

Thinking with Atonal Music in Visual Arts Education: Revealing Cognitive Skills and Sensory Awareness with A/r/tographic Collaboration in Schönberg's String Quartet No.4 Op.37

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Abstract: This study has been based on the researcher's questioning the results of the a/r/tographic autobiography study with students on Arnold Schönberg and his works, which was carried out between 2017-2021. In the research the aim was to observe the effects of thinking through atonal music and its reflections on visual arts education as well as the cognitive skills and sensual awareness of the participants. The questioning of the autobiographic outputs of the researcher with her students within an a/r/tographic perspective was considered important in terms of creating new meanings and actions in visual arts education. The study was carried out with the researcher and 16 undergraduate and 1 graduate student from Kirikkale University Faculty of Fine Arts in the academic year 2021-2022 Spring semester over a work from Schönberg. There were 6 applications in total, each application lasted 4 hours. The data of the study consist of video and voice recordings, photographs, art works, poems, student opinions, observation notes, student diaries, performance activities, personal communications, Schönberg's String Quartet No. 4 Op. 37 composition and the 39 paintings that the researcher made for this composition. The data was interpreted through a/r/tographic inquiry. At the end of the study it was observed that the application of musical thinking with atonality acts to visual arts applications brought forth skills such as making deep interpretations, developing theories, solving problems, thinking critically, self inquiry, and the use of senses in a intuitive perspective within personal experiences.

Keywords: Arnold Schönberg, a/r/tography, atonality, intuition, sensory awareness

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Introduction

The number of researches based on art practices is increasing day by day. The processes of learning to learn or learning to teach with the cooperation of educators, researchers and artists, especially in art practices carried out with subjective inquiries, turn into a unique and living research and offer us different perspectives. Qualitative research, which bases data on theory while analyzing experiences, also examines how people make a deep sense of their social lives and experiences. Marriam and Tisdell (2015) define qualitative research as an approach that tries to comprehend how individuals interpret their experiences, how they structure their world, and what meaning they attribute to their experiences (as cited in Ozden & Saban, 2019, p. 5). "Whilst many qualitative approaches use methods to explore phenomena and reveal meanings, arts-related research is more interested in 'acts of theorising as complication'" (Irwin & Springgay, 2008, p. 109). Qualitative research approach, defined by Ozden and Saban (2019, p. 5) as "the process of developing a field-specific explanation or theory by examining the meanings created by individuals", is associated with art-based research in the context of subjective inquiry of knowledge, creating concepts and meanings, and developing theory through art practices. People participating in research based on art practices, on the other hand, can develop theories by creating their own data and continuing to live their creation actions with their subjective inquiries. Chamberlain, McGuigan, Anstiss and Marshall suggested that "Arts-based research has a strong synergy with qualitative approaches to research, allowing for socially constructed understandings and contextual linkages (2018, p. 132). And also "Arts-based methods generate data beyond the scope of typical qualitative research interviews or participant-observation processes, creating opportunities for enhanced engagement among those participating at all phases of the research process, including the research audience" (Boydell, Gladstone, Volpe, Allemang & Stasiulis, 2012, as cited in Chilton ve Leavy, 2014, p. 407). One of these studies, which enables the development of different and original methodological tools, is the a/r/tographic approach. Action research and the a/r/tographic approach are often considered together by most researchers. A/r/tography is an arts practice-based education research methodology that developed out of the artful practices of a group of Canadian researchers from The University of British Columbia (Sinner et al., 2006). Irwin revealed the term in an article in 2003, and Irwin and de Cosson followed with their seminal book *A/r/tography: Rendering Self Through Arts Based Living Inquiry* in 2004 (as cited in Lasczik, Cutter-Mackenzie-Knowles, Hotko ve McGahey, 2021, p. 138).

The name itself exemplifies these features by setting art and graphy, and the identities of artist, researcher, and teacher (a/r/t), in contiguous relations. None of these features is privileged over another as they occur simultaneously in and through time and space...By emphasizing practice, a shift occurs from questioning who an artist, researcher, or educator might be or what art, research or education is, to when is a person an artist, researcher or educator and when is an experience art, research or education (See Kingwell, 2005). These are important distinctions for they reside in the rhizomatic relations of inquiry. (as cited in Irwin et al., 2006)

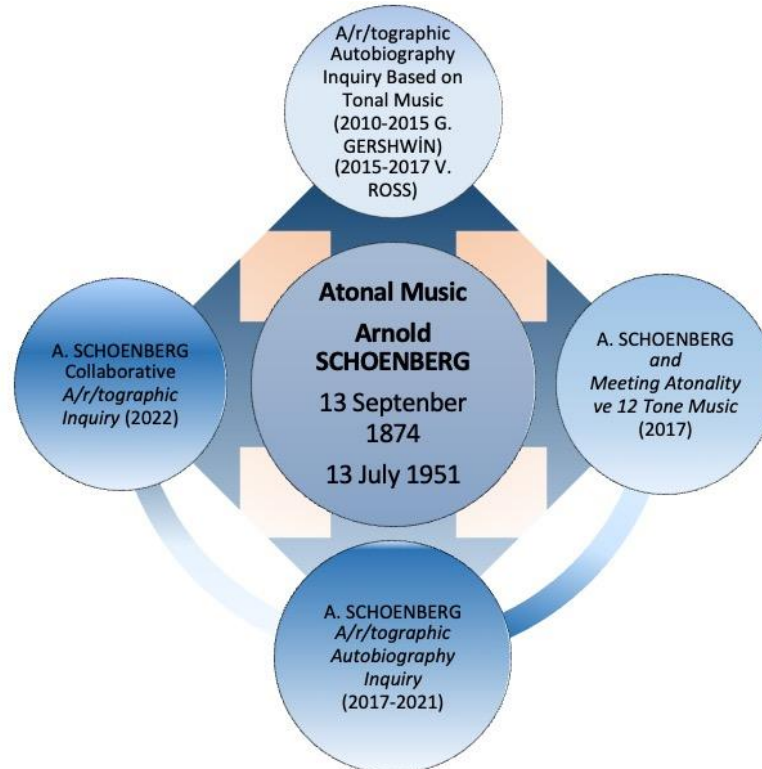
In this context “A/r/tography is a practice of living enquiry that combines life-writing with life-creating...Through attention to memory, identity, autobiography, reflection, meditation, storytelling and cultural production, artists/researchers/teachers/learners expose their living practices in both evocative and provocative ways” (Irwin 2013, as cited in LeBlanc, Davidson, Ryu & Irwin, 2015, p. 355). The ultimate goal of action research is social change (Abraham and Purkayastha, 2012), and art and drama are often utilised as forms of social protest, pedagogy, and/or social engagement (Smart Gullion and Schäfer, 2017, p. 516). “The a/r/tographic approach is very intrusive like action research, and a/r/tography researchers spend their efforts on developing the application they perform, understanding them from different perspectives, or influencing their practices on the experiences of others” (Irwin, Barney & Golparian, 2016, p. 193). Leavy (2015, p. 12) suggests that interdisciplinary arts-based practices have developed to service all phases of the research endeavor: data collection, analysis, interpretation, and representation and also allow research questions to be posed in new ways, entirely new questions to be asked, and new nonacademic audiences to be reached. Also the use of music in social research methodologies can be viewed less as an experiment and more as a realization. In fact, music-based approaches to inquiry can support researchers access, illuminate, describe, and explain that which is often rendered invisible by other research praxis (Leavy, 2015, p. 353). In the early part of the twentieth century, artists like Bertram Brooker who chose to move beyond representation, discover the “higher self”, and investigate other dimensions of thought and existence often turned to music for inspiration (Williams, 2000, p. 111). Also Bresler (2005, pp. 170-171) argues that “by adopting “musical lenses” or “musical sensitivities” when engaged in qualitative research, the researcher may be able to access dimensions of the subject and research process that would otherwise remain untapped” (as cited in Leavy, 2015, p. 377).

Undoubtedly, the use of music in research opens up unique avenues of inquiry and offers a new perspective for researchers. With a/r/tographic inquiry, one can experience the ways of transforming many different disciplines' teachings into theory and practice through art and writing. It should not be forgotten that unconventional music can change or shape the dimensions of the research process in line with its own principles. One of them is Arnold Schönberg, who presents music to us from a different objective with the concept of atonality. Schönberg, the greatest composer of the 20th century, revealed an important composition technique. This technique has influenced some composers intensely and has been criticized by angering others. The name of this technique used in our era is the 12-tone technique. For this technique, definitions such as serialism, serial music, sequential music, dodecaphonic music are also used (Ozden, 2017, p. 41). Arnold Schönberg is a genius who resisted against tradition and as one of the representatives of a futurist and real new music. Schönberg insisted that he was merely locking shut a door that had been closing over the course of the last few decades. He was now compelled to compose music without the structuring function of tonality (Rothman, 2002, p. 7). He introduced the imaginary worlds that no one in the world of music had heard before. In atonality, a piece of music does not revolve around a tonic centre. This means not only putting something new into the world—new sounds, new concepts, new ideas—but also viewing the world in a new manner.

Sounding music is an end product of a process of transformation (i.e., composing), but at the same time also something that has the potential to transform the listener (Østergaard, 2006, pp. 2-4). In this context, the new sound system that Schönberg gifted to this world is “a composition technique that has the power to express the scientific developments of our era in a fantastic abstract way and is effectively similar to the determinist chaos theory due to its structure” (Ozden, 2017, p. 48). Schoenberg searched for means by which he could open to his gaze and draw forth the power of that essential dimension of art in which there is no absolute direction; where there is neither momentum, inertia, or gravity (Fisher, 1999, p. 47). According to Ozden (2017, p. 48), the universe consists of a very large and chaotic system, and works composed with the 12-tone technique are considered as the music of this chaotic universe. Photos of Albert Einstein and Arnold Schönberg taken together are not only a coincidence, but also proof that art and science are now an inseparable whole within the philosophy and imagination of the 21st century. String Quartet No. 4 Op. 37, composed by Schönberg, inspired Guler who adapted his unique music into paintings between 2017-2021 (Figure 1).

Figure 1.

Researcher's A/r/tographic Autobiography Inquiry Flow for the piece of Music Named String Quartet No. 4 Op. 37



Guler inquired about how dimensions of Schönberg's atonal music can be opened to enhance and build creative methodologies in visual arts education. She was examining the answers of these questions; *How can atonality be expressed in self-learning by using design elements and principles in visual arts? How can adapting twelve tone*

music into visuals bring out cognitive and sensory revolution in a visual artist's own creating and inquiring skills? How can interdisciplinary and intercultural arts-based research practices via atonal music bring out theoretical and educational engagements through learning in visual arts' pedagogy? In the study you will read, following her autobiographical research; Guler aimed to re-discover and learn the process of painting with atonal music as an artist, and as a researcher her cognitive and sensory awareness of theorizing atonal music with art students. In addition, in the research, it is aimed to transform cognitive and sensory creation processes into works of art by being re-questioned with atonal music traditional artistic practices in visual arts education in an interdisciplinary and intercultural context. In addition to all these, it was also desired to see the reflections of thinking and living with atonal music in terms of composition structure and technique in creating concepts, deepening meanings and developing theory in visual arts education. In this context, it is important for the researcher to re-examine what she discovered in her autobiographical work and the results of her research with art students. In this collaborative a/r/tographic research, answers to the following questions will be investigated.

1. How can the cognitive and sensory processes, discoveries and learning outcomes of the researcher's a/r/tographic autobiography investigation be transformed into the learning and creation processes of her students?
2. What is the provocative role of being able to see, think and live with atonal music in improving the cognitive skills and sensory awareness of visual arts students?
3. What are the pedagogical and aesthetic outcomes that will emerge in the actions of conceptualizing, knowing, metaphorical thinking, seeing with sound and visualizing sounds with atonal music for the art students, who question their creation processes in the context of interdisciplinarity by experiencing three different identities (artist/research/teacher)?
4. How are the similarities and differences between the compositional structure and technique of atonal music which is unlike tonal music and the composition, art elements and principles in the field of visual arts reflected on art education?
5. What is the contribution of the subjective inquiries of the a/r/tography researcher to the participants' ability to develop aesthetic strategies and theory in practices carried out with a/r/tographic collaboration?

