematic and slow movements so that it was easy for students to understand. The emphasis of instruction is focused on visualizing the workflow, by minimizing the use of sound and maximizing the use of gestures and sign language in explaining the important steps of the fabric marbling process.

The students' responses show an excellent level of visual focus. They not only pay attention to the surface of the water where the pattern is formed, but also pay attention to the movements of the lips and the facial expressions of the instructor to understand the directions given. The presence of an accompanying teacher plays an important role as a liaison for visual communication so that each cue can be accurately translated into the understanding of students' practice. Through this approach, students are able to explore independently with a high level of precision even though the verbal instructions given are very limited.



Figure 1. Visual instruction and demonstration of crafting techniques in front of students

Material Exploration through a Tactile Approach

To enhance the visual component, the effectiveness of material delivery in this program is further aided by incorporating tactile methods to overcome participants' hearing limitations. In this training, the understanding of the properties of materials is no longer explained through theory, but through direct practice with the material. This approach helps students recognize the characteristics of craft materials through real experience, so they can understand how they work during the manufacturing process.

The process of conveying knowledge through tactile exploration is carried out in a structured manner at the stage of introduction of tools and materials during training. Participants were invited to recognize various materials directly in order to understand the difference in texture more clearly. This activity includes touching the hijab fabric with a fine texture and baby canvas fabric (for tote bags) which has coarser and thicker fibers. Through this tactile experience, deaf students can understand the ability of materials to absorb colors as well as the nature of materials, which are very important for the success of the process of making marble motifs on textile media.

The incorporation of this tactile stimulation has been shown to help improve students' fine motor skills. The experience of experiencing firsthand provides feedback that helps them adjust techniques, such as adjusting the softness of movement when attaching fabric to the surface of the water. This combination of touch and hands-on practice makes students' understanding better, so they are able to produce motifs with neat details even without relying heavily on verbal explanations.



Figure 2. Students touch the texture of craft materials (tactile approach)

Discussion

Dynamics of Interaction and Communication

The combination of visual and tactile methods in fabric marbling training creates a unique and effective interaction dynamic. The communication process runs smoothly despite the minimal use of verbal language. Teaching strategies that combine demonstration (visual) with tactile object touch opportunities have been proven to be able to bridge students' hearing barriers.

This combination significantly minimizes the occurrence of miss-communication. In conventional methods, verbal instruction often creates ambiguity for deaf people due to limited vocabulary or difficulty reading lip movements that are too fast. However, with the presence of physical examples that can be seen and held directly, students do not have to guess abstract concepts. They see its real form and feel its texture, so that the instructional message is conveyed in its entirety.



Figure 3. Visual instruction and demonstration of crafting techniques



Figure 4. Students touch the texture of materials to understand the characteristics of materials

This approach is in line with the characteristics of deaf people as Visual Learners. Deaf people experience hearing loss which hinders the process of language information, so that the visual channel becomes the main access to information (Rizky et al., 2023). The sense of sight has an absorption rate of up to 82% in the human learning process, which is higher than other senses (Rahayu et al., 2022). In line with this, the use of visual media is very necessary, especially to stimulate deaf students who have limitations in receiving learning materials through hearing (Kusumaningtyas, 2021). Thus, holding objects (tactile) and seeing examples (visual) are not just tools, but a basic necessity in their learning mechanisms.



Figure 5. Personal interaction during direct guidance

Evaluation of the Learning Process

Evaluation of the training process shows the creation of conducive learning environment. The classroom atmosphere tends to be calm from verbal sounds, but very psychomotor active. Students don't look confused or passive listening to explanations, they are busy observing the instructor's demonstrations and directly practicing them on their craft materials. This intense concentration, however, should not be mistaken for confusion. It is, in fact, a sign of deep focus on the visual stimulus provided.

The success of this process can be seen through the responses and outcomes of the students' work. Students seem to understand the instructions not by answering oral questions, but are marked by their accuracy in imitating the craft making techniques taught. The ability of students to replicate techniques with precision shows that knowledge transfer is successful. This confirms the theory that the use of visual media and hands-on practice helps to facilitate understanding, strengthen memory, and overcome the limitations of the experiences that deaf students have, so that learning goals can be achieved more effectively (Rahayu et al., 2022).

4. CONCLUSION

Based on the results and evaluation of this community service activity, it can be concluded that the application of multisensory methods through visual and tactile approaches is very effective in learning skills for deaf students. Theoretically, this activity confirms that deaf students are true visual learners, where the integration between visual demonstration (seeing) and tactile experience (touching) is not just an aid, but a fundamental need to transfer knowledge. This method has been proven to be able to overcome the ambiguity of verbal instruction, improve students' focus, and make it easier to master the Suminagashi technique with high precision.

As a recommendation, it is recommended that educators in special schools (SLB) optimize the use of visual-based learning media and reduce conventional lecture methods. In addition, the development of vocational skills curriculum in the future should increase the variety of exploratory and applicable training to prepare for the economic independence of post-school students with disabilities.

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