Methodology

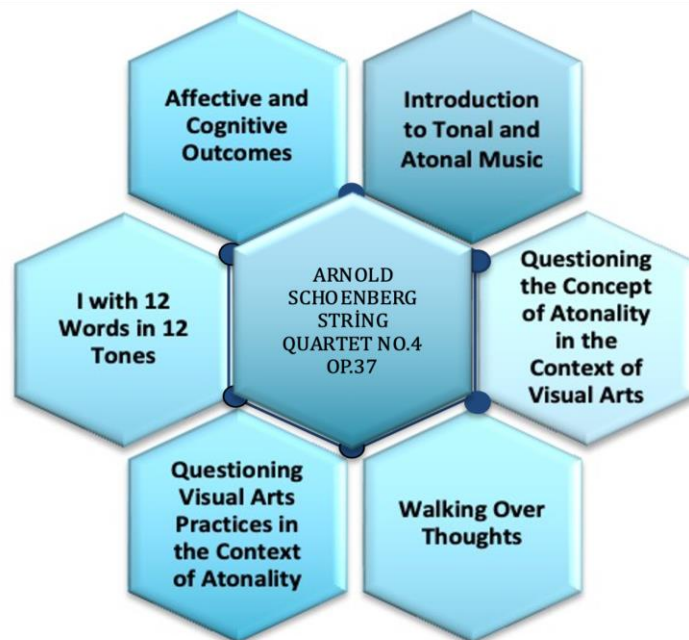
Research Design

This a/r/tographic research is a continuation of the autobiographical inquiry carried out by the researcher between 2017-2021 and consists of a series of application stages that are opened to re-examination with others. In her work, the researcher experiences a cyclical inquiry in order to create new possibilities and meanings by enriching the process with the participation of others, to affect the experiences of others with her own experiences, and to develop theory with new expansions over atonality.

Instead of being metatheoretically justified by assumptions (theories about theories), a/r/tography creates its own theoretical framework within the method, which is the artistic practice that creates the theoretical framework in this method (Triggs, Irwin, & O'Donoghue, 2021, p. 113). According to Irwin, the a/r/tographic approach is similar to action research because it involves a cyclical inquiry process. However, this approach seeks a starting point beyond asking questions outside the traditional context, collecting data and writing results. The answer to this starting point is to construct an application-based research process in which art is at the center. Expansions such as putting forth a work of art, questioning it, collecting and interpreting information about it and reflecting it back on the work of art throughout the research create an artistic satisfaction point in the research. This process starts with asking questions, it becomes possible to ask the question again and again with the identities that learn or teach (as cited in Bedir Eristi, 2021, p. 11). For this reason, as an a/r/tography researcher, Guler wanted to question how the artist, researcher and teacher identities can differ from others, and what she can rediscover in her own cognitive skills and sensory awareness. The stages that form the theoretical basis of Guler's autobiographical study and applied with the participants in this study are given below (Figure 2).

Figure 2.

A/r/tographic Inquiry Flow



Role of the Researcher

It is thought that the researcher who carried out this study as an a/r/tographer has studies on the same subject for many years and reflects her autobiographical transfers to the participants, is thought to make this research strong. In this context, the researcher's diaries in her a/r/tographic autobiography, exploratory subjective

observation notes, personal experiences, subjective inquiries and art products created by the researcher allowed strong and deep ties to be established with the experiences of the participants. For “qualitative researchers, reflexivity has been conceptualized as a process that enriches the dialogue between the subject matter and the researcher” (Calafell, 2013, as cited in Faulkner, Kaunert, Kluch, Saygin Koc & Trotter, 2016, p. 198). Bourriaud (2002, p. 53) suggested that “Self reflection occurs under a larger system of exchange. It involves “a relationship with the other; at the same time, it constitutes a relationship with the world” (as cited in Cloutier, 2016, p. 5). Berger (2015, p. 220) also noted that being reflexive as a qualitative researcher “means turning of the researcher lens back onto oneself to recognize and take responsibility for one’s own situatedness within the research” (as cited in Faulkner et al., 2016, p. 198). Savin-Baden ve Wimpenny (2014, p. 66) suggest that “The arts-related researcher’s biography, identity, researcher stance, discipline and worldview are all brought to bear on how they think, respond, problem solve and create”. In this context, it is thought that many factors such as the researcher’s holistic education understanding and perspective on life, artistic and professional competencies related to the researched subject, and her ability to convey her own creative experiences with an interactive communication power affected this a/r/tographic study process positively (See Guler, 2014; Guler, 2015a, 2015b, 2015c, 2017a, 2017b; Ross & Guler, 2018; Kurtulan & Guler 2021a; Kurtulan & Guler, 2021b; Guler, 2021a; Guler, 2021b; Guler, 2021c; Guler & Ross, 2021d). In addition, the researcher’s international studies in an intercultural and interdisciplinary context, and the undergraduate and graduate courses she taught were considered important in this study in terms of revealing how she thinks. Finally, another of the researcher’s strengths in this study is her meeting with Prof. Dr. Rita Irwin the theorist and practitioner of the a/r/tographic inquiry approach, their conversations, getting her thoughts on the researcher’s own work, and her contribution with three chapters in the book project titled “Application-Based Research Method: A/R/Tography”, which was published for the first time in our country under the editorship of Irwin and Eristi (Guler, 2021a; 2021b).

Participants

This study was conducted with a total of 6 applications, each of which was approximately 4 hours, in the spring term of the 2021-2022 academic year, together with 16 undergraduate and 1 graduate students studying in the 2nd year of Kirikkale University, Faculty of Fine Arts, Painting Department. The students participating in the study are also the people whom the researcher has been training in the art workshop for about a year. In this sense, it was considered important by the researcher to follow the effect of a/r/tography, which is a living research, on their work and lives in future workshop classes.

Data Collection Tools

Video and audio recordings, photographs, that reveal the whole details of theory, application and teaching processes, works of art made with different techniques by

students, poems, student views, observation notes, student diaries, performance activities, subjective inquiry notes, personal messages, Arnold Schonberg's String Quartet No. 4 Op. 37, 39 paintings that the researcher made for this work between 2017-2021 and "the Map of Walking Thoughts", which emerged after the "Walking on Thoughts" performance made by the researcher constitute the data of this study. Boucher and Holian (2001) suggested that "Using autobiography as a research approach means obtaining more in-depth and powerful data related to the subject of the research" (as cited in Eristi Bedir, 2016, p. 156). In this context, Guler's diaries, observation notes and self-reflections in her a/r/tographic autobiography research are also among the data.

Analysis and Interpretation of Data

For Leavy (2015, p. 779) "There is no model for how to do ABR or how to evaluate it that will suit each project". Also MacKenzie and Wolf (2012) emphasized that "The task of the arts-related researcher is to analyse, rearrange and interpret the data as it has been experienced, to share the momentary observations, to present new insights and to create space for further questions to develop" (as cited in Savin-Baden & Wimpenny, 2014, p. 73). In the light of this information, the researcher did not adhere to a certain systematic in the analysis of the data, and used her autobiographical reflections to establish new rhizomatic connections and to develop new questions with artistic and educational inquiries. The data were meticulously collected, and the images, sounds, performances and writings of the participants were interpreted with an a/r/tographic approach by associating them with each other in the context of the subject and putting subjective inquiries into the foreground.

Credibility and Ethics

Many researchers agree on validity, which causes controversy in qualitative research, that concepts are socially constructed and that a criterion cannot be established for understanding whether something is "accurate" or "certain". At this point, some researchers have used the concept of "credibility" and have put forward some criteria explaining that the researchers' work is possible and transferable (Glesne, 2020, p. 65). Creswell (1998, pp. 201-203) uses the methods frequently used to contribute to credibility in qualitative research as "*long-term interaction and continuous observation, diversification, peer review and information gathering, contrast analysis, explaining researcher biases, participant approval, detailed description and external auditing*" (as cited in Glesne, 2020, p. 66). However, not all of these methods of increasing credibility can be used in every study. Hammersley and Traianou (2017, pp. 61-68) pointed out a few moral virtues that researchers should also possess. Dedication, objectivity and independence are just a few of them. While conducting art-based research, *ownership, reflexivity, negotiated meaning, transparency, plausibility, honesty, integrity, verisimilitude, criticality, stance, authenticity, and peer evaluation* are certain ethical requirements that need to be taken into account (Savin-Baden and Wimpenny, 2014, pp. 86-95). Reflexivity also allows researchers to increase the credibility of their

work by detailing how their values, beliefs, knowledge, and biases influence this work (Cutcliffe, 2003). Guillemin and Gillam (2004, p. 278) argue that, “being reflexive in an ethical sense means acknowledging and being sensitized to the microethical dimensions of research practice and in doing so, being alert to and prepared for ways of dealing with the ethical tensions that arise” (as cited in Faulkner et al., 2016, p. 199).

In the light of this information, the researcher used long-term interaction and continuous observation, diversification, peer review and information gathering, explaining researcher biases, participant consent and detailed description methods in order to ensure the credibility, transferability and confirmability of the research. Each stage of the application was observed in depth using multiple data collection tools, the transcripts of the interviews were shared with the participants in an interactive way, they were described in detail and presented to the reader in all clarity according to the principle of objectivity. In addition, a professor who is an expert in the field of musicology, string instruments violin education was included in the process in order to give ideas and contribute to the research process. The researcher made an effort to present the feelings and thoughts of the participants to the reader as detailed and transparent as possible during the interpretation of the data. In this context, photographs, audio recordings, diaries, observation notes and art products related to the process were interpreted in the text in their original form in terms of confirmability of the research. The fact that the researcher, who has carried out a/r/tographic research since 2010, has sufficient knowledge, experience and skills on the subject, is considered important in terms of the credibility and applicability of the study. 17 students who voluntarily participated in the research process sincerely consented to audio, photograph, video recordings and publishing of their creative outputs (diaries, performance activities, poems, pictures, etc.) throughout the research. None of the participants was forced to express their opinions or on any other issue in the conversations, discussions and practices that took place within the scope of the research. In this study, for which an ethics committee report was obtained, the consent of the participants was also obtained for the use of direct quotations containing their own statements in order to increase the reliability of the study. In accordance with the privacy policy, the real names and private information of the participants were not used in the study.

Findings

Each stage in this section, which reveals the cyclical rhizomatic relationships by creating the inquiry flow of the research, has been interpreted in detail in the context of presenting the cognitive skills and sensory awareness of atonal music. Thus, new and deep meanings were produced by spreading the random components of each stage by touching each other. In the inquiry flowchart of the research, the honeycomb shape, which is thought to best reflect the relationality of the components, was used (Figure 2). In addition, the diagrams showing the sub-components that make up each stage are designed to refer to the shape of a square within a square on which the researchers

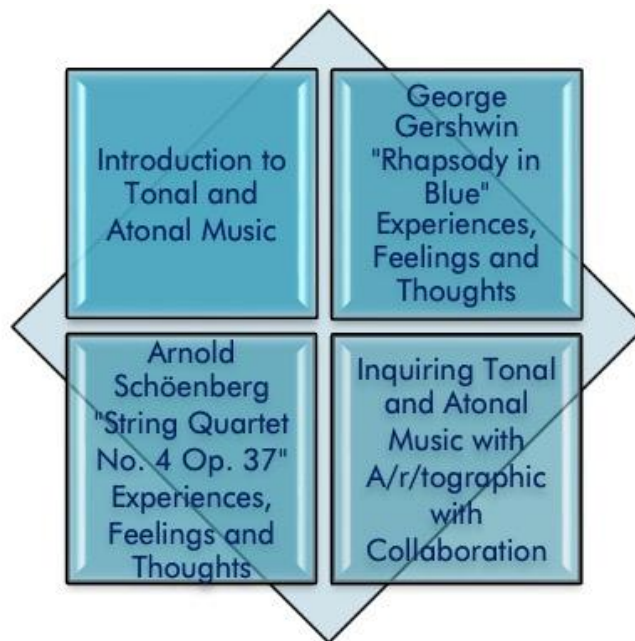
and participants make theoretical inquiries at the end of the study. It is aimed to reflect and overlap the rhizomatic relations between identities experienced in the research process in the frames that are placed on each other in a transparent way, and thus to present the stratified meanings to the reader with transparency in the figures. The researcher wanted to present the whole of this study to the reader by associating the concepts of her research with the meanings of visual elements with an a/r/tographic approach, beyond presenting the whole of this study only in the written form.

Introduction to Tonal and Atonal Music

This phase, which constitutes the beginning of the research, consists of the following sections (Figure 3). These interrelated sections will be understood in reference to one another rather than being offered under separate headings.

Figure 3.

Introduction to Tonal and Atonal Music Inquiry Flow



The fact that the participants, who participated in an interdisciplinary study for the first time, were very enthusiastic, attentive, serious and interested, impressed the researcher. The researcher first explained to the participants the a/r/tographic research approach, the content of the concepts of “a/r/t, graphy and a/r/tographer” (art, writing and a/r/tography researcher), the interrelationship of letters and how these three identities were identified. She mentioned that they will work by establishing rhizomatic relationships with each other. She also emphasized what subjective inquiry means and its importance in the process. The researcher stated to the participants that she would question the a/r/tographic autobiography research with them again, but that she would share the results of her own study in the future parts of the research. The researcher emphasized that the reason for this attitude was not to affect the

participants and their subjective inquiries. Participants were asked to share their experiences, feelings and thoughts about music in their lives. At the end of these exchanges, it was found out that some of them played baglama, kalimba and guitar, and listened to rock, metal, slow music and Turkish music. Two participants said that they like to listen to disturbing sounds (drill, saw, sawmill vacuum cleaner, etc.). Some participants were influenced by the words of the music, while others stated that the melody was more important to them. Some of them stated that sometimes their heart rate accelerates, they suffer emotionally or they rest with the music they listen to. The participants, who questioned the place of many sounds in our lives, from nature sounds to disturbing sounds, spontaneously started to discuss the principles (harmony, rhythm, balance, etc.) common between visual arts and music. Particularly, in the inquiries developed on the temporal perception of music and the spatial perception of visual arts, the participants said that they felt the music spiritually because it was abstract, and that they perceived the whole painting as a concrete representation by seeing it in the space. As a result of this inquiry, the question "How can the music, which is audibly sensed in the spiritual dimension, be transferred to the space in visual arts?" arose. Participants were invited to listen to two different works and to inquire them subjectively (Photograph 1).

Photograph 1.

Experience of Listening to Tonal and Atonal Music Intuitively and Subjective Inquiry

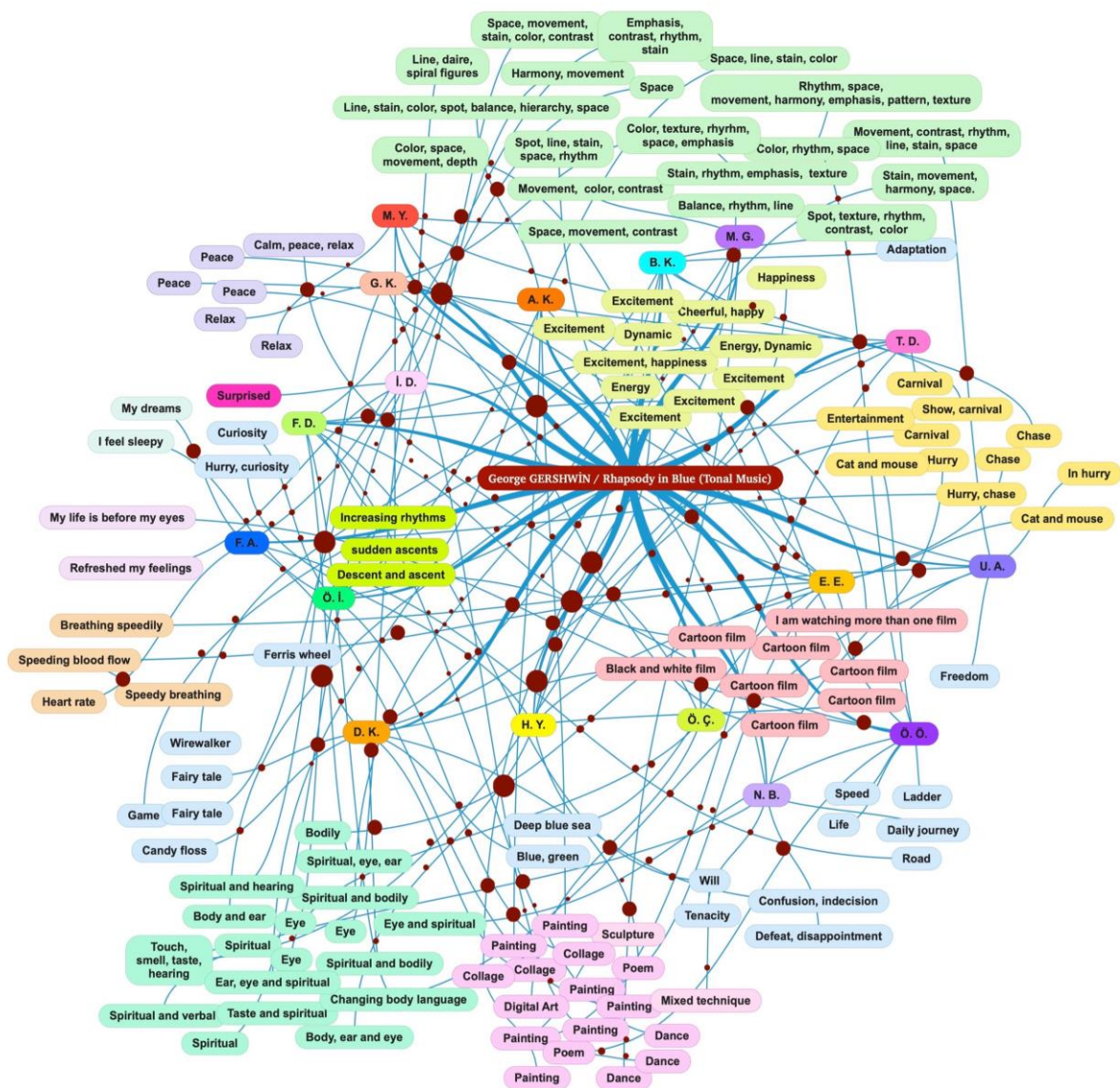


Firstly, the participants listened to George Gershwin's "Rhapsody in Blue", which they had never heard before, so that they could feel the difference between tonal music and atonal music. This piece, which they will listen to for the first time, was sent to their mobile phones and it was explained what they should pay attention to while listening to the piece (position, feeling, focus, bodily intuition, etc.). They were asked to think about experiences, feelings, and visual elements they want to use (point, line, texture, color,

space, stain, form; balance, hierarchy, pattern, rhythm, space (place), proportion, emphasis, movement, harmony, contrast), their affected senses (eye, ear, taste, touch, smell, spiritual, bodily, psychologically, etc.), subjects, objects or concepts that appeared in their minds and were asked to note them. However, it was emphasized that this is not a necessity, they can question freely and, if they wish, they can also think about the artistic form (painting, poetry, ceramics, digital, sculpture, collage, mixed media, etc.) they want to transform this music. The statements in the notes taken by each participant in their listening experiences are given below by associating them with each other in different colors. It was considered important to present the notes of individual listening experiences to the reader in the context of concept formation and rhizomatic relationships (Figure 4).

Figure 4.

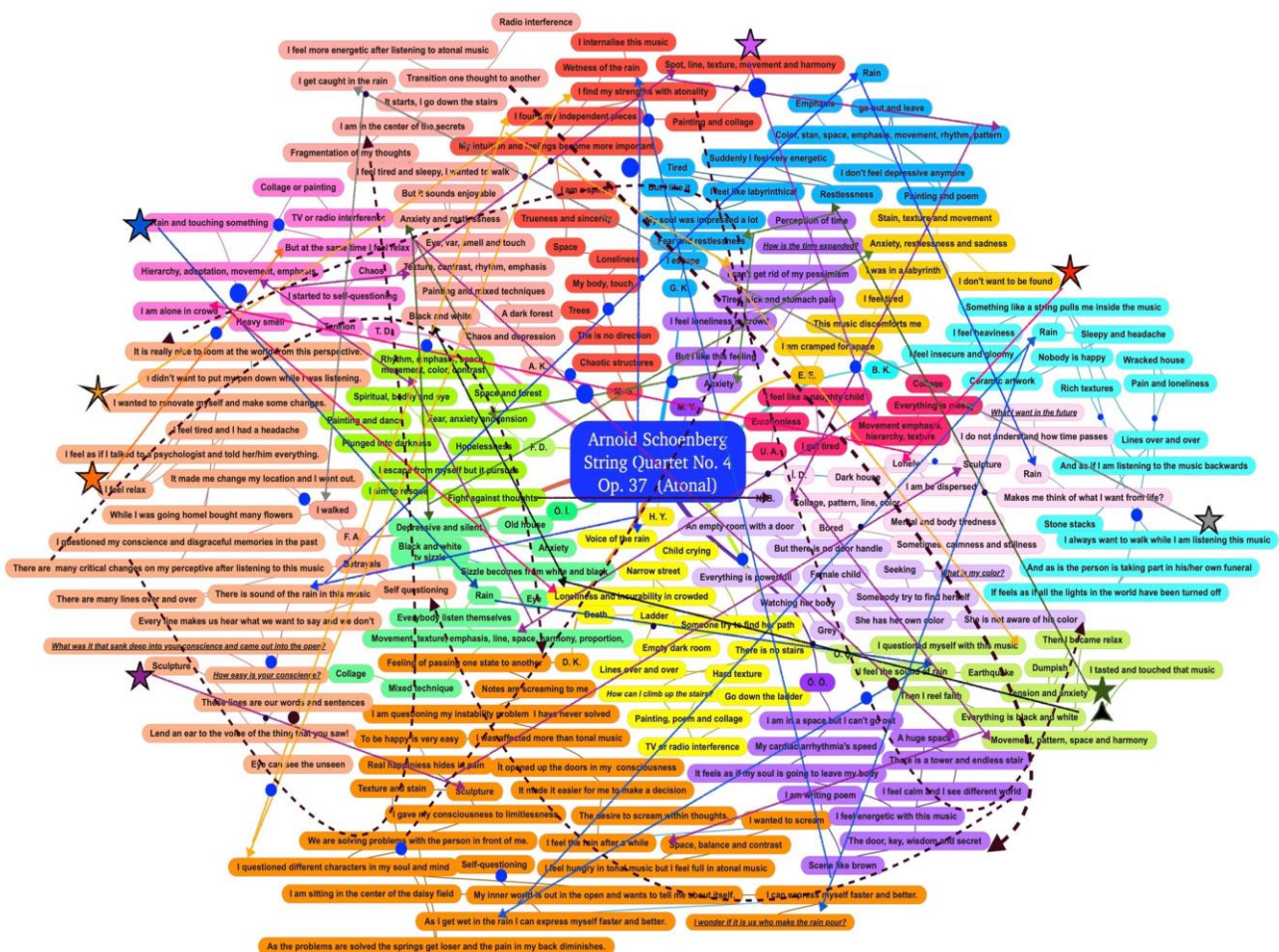
George Gershwin, "Rhapsody in Blue", Rhizomatic Relationships



Right after the tonal music, Arnold Schonberg's "String Quartet No. 4 Op. 37" was listened to. The effect of the work on the participants is as surprising as it is interesting. The researcher thought that the disorder and chaotic effect in the structure of the piece might bore the participants, but each participant listened to the piece, which lasted about 30 minutes, with great concentration and seriousness. Some listened at the tables or sitting on the floor in the workshop, while others listened by lying outside in the rain or taking a walk. The researcher observed that the participants listened to the atonal piece more in motion and by changing places. The expressions and concepts in the notes taken by each participant in their listening experiences are given below by associating them with each other in different colors (Figure 5). Compared to the schema in tonal music, it has been observed that the expressions are layered on top of each other with semantic concentration, converge, and the distance or interval between the identities that come into contact with this closeness decreases. In the last part of the study, all experiences, feelings and thoughts were shared and inquiry continued through the structure of two different music. 7 of the participants said that Schönberg's music still continues to play in their minds.

Figure 5.

Arnold Schönberg, "String Quartet No. 4 Op. 37", Rhizomatic Relationships



The researcher talked about her autobiographical research on Gershwin, which is her first work in the process of painting music, and noted that these two artists were very close friends, which she discovered by chance in the Schönberg study. This situation surprised the participants. One of the participants, who enthusiastically told each other about their experiences of listening to Schönberg's work, said that he discovered that this music triggers the act of movement in the body, and read the subjective inquiry notes after the walk aloud to the others.

M. G. During my walk, I suddenly found myself in a forest area. The trees around me were listening to each other in harmony, leaving the voices of people behind and humming. Complex structures appeared in my mind. I was in the middle of the forest. I lost my sense of direction. It is as if the music draws us into a game and shows us the truth behind the invisible behind a curtain. I am feeling empty. You are drowning in the waves, you reach out your hand, but there is no one... While you were listening, the notes suddenly stood up. I am very impressed. A concept popped up in my mind. With this sculpture, I thought about how we can fit our pain in a place. The pain, which is the basis of our lives with big stones, and small stones are also a part of our lives. I felt a hand on my shoulder that brought out our strengths and watched my own photo from outside the frame. I put on my black glasses and felt invisible behind the glass curtain. It's like waking up from a deep sleep. Instead of Gershwin, Schönberg internalized me more.

M. G. not only took notes, but also shared the photograph of the sculpture he made with the participants, explaining that the music inspired her to make a stone sculpture (Photograph 2). The researcher could not hide her surprise when she saw the statue and remembered the works of the prominent sculptor Fritz Wotruba, who designed Schönberg's tomb and whose works she had encountered while conducting her autobiographical inquiry, studying his life. Wotruba's work *Große Figur für Luzern*, who had a close friendship with Schönberg, is placed in the middle of the photograph with M. G.'s work. The participants, who learned that M. G. had caught this connection intuitively by being inspired by atonal music without knowing it, were very surprised and spontaneously discussed how to empathize with the artist through his music. Another participant, N. B., preferred to express atonal music visually and in writing with many concepts, metaphors and questions while listening to the piece (Photograph 3). At the end of the inquiry, answers were sought to new questions about *how different ways of knowing can be discovered and experienced with music, integrating with the artist and his work, internalizing sounds, and how a research that lives with music can be*. Participants were told that they could listen to Schönberg's work at home and explore the artist's life if they wanted to, in order to internalize it. However, the participants stated that they could access all the information about the artist and his life if they wanted to. However, they stated that they wanted to experience this intuitive discovery process for a while and stated that they did not want to do research. Although the researcher has been working on intuitive experiences in art practices and theory development since 2010, she did not specifically mention that she chose this direction in order not to influence the participants.

Photograph 2.

Sculpture by M.G. Spatializing Atonal Music and a Work by Fritz Wotruba



Photograph 3.

N. B.'s Visual and Written Inquiry of Atonal Music

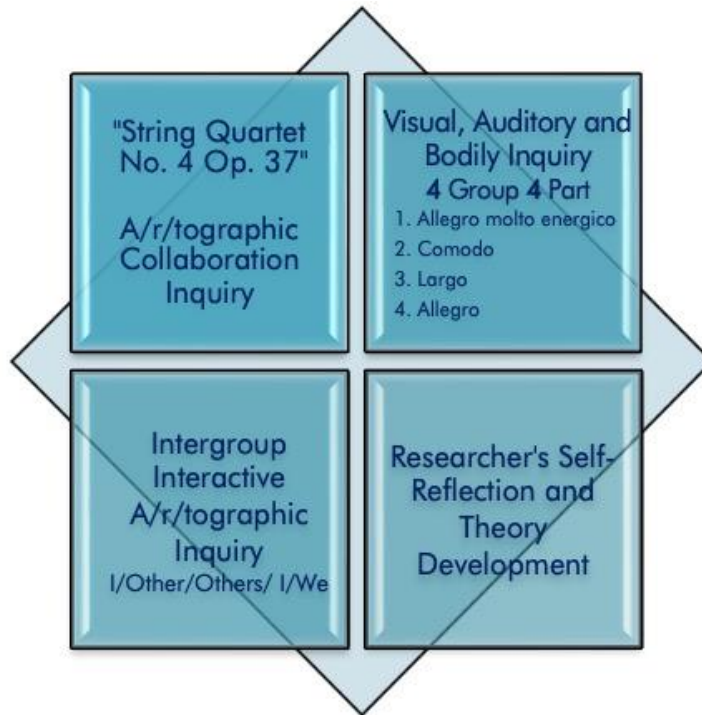


Questioning the Concept of Atonality in the Context of Visual Arts

In the sections constituting this stage of the study, there are applications for developing theory on the concept of atonality and the relationship between visual arts (Figure 6). In the first part, the practice started with the self-reflections and experiences of the participants, who stated that they listened to the work at home many times with pleasure and questioned it by taking notes. The excitement of the group and the endless questions played an inflammatory role in the process. Thus, a more in-depth inquiry on the concept of atonality was realized.

Figure 6.

Questioning the Concept of Atonality with A/r/tographic Collaboration



At a time when the participants were so focused on the process, the researcher read to the group a note she received when she first started her work.

It is a very difficult task for me to look at the world from a different perspective through Schönberg's music and to try to grasp the sounds that he insists on us with pleasure. In order to understand and internalize his music, I have to put aside all the usual rhythms and destroy the musical order coded by my brain. I think that we can only comprehend that this music, which we find complex, chaotic or disorganized with a warning given to us by our brain rather than our ears, actually consists of a magnificently constructed order, and only when we forget what we know and get rid of our prejudices. It's interesting that this mathematical fiction has produced such a sensitive work of art. It should be questioned! (Guler, 2017)

The visual, auditory and bodily inquiry experiences of the study are important for the participants to internalize the relationships established between identities (artist/researcher/teacher). Group members are divided into groups so that they can go through these experiences in depth. However, during the formation of the groups, the participants, who were walking around with their eyes closed while Schönberg's piece was playing, were told to stop the music and randomly pair up with the people standing next to them. The process continued with 3 groups of 4 people and 1 group of 5 people. Rather than groups consisting of close friends who know each other, the researcher wanted insincere and contradictory identities that could create new contexts with different ideas to come together in groups (Photograph 4).

Photograph 4.

"String Quartet No. 4 Op. 37" Listening to Subjective Inquiries and Forming Groups



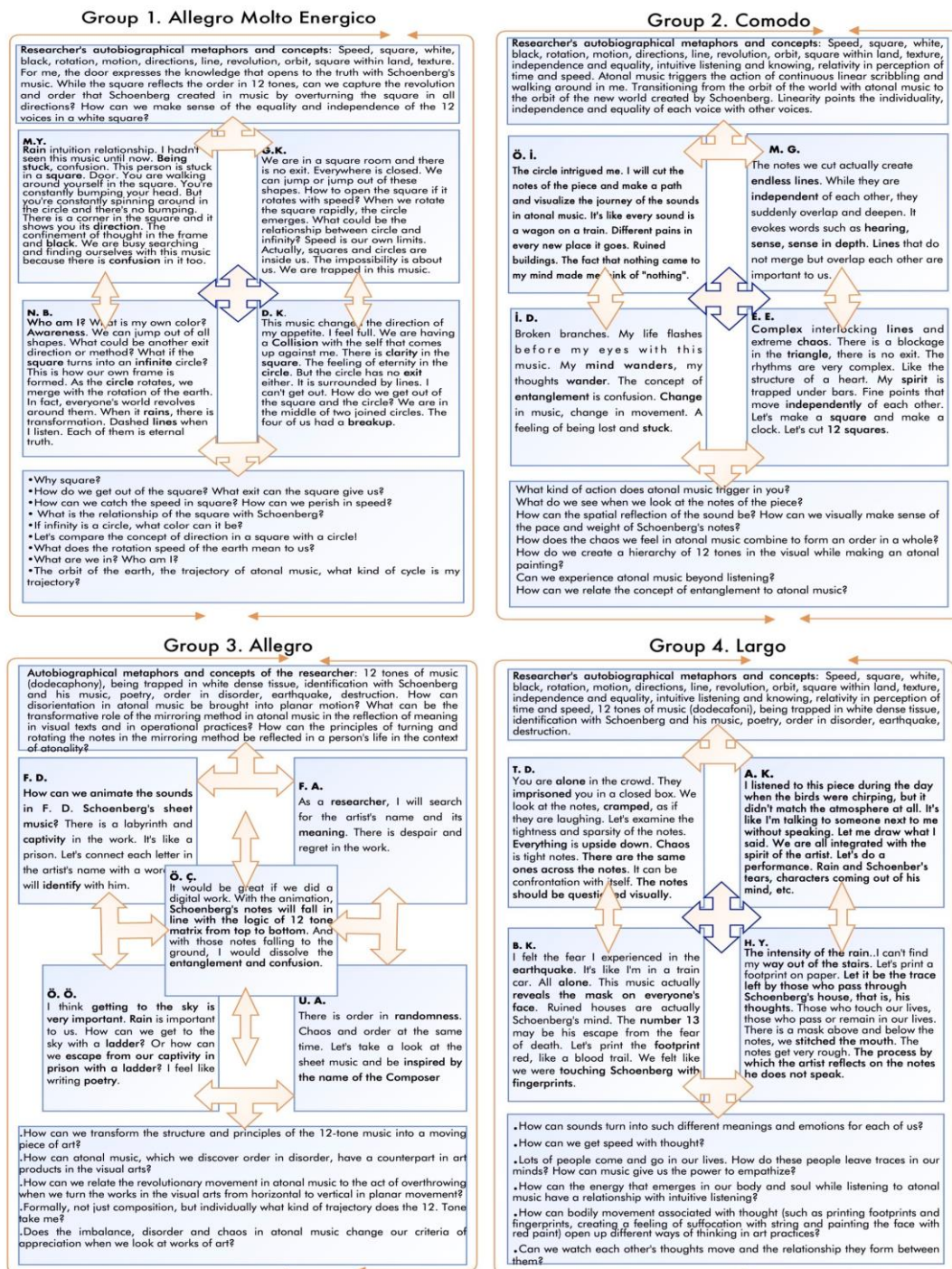
Schoenberg's work, *String Quartet No. 4 Op. 37*, consists of 4 parts as *Allegro molto energico, Comodo, Largo and Allegro*. The piece includes 2 violins, 1 viola and 1 cello. The notes of 4 different parts of the piece and 4 instruments were printed out and the notes of a section were given to each group. In addition, each group is given materials such as 3 large pieces of blank paper, colored pencils, glue, scissors, etc. As the researcher developed the square shape theory in her autobiographical work; she planned the dimensions of the distributed papers to form a large square when combined and cut them in special dimensions. However, this information was not told to the participants. Group members were asked to re-question their subjective inquiries with the identity(s) they chose (artist, researcher, teacher) together with others. While doing this, they were encouraged by being informed that they could turn the notes distributed to them into an artistic product and have all kinds of experiences if they wanted to. Statements regarding the inquiry process of each group are given below in full transparency (Figure 7).

What is the provocative role of being able to see, think and live with atonal music in improving the cognitive skills and sensory awareness of visual arts students? The answer to the question emerges especially in the statements of the participants in the group studies. In the next section, it was considered important to present these expressions to the reader in order to show the connection with the next stages, since the groups will come together and form a whole frame with the 12 tone technique, which forms the basis of atonality. As an a/r/tography researcher, Guler participated in the questioning process of all groups and was involved in the process with her self-reflections and experiences (Photograph 5). The inquiries of the groups, which took place with great enthusiasm and fervor, continued sometimes with writings and poems,

and sometimes with performances (Photograph 6). Since the researcher has not yet conveyed her work clearly so as not to affect the experiences of the participants, she had the opportunity to subjectively question her own results and experiences with new relationalities in the inquiries she carried out in all groups. The researcher mostly lived the process with her students with a learning-to-learn and learning-to-teach approach.

Figure 7

Intra-Group Interactive A/r/tographic Inquiry Expressions



Photograph 5.

In-Group A/r/tographic Inquiry



Photograph 6.

Group 4, "Touching and Leaving a Mark on Schönberg" Performative A/r/tographic Inquiry



In the continuation of this study, the groups are expected to come together and place their papers according to the 12 tone principles. The idea of this placement emerged by the researcher randomly during the inquiries of others. In this technique, “the composer arranges 12 voices that are independent and of equal value according to his own will. However, it is not possible to return to the first sound without using every sound in the series” (Ozmen, 2017, p. 42). Before this activity, the researcher gave information about the chess game developed by Schönberg. The name of this chess game, which is played with 4 people from 4 directions on a square platform and whose pieces are war vehicles, is coalition. Players must somehow adapt and complete the game in consensus. The concept of the square, which is frequently seen in the in-group inquiries of the participants, was emphasized, and thus the researcher tried to associate her own autobiographical transmissions without affecting the others in the process. The researcher started a new inquiry about whether this square, which will be created on the floor of the workshop by 4 groups, can be associated with Schönberg's concept of chessboard and coalition. This situation excited the participants and made the process more complicated. The entanglement and relationality of the concepts continued with new inquiries. At this point, since each note has an equal voice and identity in 12 tones of music, the value given to each is mentioned and subjectivity is emphasized. While the participants were creating the frame together, they stated that they wanted to listen to the piece in the background at low volume. They placed their papers with great enthusiasm and paid attention that no papers belonging to the same group would come together as in the 12-tone music (Photograph 7.1).

Photograph 7.

Spatialization of Atonal Music



In the next stage, threads of different colors were distributed to each participant and the meanings of "rope" such as ripping, closing the gaps, joining, tying, jumping, climbing, going up or down, healing the wound, playing a puppet were questioned (Photograph 7.2). They were asked to focus and feel the rope in their palms for a while so that they could think about what the rope in their hands meant to them. Participants spontaneously started to walk around the square on the ground, which they looked at from above at a right angle with their bodies. Thus, they were able to internalize what they saw on other papers in the context of I/others while they are moving. The idea of making visible by connecting all the thoughts they associate with their own questioning on the huge square standing on the ground with the ropes in their hands excited the participants incredibly. It is an exciting process for the researcher to actually leave their own traces on Schönberg's thoughts while passing over the thoughts of another (Photographs 7.3-7.6). In this context, expressions regarding the inquiries made at the end of the process are given below (Table 1).

Table 1.

Interactive Post-Performance Expressions of Participants

Intergroup Interactive Post-Performance Statements of Participants	
Ö. Ç.	"I was impressed by the commonality of our feelings and our search for knowledge. For a moment, the words under my feet became three-dimensional and I felt the words rise with their meanings. It was as if the square I was walking on turned into a cube with the opening of meanings."
I. D.	"I got transformed by trying to sense the thoughts of others."
B. K.	"We wrote the same things. How did that happen? There are no words in the music. How did that happen? I am surprised."
Ö. I.	"I didn't feel anything."
H. Y.	"It is a wonderful feeling to internalize on the words I walk on. It is exciting to question with others, to look at the part and the whole together."
F. A.	"Every word I walked over made me think of the dead ends of my life, and I was in a maze. I thought a lot about my life."
D. K.	"I am a very indecisive person. Here, as a result of my indecision, while I was thinking about which word, I should go with when I was moving with the ropes, Ö. Ç. and I collided with and our ropes got tangled. I've hindered him. Because I couldn't decide at that time. This made me question myself again. While we were passing the ropes over each other, we created speed ourselves while actually looking for speed and we moved forward by helping each other. We empathized and we were now one person on paper, but we had many hands."
E. E.	"I was dizzy among the thoughts of others "who am I?" I thought a lot along the way, but I got tired."
F. D.	"We all thought of something different, but looking at the whole, it's like we thought of the same thing. Incomprehensible, but understandable. Irregular but regular links. Interesting."
Ö. Ö.	"My metaphor is there are many groups drawing the door. Door opening, closing, a way out or a transition from one knowledge to another. So a new door has been opened for us with atonal music. Music is something beyond time and space. I feel like we know him at Schoenberg's house right now."
T. D.	"We are looking for answers to all the questions in the world together with a single energy. It's an amazing feeling."
G. K.	"I am constantly exploring. I linked the words together and went to the exit. I wrote my own story. I bonded with others. We circled outside the square and made a huge circle in the center of our 3 sheets of paper. However, when the groups came together to form a square, our papers were separated. Our circle broke down and broke up in three separate arcs in the big square. In fact, while we were questioning with the others at that moment, we left the square and our circle was opened. We caught the EXIT as me, the others, and us."
N. B.	"We connected the pouring rain to the infinity sign. D.K. cut the trapped notes. So we imprisoned ourselves with our fingerprints. Our fingerprints are in the center. Wonderful. How can I get out of this world? Everyone has a circle in their inner world. Then the place where we are imprisoned is the square, the earth, the ground. My color is black. My rope was also black. While we were tying the ropes, we clashed with each other on the paper, we collided, crossed and sometimes we would even fall to the ground because the rope was wrapped around our feet. We were incredibly tolerant of each other. But we were all in harmony in this chaos and created an order. You pull sound like a string and you bury sound in space, that is, in the material. Fascinating."
M. Y.	"I discovered it out of nowhere while we were circling the big square together. And at the same time, I made eye contact with the others in my group. While we were questioning the exit from the square as a group, we found our answer with this turn. The circular motion of 16 people walking around the square showed us that we can only reach the infinity of the circle through action, that is, by walking. In short, action takes us semantically to the reality of the circle. We built new knowledge and deep meanings with threads of different colors. It was worth seeing the group members' heated discussions with others who wrote the same things."
A. Güler	"We built new knowledge and deep meanings with threads of different colors. It was worth seeing the group members' heated discussions with others who wrote the same things. And I've thought about my research that I've been working on for so many years from so many different perspectives. I learned a lot from my students."

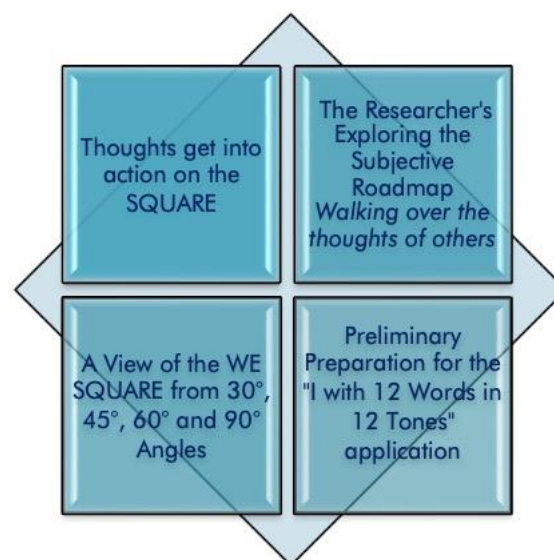
The analysis phase of the theories presented by the participants in this process, in which the researcher occasionally transfers her self-reflection and experiences, is very impressive. How can the cognitive and sensory processes, discoveries and learning outcomes of the researcher in the inquiry of a/r/tographic autobiography be transformed into the learning and creation processes of her students? The answer to the question emerged especially during the conceptual thinking and theory development stages of the participants. The fact that some of the participants shared their little research on the artist and his music and deepened their interconnectedness with emerging ideas showed each of us how important intuitive experiences are in the practice of art.

Walking over thoughts

At this stage, in the context of improving cognitive skills and sensory awareness, the focus was on questioning atonal music physically and spiritually (Figure 8). In addition to all senses, different perception practices of sounds have been experienced. Making the inquiries of the three identities visible by being carried to the space with sounds and thoughts, examining the perspective we look at while performing an action, making a new mapping of the results of the researcher with the thoughts of others, and questioning oneself again provided the opportunity to have a versatile experience (Photograph 8).

Figure 8

Stages of Walking over Thoughts



Perhaps the researcher's first encounter with herself and others in action is her performance with the thickest and darkest burgundy rope in her hand. In this performance, which reveals all the points of intersection of her autobiographical transmissions, which started years ago and still continue; inquiries such as thought within thought, graded thoughts, grading of actions from different angles (30°, 45°, 60°, 90°),

60° and 90°) were carried out (Photograph 9). The researcher looked at the texts and images on the square surface from above and from different angles, looking for ways to actively enter the thoughts of others. Thus, she created different spaces in the place, sometimes by marking her concepts and metaphors with the rope in her hand, and sometimes by pulling the concepts stuck in the sounds in music with her rope. The new areas created by the rope pulled against the ground in the space are meaningful with angles. Thus, the researcher drew her own roadmap by combining it with the actions of others. The researcher's walking on the thoughts by setting her body to work helped her move the temporality of the music to the spatiality.

Photograph 8

Ö. C. Walking Over Thoughts Inquiry with Atonal music



Photograph 9

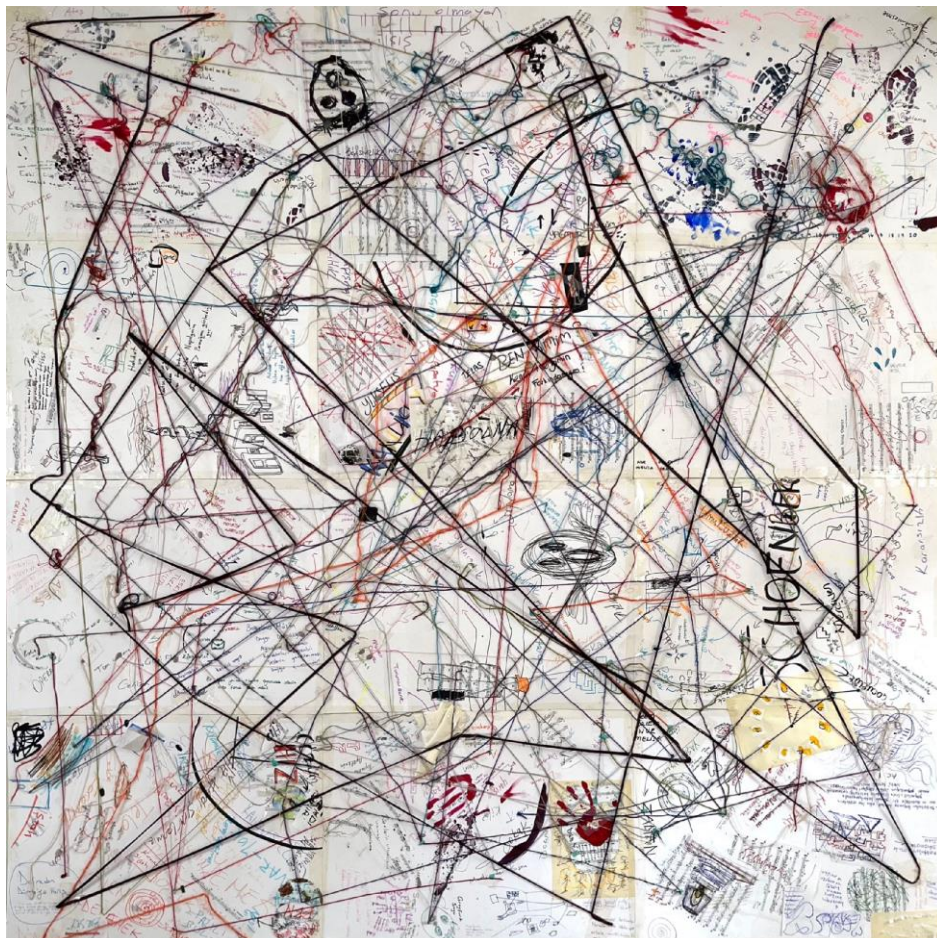
Researcher's Performance of Walking on Others' Thoughts



In this regard, the importance of using the body as an expression of thoughts in art practices has been questioned. The square that the participants and Guler worked on was named as WE SQUARE, representing the map of everyone's walking thoughts (Photograph 10). WE SQUARE was excitedly raised together at a 90 degree angle. The coming alive of the thoughts on which we were walking by standing up, had a profound effect on the whole group. Some participants were emotional and could not hold back their tears, saying that they internalized the process too much. The participants, who watched the frame from different angles for a long time, shared their experiences with each other again (Photograph 11). For many years, the researcher has experienced the excitement of questioning the "square within a white square", with which Schönberg associates his artist identity and music, on the WE SQUARE (Photograph 12). The preliminary preparation process for the "I with 12 Words in 12 Tones" application, which is the last stage of this section, is based on the researchers and participants choosing 12 words that will reveal their inner notes with the concept of "I" according to the principles of 12-tone music, which forms the basis of atonal music.

Photograph 10.

WE SQUARE Created According to 12 Tone Principles



Photograph 11.

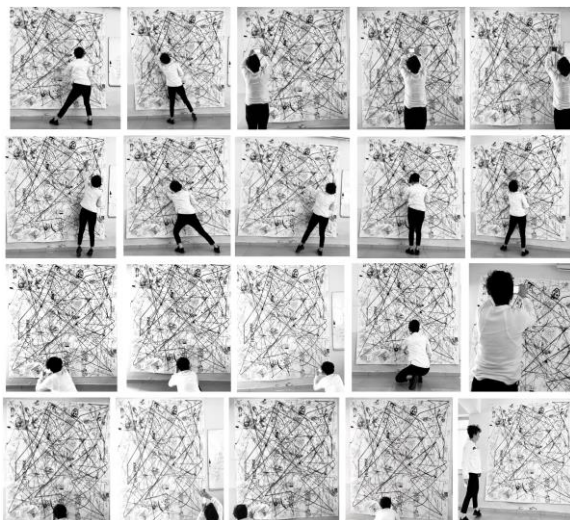
Standing up Thoughts and Interpreting Roadmaps from Different Perspectives



With this section, subjective exploration ways were sought for the use of writing in different art forms with the connectivity established over the words questioned by *others*. In fact, the participants, who will create their own atonal flow with words that have different meanings, such as the equality and independence of each of the 12 notes, have tried to reach the countless possibilities this music offers us in their own texts. In this inquiry, it is aimed to question the places and directions of words in the text with concepts such as *interaction between borders, separating or combining borders, re-facing with oneself, opening different ways of communication, creating intertwined meanings, contextlessness and connectivity with 12 words*.

Photograph 12.

Guler's Inquiry of the square from different perspectives



Photograph 13

Preparation for the Practice of "I with 12 Words in 12 Tones"



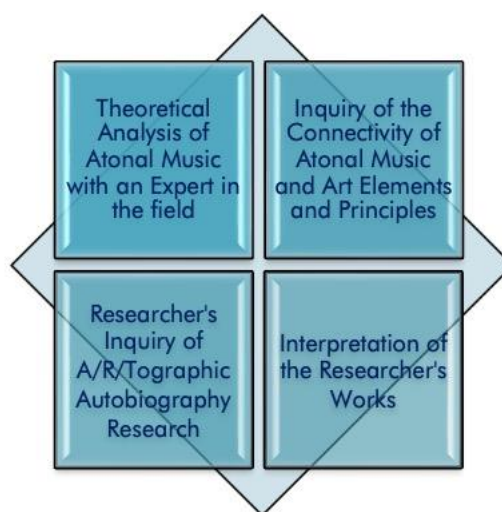
In this section, the participants first spent a lot of time in front of the "WE SQUARE" and chose only their words (Photograph 13). Until the next step, they were given time to question their words. The outputs of this activity are given to the reader in detail in the following stages. One of the most important points of this stage is that the researcher decided to open the file containing all the observation notes and theoretical researches of her autobiographical work in this section. The researcher did not specifically open and read all her notes containing her results at the beginning of the process. The reason for this is that she does not want to remember what she has forgotten by becoming alienated from the process with the participants. This information was shared with the participants at this stage.

Inquiry of Visual Arts Practices in the Context of Atonality

In this section, the connection between the field of visual arts and the concept of atonality is examined in depth in terms of theory development and practical experience (Figure 9). The application outputs for the questions "What are the pedagogical and aesthetic outcomes that will emerge in the actions of *conceptualizing, knowing, metaphorical thinking, seeing with sound and visualizing sounds with atonal music?*" and "How are the similarities and differences between the compositional structure and technique of atonal music and the composition, art elements and principles in the field of visual arts reflected on art education, unlike tonal music?" of the art students who question the creation processes of the research in the context of interdisciplinarity by experiencing three different identities (artist/research/teacher) are presented below (Table 2).

Figure 9.

Flow of Inquiry in Visual Arts Practices in the Context of Atonality



Up to this stage, the participants experienced an interactive, relational, conceptual, connective, retroactive and forward-looking process in their a/r/tographic inquiries. Participants presented research actions that developed spontaneously through a

hybridizing process, where artist-researcher-teacher roles sometimes find their way between divergent relationships and meanings. Deepening meanings, questions and contextlessness were conveyed to the participants by the field expert and questioned again. The participants, who put their own perceptions, experiences and lives into action, this time invited Prof. Dr. Ozgur Oztosun Caydere, a field expert in violin teaching in the department of music sciences, who teaches at the same faculty, to the cognitive and sensory field they created. The participants and the researcher questioned the relation of atonality with the art elements and principles used in the visual arts with Prof. Dr. Caydere by looking at the structure and principles of atonal music through the eyes of a field expert (Photograph 14).

Photograph 14.

Field Expert-Researcher and Participants Inquiry of Atonal Music Through Art Elements and Principles



This exciting and enjoyable process created surprising effects on the participants with new discoveries in the light of theoretical knowledge about atonal music and made them ask new questions. The statements regarding the process that the participants questioned with Prof. Dr. Caydere are given below in full transparency (Table 2). Of course, this inquiry triggered new ways of knowing and artistic actions to be built both for the participants, and Prof. Dr. Caydere. She (2016) emphasized that the basis of individual success and development is individual curiosity, and that individual curiosity and learning through research done with curiosity can provide permanent learning.

Table 2.

Expressions of Inquiry of Atonal Music in the Context of Visual Arts

Inquiry Statements with Tonal and Atonal Music Field Expert, Researcher and Participants	
Researcher	"We have previously discussed concepts such as time perception and bodyless music in music. We were very interested in the connection between the opening of the circle, its transformation into a bow, Schoenberg's interest in tennis, and actually the arc drawn by the body while playing tennis, the arc drawn by the ball, and the String Quartet being composed of strings"
Field Expert	"I am so excited, too. We will soon be listening to the quartet of two different composers (Mozart and Schoenberg), both of which were composed for string instruments. In the quartet composed for string instruments, the parties written for the 1st violin, 2nd violin, viola and cello are performed by the relevant instruments. When four instruments are played at the same time, they form a whole. There is a balance between the parts of the related instruments. The four parties can act together and act differently. In addition, the part written separately for each instrument is written and read according to the key of the relevant instrument. In other words, the key of the violin and the key of the viola and cello are different from each other. The doors and keys of the instruments are different." (When he says the key, he shows it by drawing on the notes)
Participants:	"Opening the door with the key?" "Actually, we made a quartet with 4 groups using different keys." "I am incredibly surprised right now." "Well, what happens if you put that key first? Teacher"
Field Expert	"For example, the treble clef. Starting from the second line, we draw its shape, giving its name to the line it starts with. If there is a treble clef at the beginning of the notes (at the beginning of the string), we read the name of the note written on the second line as left. Keys therefore change the frequency of the sound. For example, the key the cello reads is the Fa key. The name of the note written on the upper 2nd line of the string is read as Fa. Now I will play to 2 different pieces. One of them is Mozart String Quartet No. 4 in C Major and the other Schoenberg String Quartet No. 4 Op. 37." (Music starts.) Mozart's quartet (Tonal) is in harmony... We can say that there is a structure that progresses in the same pattern and carries the melody for this piece, in which melody and accompaniment are clearly understood. Watch out! Again, we can say that someone always uses the same pattern in music. Did you hear? They continue with the rhythmic task. They have lifted the load, or almost exclusively carried the load. If that load is not carried, we can say that it collapses above or remains weak."
Participant:	"Professor, if we associate it with the visual, we will tell you from our own point of view. We may have the principle of integrity or unity. The repetition of a pattern is harmony in the whole, but these elements are also present in the atonal."
Field Expert	"After this information, let's listen to the whole thing again and internalize it. Right after Mozart, I will open Schoenberg without speaking." (After listening to 2 pieces, the following comments are made by the participants.)
Participants:	"In tonal Direct story, journey, cheerful, happy, it always goes on its way. An open way but atonal dead end, anxiety, narrowness." "A room with a door but no handle." "There was a balance and harmony in the tonal, the repetition of the sounds. It creates the balance on the canvas. Atonal is like putting the wrong color on the piece as if we were alone." "When I switched to atonal after tonal, my ears hurt, the voices scratched." "I am in the tonal cartoon. Small overlapping figures are constantly doing business. In the atonal, it is as if I have piled everything up on the canvas." "Actually, we always live in the atonal. There is the sound of order in disorder in the universe." "Atonal is good for me, the tonal is monotonous, I get bored. In the atonal, for example, the sound of birds and the sound of the environment all join us. Order in chaos, unity." "Tonal fantasy, false love, cotton candy. Atonal is more real world, good and bad, its ups and downs are all in the atonal. While our brain rests itself in tonal, the other forces our brains and gives them exercise. It's not a rule, it doesn't actually have to be perfect like life on earth. Sincere."
Field Expert	"The feeling of dashed lines in the atonal, caught my attention. Very nice. I will tell you a little about the characteristics of the periods. You have made such beautiful meanings that there is our feelings and facts. Music in the atonal is intriguing. Most importantly, there is an equal distribution of tasks. In tonal, it is as if someone is always carrying a load. For example, a war broke out, soldiers will go to war, in one there is a ready army going to war, in the other there is a situation where equipped soldiers, not called the army, come together, so the army is ready for war. In atonal, we can say that each voice is independent. Everyone is holding on to something and lifting this load. Assignment is very important. Many more comparisons can be made. I was confused while trying to make an analogy. You are amazing. Yes, there is the principle of equality and freedom in the atonal. In tonal, the structure is built on 7 voices. For example, in the tonal structure, the seventh voice wants to go to the eighth voice and will go even if it deviates the road. You asked about the fact that the music is not central, that is, bodyless. Yes!"
Participants:	"It's unbelievable, there's a key in the tonal that rules everything in the beginning." "So they have their own autonomy in the atonal, so there is equality in each. Each of them has the right to speak and the power of expression." "Each voice is independent. As in our frame. We are each independent, but together we formed a whole."
Field Expert	"You expressed it very well. Independence."
Participants:	How did Schoenberg fit his essence into 12 tones of music with 12? "What is the place of 7 notes rising to 12 voices and the 5 notes in between in Schoenberg's life?" "It reproduces the melody with its mirroring system." "The key changes to another door so the note says go to another door."
Field Expert	"I loved it and was incredibly impressed. You made me question so many things. I would like to work and question with you in the future. You made me think what I wasn't thinking. Thank you so much".

When we look at the statements given in Table 2, it is seen that the interdisciplinary interaction with this research, which lives in itself, causes continuous fertility. Interactive inquiries with the field expert, who undoubtedly contributed to the process, played a very important role for researchers and participants in the theory development process.

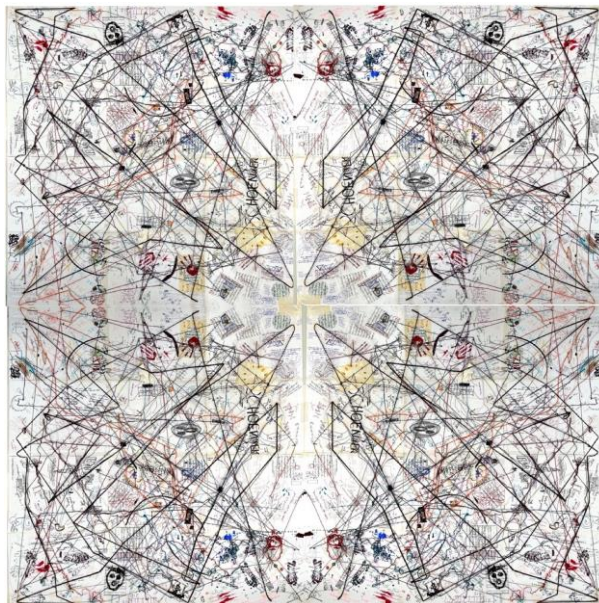
Prof. Dr. Caydere left the environment by asking permission. In the continuation of the process, Guler wanted to re-apply the mirroring technique, which she experienced in her own work, by experiencing it with the participants in this research. Ozmen (2017, p. 42) explains this technique as follows;

Although the 12 musical techniques seem very mathematical and theoretical, it actually provides unlimited possibilities to the composer. Because four different sequences can be obtained by reading the original (O: original) sequence in reverse (R: retrograde), inverting the intervals (I: inversion), and inverting the intervals of the reversed (RI: retrograde inversion). It is possible to create a total of 48 strings by transferring these four strings to 12 different notes. The composer does not have to use this scale only melodically. According to his own aesthetic understanding, he can either use sounds by stacking them on top of each other, establish counterpoint structures, or sprinkle sounds into various sound fields with a point understanding. It is also possible to use these three methods together.

Curious about the semantic possibilities created by the visual and textual possibilities of the unlimited possibilities offered by the 12-tone music to the composers, the researcher translated the WE SQUARE by using the 12 Tone Row Mirror Technique. The chaos in the whole that emerged as a result of this was questioned again in the context of the reverse reflection of the thoughts and concepts of the participants and the researcher (Photograph 15).

Photograph 15.

Reverse Reflections of Thoughts with the 12 Tone Array Mirroring Technique



Silverman (2000) suggested that “a/r/tographers are living their practices, representing their understandings, and questioning their positions as they integrate knowing, doing, and making through aesthetic experiences that convey meaning rather than facts” (as cited in Irwin, 2004, p. 31). In this context, in the continuation of the process, the researcher invited the participants to question the pictures she made in her autobiographical research (Photograph 16-Photograph17).

Photograph 16.

*The Beginning Work and Sketches for Arnold Schonberg's String Quartet No. 4 Op. 37
Guler, A. 80x80 cm. Acrylic on Canvas, 2017.*



Photograph 17.

*33 Works done by Guler for Arnold Schonberg's String Quartet No. 4 Op. 37, Mixed
Technique, 2017-2021*



In this section, the paintings of the researcher were shown to the group for the first time and lined up in front of the WE SQUARE. The participants were given time and told that they could go around as they wished and take notes if necessary. The excitement, astonishment and appreciation of the participants in the works both moved and impressed the researcher. The fact that they associate most of the elements they associate with music (white, linearity, texture, etc.) with paintings and the intense interest they show while watching the works are considered as an indicator of a special bond established with the researcher. The researcher excitedly explained her process in front of the group and had a mutual inquiry process with them (Photograph 18). Below is a part of the researcher's sharing.

I am so excited right now! Now I invite you to inquiry. I will tell you about my work, my concepts, my metaphors, my theories through my paintings. My process started on July 23, 2017. I didn't know at the time that Schönberg was the best friend of the composer George Gershwin, whom I had been working on for many years. When I first listened to this work, a very densely textured white square canvas and a small white canvas embedded with white paint appeared on the lower right side of this canvas. In the upper left part of the picture, there were two vertical purple lines that were vaguely visible through the white tissue. I painted this picture right away. And then I started questioning? In fact, this beginning picture was the last scene of so many works you will see. As I questioned, I began to tear it apart in my mind both semantically and visually. This painting was both the first and the last work. I say last because I started to open it as if by pulling a rope from a whole ball. The in-between works were for this analysis. Why square? I thought a lot for many years. Actually, this picture was like a problem that I had to reach and solve at the end of the process. I never gave up. And I started to break it down, to combine it, to analyze it in my mind. I already had the synthesis. But I could not figure out its relation to atonality. Understanding atonality was already a difficult task for me. Then, as I listened to the music, everything started to change. Now I can explain myself to you. I know you understand me because you've experienced it too. Schönberg taught me to see the whole, walk towards the parts, and reach a new whole with those parts again. You guys made me question many other things without realizing it. Like you, I questioned the directions in the square a lot. While you were arguing over the square, I never spoke so as not to impress you. But I can't describe the excitement I felt inside. And I re-examined my own outputs with Group 1. Schönberg changed my perception of time, as did you. I read this last night from a note I took in 2018. Because I opened my research file from a different perspective yesterday. It was an incredible experience. For example, I love your idea of reflecting our thoughts with the mirroring technique. Most of the time I was surprised by your questions and admired you. You said ladder, and I questioned Schönberg's works named Jacob's Ladder and Moses and Aaron's Opera again. And I said how did they hear about the ladder? Many of my questions that were not clear in my mind gained meaning with you. Thank you very, very much (Guler, 3 June 2022).

Photograph 18.

Interpretation of all the Researcher's Works collectively



In order to convey the process to the reader with all its transparency, some of the statements of the participants are given below (Table 3). The statements of B. N. E., a graduate student in the painting department who helped with photography and video shooting, were also included in the comments.

Table 3.

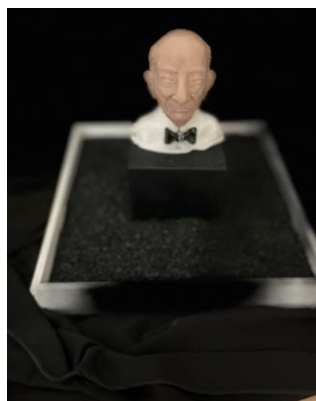
Statements of Participants Questioning the Researcher's Work

The Comments of the Participants in the Process of Discovering the Works of the Researcher	
N. B.	<i>"I can't focus in your paintings like in music. Everything is cut off."</i>
Ö. Ç.	<i>"There is no center or focal point in your paintings, just like in the music we listen to. When you look at it from everywhere and turn it in every direction, it becomes a picture again. This is an atonal painting and it is as if the mirroring technique has been used. I think you're looking at this world from a white perspective."</i>
G. K.	<i>"Square within a square. It's like the little square is you and you couldn't get out of the big square."</i>
B. K.	<i>"The painting makes me think of the interdimensional transition. While the painting on a large square canvas is 2D, placing a small canvas at the bottom right and its depth made me question how 3-dimensional thinking could be."</i>
H. Y.	<i>"You have definitely moved the small square to a corner in your paintings. In fact, you started to come out of the squares with the dense textures in the upper left. Because the tops of the squares are covered with a layer of dense tissue. You've put yourself in the corner. Someone can be added to you at two points."</i>
F. A.	<i>"The dense textures in your painting made me think of the veiled truths. A person must learn to pull the curtain to see their own truth. Aren't we already trying to part in a lifetime?"</i>
D. K.	<i>"The squares taken in the corners of your pictures make you think that you are watching the general image from the outside or from the side. In the corner you see everything in your life and the gravity that holds you in this world. If your square was in the center of the picture, it would be a circle. Each piece becomes a whole."</i>
T. D.	<i>"The whites in your paintings make us think of existence out of nothing. We don't remember anything at birth. We come out of that nothingness as we grow and live. When I think about why it is a square, this shape with corners reminds me of the limits of the human self. We set the limit on everything. There is no limit beyond my mind, in fact, it only exists in this world we live in. There is also a border square. If I go into it, I destroy the boundaries of a square because I am intellectually unlimited. We are the square."</i>
B. N. E.	<i>"In the little square on the right, I think you're looking at yourself philosophically. There is a transition from the concrete to the abstract. I think the transition from concrete information to soft information. The transparency of the tissues and the display of the underlying color can actually be thought of as the transparency of the person. In fact, you accept people of all knowledge and nature. And we must all accept it."</i>

The researcher told the participants that the most important effect of atonal music in their inquiry was triggering the desire to sculpt in 3D, and showed them the bust of Schönberg, which she made in minimal dimensions (Photograph 19).

Photograph 19.

Arnold Schonberg, Guler, A. 2020, Polymer Clay, 8 x 6.5 x 4.5 cm.



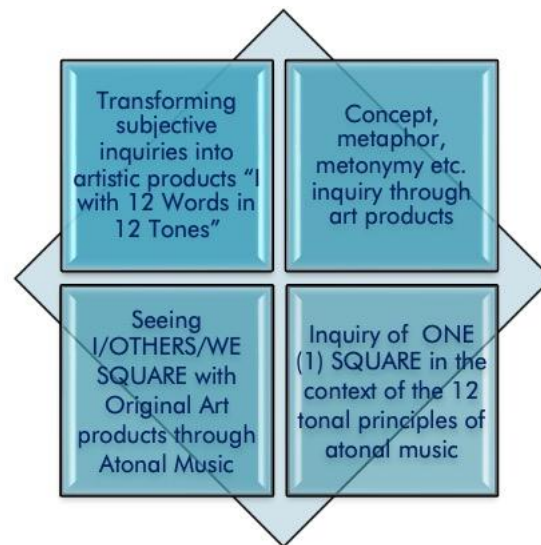
Considering the above statements, the participants' ability to interpret their own concepts in depth in Guler's paintings is remarkable. After this study, it is very important for the researcher to say how much they enjoy a line, stain or color, and how deep the meaning of a line can be in the audience.

I with 12 Words in 12 Tones

This section proceeded with the 12 words determined by that the participants who made preliminary preparations in the previous stages of the study for "I with 12 Words in 12 Tones" application (Figure 10).

Figure 10.

Stages of "I with 12 Words in 12 Tones" application



Thus, all ideas came to life and were transformed into artistic products, as if they stood up and explained themselves in the language of the owner of the work. It was observed that the participants, who transformed Schönberg's work into visuals with different techniques, internalized the process too much. D. K., based on his own metaphor, the ladder, carried out his application on a ladder he chose in a far corner by associating it with the space. The researcher accompanied Schönberg with a charcoal pencil and the sound of the pencil moving on the surface in company with the work. The experience of listening to music from a picture on a platform attracted the attention of the participants (Photograph 20). When the process was completed, all the works were exhibited in front of the "WE SQUARE" on the wall. The works of the participants were interpreted together with concepts and metaphors. Afterwards, all studies, including the researcher's work, were arranged on the ground in line with the principles of 12 tone music and a 12-tone matrix was tried to be realized. Participants lined them upside by side, associating each painting with a musical note. Since the picture of each participant symbolizes the autonomy and equality of each note, the paintings of the same person are not placed next to each other. Just as the 12th note

cannot be used without repeating the other 11 notes, the same discipline has been applied in the paintings. The group members are standing side by side in front of their paintings. Thus, they showed a whole order formed by the differences both on the platform and in the space with their bodies, with their 90° upright stance (Photograph 20). The I (Original subjective work) and OTHERS (Order, integrity and meaning, unity and order in chaos) square emerged with the meaning it acquires when lined upside by side. The expressions showing how the selected words find a place in a sentence, a line of poetry, a performance or a story or an art product are given in Table 4.

Photograph 20.

Transforming Subjective Inquiries into Artistic Product



The meanings and actions reflected on each other with the expression of I/Others/We on the floor, on the wall and in the body has opened new ways for us to explore the concepts of space and time more deeply in music and visual arts (Photograph 21- Photograph 22).




Photograph 21

Seeing the I/Others/We Square through Atonal Music



Table 4.

Expressions of Participants for the Application of "I with 12 Words in 12 Tones"

Participants' Subjective Inquiry Statements in the Practice of 'I with 12 Words in 12 Tones'	
Ö. İ.	Despair, emptiness, ascension, death, darkness, eternity, scream with pain, chaos, fear, loneliness, confinement, silence.
M. Y.	Rain, scream, escape, world, clock, door, square, labyrinth, lock, light bulb, ascension, loneliness. I went over my stereotyped things and destroyed them. It's been a revolution for me. Let my picture disturb you like the music.
G. K.	Tears, crying, drama, ascension, competence, drowning, depth, eternity, loop, street escape, road.
N. B.	12, confinement, speed, time, transformation, rain, lock, square, ascension, circle, earth, ladder. "I want to get trapped in the speed of time from the lock inside the world. I want to get rid of my square inside my own circle. And let the falling rain be my transformation."
F. D.	Soulless, pantomime, rush, getting lost, loneliness, being trapped, forest, waiting, darkness, rain, running away, time.
T. D.	Silhouette, mind, rise, explosion, who am I? confinement, silence, chaos, emptiness(space), death, darkness, consciousness, "My mind acted independently of me. I am both rising and crashing to the place where I rise. Here I tried to find my freedom. I am the ocean. When I found myself, I became free."
U. A.	Speed, game, naughty, child, ladder, longing, door, toy, appetite, cartoon, loneliness, biscuit.
B. K.	Despair, rain, soullessness, broken staircase, rush, emptiness, fear, eternity, street, abandonment, loneliness, black.
Ö. Ç.	"It customized my brush. Today I opened a window about myself. Now I realize that my limits are too high."
Ö. Ö.	Door, who am I, infinity ladder, square, confinement, endless exit, fire, who am I? my cycle, the sky's speech, consciousness, breaking point, emptiness. "Atonal music made me see the randomness that had occurred in my house. It actually looks random, but it has meaning and order to me."
A. K.	Drowning, footsteps, rush, pain, bombing, darkness, forest, siren, numbness, building, earthquake, labyrinth.
İ. D.	Loop, circle, square, escape, emptiness, escape, theatre, rush, rain, freedom, step, border.
M. G.	Being imprisoned, darkness, loneliness, rain, lost, height, tension, street, escape, despair, pain, despair, being locked up.
E. E.	Ascension, triangle, who am I? I am aware of my color!, stairs, congestion, rush, fatigue, drowning, eternity, imprisoned, dark, light
	"I am darkness trapped in a triangle! This tiredness is due to my endless rush. I see a light above. I lost my ladder, I lost my identity, I'm stuck, I can't get out. Who am I? I am aware of my color! I am a pitch-black darkness trapped in my own thoughts. A helpless person who has no beginning and does not know what to do. I don't want to run away from myself and my thoughts anymore. And I dissolve myself, the color inside me. I am a white light in the middle of all the darkness."
	
H. Y.	"I live this loneliness intermittently as long as it exists. I disappear in this world. In this crowd. I am struggling between life and death, I am drowning. I'm trapped in darkness in the middle of a divided road. I'm walking barefoot on this road that I don't even know the end of. I am so afraid what is this darkness hiding? I do not think that this lone departure will bring existence, not extinction. I descend the stairs one by one, undecided. That's when I understand living. It was you who shattered that darkness within my decaying self."
D. K.	Loop, door trapping, fear, ascension, earth, eternity, indecision, 13, lock, circle, daisy, "For the past few years I haven't felt anything, I've been so stuck. I made my ladder metaphor livable. I was in a constant loop. I'll be great on the 13th in my life. The solution was in myself, this music caused me to find myself. I calmed down. I saw that my disorder had order. I was a perfectionist. Opened my own locks. This music made me feel again."
DAISY	I'm all alone in a circular world with my 13 and my fear I was just born though At 13 with my fear Not knowing the truth would scare me In a square world Actually, being trapped in 13 is in the locked world Infinity or indecision? Actually, 13 was my rise I'm stuck in a loop though I opened the doors at 13 with my fear
WE	Writers, painters, Poets see pictures, Searches for colors in words Paints on their palms hoop in one hand Square in one hand Words dissolve if you fold your palms Think about it, what's your color? Maybe death is a scattering of colors to live again
A. Güler	Rain, door, solitude, white, earthquake, black, square, I am aware, circle, confinement, I, death "I am aware of the solitude of the black circle trapped in the white square by the rain in the earthquake at the door of death! Square I earthquake small square."
	

The researcher thinks that it is not a coincidence that she intersected with her students in a square again in this journey she embarked on with a white square in 2017. Of course, it is open to debate that the principle of true unity embodied in Schönberg's work and that atonal voices are a gift given to every individual participating in this process.

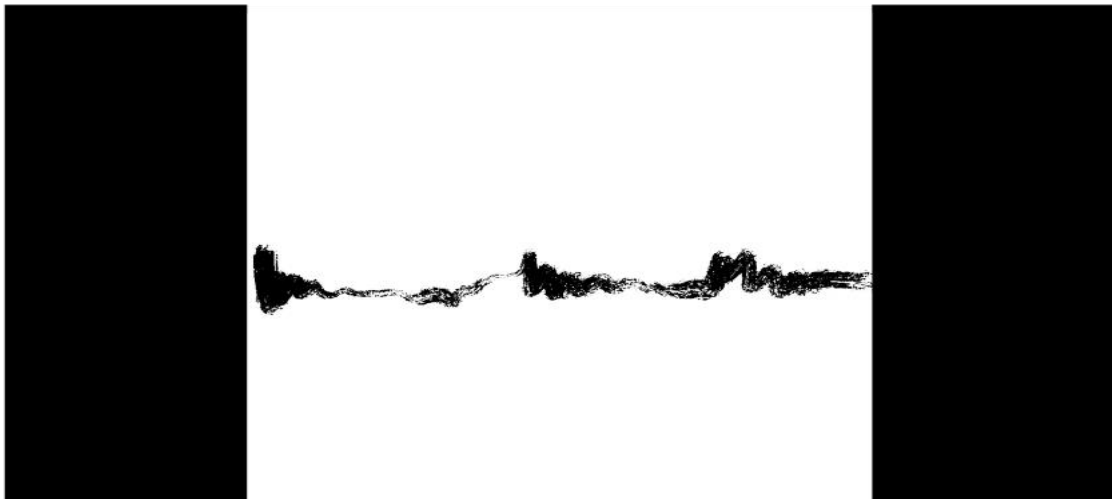
Photograph 22.

Artwork of Participants



Video 1.

B. Koroglu (Undergraduate Student), Digital illustration of Schonberg's Work.



The researcher asked herself in 2017, "Why a small white square within a white square?" Now she can give the answer to the question much more clearly. The square of the others in Guler's own square or the square of Guler in the others formed the main idea of this study. Thus, the squares were sometimes re-voiced by changing places and intertwining with each other and sometimes overlapping. Each thought has been "inside" each other, the other has been re-investigated "for" and continued on its way "within" a whole by being questioned again "within". Now man has become a tool and has started to move with the transformation of the square. In this sense,

Schönberg's work is re-voiced in space and time, with the autonomy of each participant, in "One (1) SQUARE INSIDE WE SQUARE" (Photograph 23).

Photograph 23.

"ONE (1) SQUARE INSIDE OF WE SQUARE"

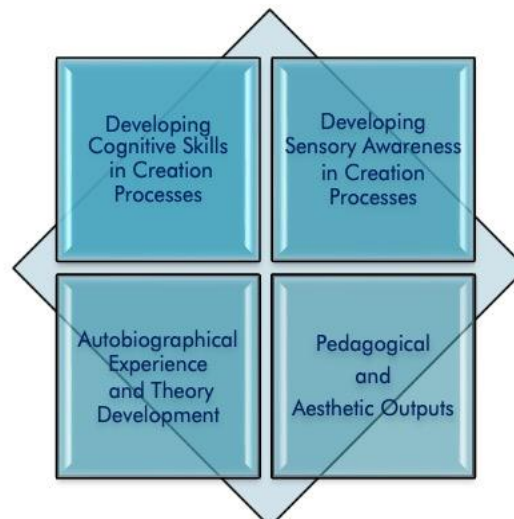


Outputs for the Development of Cognitive Skills and Sensory Awareness

At the end of the study, it was aimed to discuss the effect of thinking with atonal music on cognition and sensuality with the participants (Figure 11). On the last day of the study, experiences related to cognitive skills and sensory awareness were discussed, evaluated and outputs were determined with all participants.

Figure 11.

Pedagogical and Aesthetic Outcomes Inquiry Flow



The researcher thanked all the participants for their invaluable contributions to the process and gave them the fantastic children's novel "Museum", which is an adaptation of her doctoral thesis on museum education (Photograph 24). The thinking and creation processes experienced with atonal music left deep traces on the participants. In the conversations held at the end of the process, the participants frequently emphasized that they had an unforgettable experience (Table 5).

Photograph 24.

Discussing New Aesthetic Strategies Regarding Pedagogical and Aesthetic Outcomes



Table 5.

Participants' Thoughts on the Research at the End of the Process

Participants' Thoughts on the Research at the End of the Process	
U. A.	"I can even paint a bird's voice now. Sound can be an inspiration in itself. I don't need to see anymore."
A. K.	"Our perspective on life has changed. While talking or listening, I can instantly deepen things and think from different perspectives."
B. K.	"It opened a white curtain in all of our lives. We choose to add color ourselves. There are many things left behind the curtain to be resolved."
I. D.	"Now I can make in-depth interpretations through concepts and create metaphors."
T. D.	"I question colors in pictures. When I hear something, I question the sounds on the road. The rotation of the people around it destroys the boundaries of the cube."
Ö. Ç.	"We all cried today, revealing the things we tried to cover most deeply. After the rain for us, the sun came up with this work. It was like I was in a therapy group."
M. Y.	"Actually, I couldn't comment in art classes. Now my ability to express myself theoretically has improved."
G. K.	"Actually, I have always lived in one frame until now. There are always corners, the square is my borders, I've never been there. This study enabled us to be able to realize in life. Now I pay attention to all the details."
H. Y.	"This work makes me question my life a lot. We are trapped in thought. I listened to this music while I was doing my final homework and I primed all of my canvases at the same time in a way that I have never done and time flew by incredibly fast. Now I will listen while I paint. It made me question the perception of time again."
Ö. Ö.	"Our knowledge was reflected to each other with the mirror effect, like the mirroring technique in atonal music. As the information reflected on each other, our senses became different. I think this study is the best proof that a man who died years ago can make the living question something and change the lives of those who question it."
D. K.	"Previously, I couldn't make any sense out of abstract painting, and the work always hung in the air. Now how deep the meaning can go. Actually, my previous life was a false life. The curtains of the theater have officially closed my eyes. The scene is presented. On the other hand, I was staring blankly, thinking that I understood. Now the colors are alive, the things are meaningful. Everything was unique and individual, very special and different. Nature, humans and even animate and inanimate beings all have a voice, a meaning and a life. Instead of running from the rain with an umbrella, I focused on feeling the rain. Now I listen to the rain and manage the hail."
E. E.	"It made me think more deeply. I was very clear and pessimistic before. I was impatient. But after this study, I started to make sense of everything. I learned to empathize a lot. I changed a lot about myself, especially in our conversations with you. I can say that I learned to love myself first. Thank you for including me in this study."
N. B.	"Previously, Yves Klein's use of women as brushes made no sense to me. I mean it very differently now. Certainly, my prejudices towards my perception of time and space have disappeared. For example, while reading a book, I can think of the details of the painting I made. With Schoenberg, my intuition got stronger. I realized that I was observing better in my daily life. And I empathize. I evaluate any situation on my own. I evaluate the past, future and present of that situation with all animate and inanimate objects."
F. D.	"The brushes that I always used in this work and that I saw as separate from myself disappeared because we became the brush. Our view of the world has changed. By the way, a bird. Friends, do you hear the sound of the bird singing in the background right now? Now I realize that our brain is used to listening to only one thing. In atonal music, on the other hand, we can listen to more than one thing at the same time, it teaches us that."

At the end of the inquiry with the participants, discussions were held to answer the question "What is the contribution of the subjective inquiries of the a/r/tography researcher to the participants' ability to develop aesthetic strategies and theory in practices carried out with a/r/tographic collaboration?". As a result, it has been decided that with Schoenberg's String Quartet No. 4 Op. 37, thinking and producing with atonal music in visual arts education with works reveals the following cognitive and sensory results.

- It makes people question themselves and their lives, triggers the desire to make a change in their life.
- It develops in-depth thinking skills by constantly questioning and problem solving.
- It develops the ability to interpret theoretically in art classes.
- It enables to think abstractly.
- It teaches reasoning from different angles and looking critically when faced with new questions.
- It facilitates decision making on any subject.
- It enables to perform many different actions at the same time intellectually and quickly.
- It opens new avenues of discovery with reflective relationships to think creatively.
- It helps to tolerate an uncertain situation.
- It enables the mind to focus and think outside the box by continuous analysis and synthesis.
- It reminds you of the importance of details.
- It makes us realize that nature and our environment have its own unique music.
- It removes our prejudices regarding the perception of time and space.
- It brings musical and visual awareness to the person by changing his/her perspective on life.
- It makes one question their deepest feelings, values and thoughts.
- It enables to hear the music by sensing with many senses besides the ear.
- It demonstrates the importance of autobiographical experiences in developing theory.
- It keeps us away from preconceptions and prejudices.
- It introduces order in disorder and shows that there is order in everything.
- It deepens the concentration level.

At the end of the valuable achievements accomplished with the participants above, it would be appropriate to conclude this part of the study with the words of Arnold Schoenberg, who told us about the whole process of the research as if it were years ago.

The impressionist's organ [of perception] is a mechanism of extraordinarily fine tuning, a seismograph, which registers the slightest motion. The most delicate stimuli can arouse his sensibility, whereas crudeness shatters it. To pursue these most delicate stimuli, which the coarser nature never perceives because he hears only what is loud, is a powerful temptation to the true impressionist. What is soft, scarcely audible, hence mysterious, attracts the impressionist, arouses his curiosity to savor what was never tried before. Thus, the tendency of something unheard-of to

reveal itself to the searcher is just as great as is the tendency of the searcher himself to find something unheard-of. And in this sense every truly great artist is an impressionist: ultrafine reaction to the slightest stimuli reveals to him the unheard-of, the new (Schönberg, 1911, pp. 402-403).

Conclusion and Discussion

At the end of the research, besides the contribution and provocative role of autobiographical transmissions and self-reflections in art education, it has been revealed how important it is for the researcher to reflect the cognitive and sensory discoveries, experiences and learning outcomes of the a/r/tographic autobiography work to this process. The researcher, who discovered herself reflexively with her artist identity, reflected her inner experiences to her students in her workshop, deepened her work through their eyes and found the opportunity to question her own experiences once again. The self-reflective transfers of the researcher were questioned with the participants, and they were conceptually and metaphorically related to their self-reflections. The instant emotional states of the participants, which developed with unexpected expansions and independent inquiries during the process, also improved their theory development and interpretation skills before art production. Thus, their sensory awareness, which is sometimes reconstructed with stratified and sometimes distorted meanings, was based on their subjective knowledge and contributed to their cognitive development. In addition, with the a/r/tographic collaboration, the participants' reflecting their self-reflective experiences to others throughout the process provoked the desire for production in both plural and subjective sense. In this context, it was seen that the autobiographical experience of the researcher contributed significantly to undergraduate art education, aesthetic strategies and theoretical thinking, as well as the pre-reflections of the participants made very important contributions to the researcher's learning and teaching strategies.

It has been revealed that atonal works, which make the listeners question the perception of order and beauty with their irregular and chaotic structure due to their structure, have a stimulating and questioning effect not only in the field of music but also in the field of visual arts. The interplay of two different art disciplines with a temporal and spatial structure has given the students of the painting department the opportunity to have unique experiences. The participants frequently stated that they started to see life from a very different place and they tried to solve the world they lived in with unexpected questions. These serious differences created by seeing, thinking and living with atonal music on the cognitive skills and sensory awareness of art education students has enabled them to gain awareness in the sense that they display a much more sensitive and curious attitude towards most of the sounds they hear around them. It has been observed that especially in the applications of thinking with the extraordinary music of Schönberg in visual arts education, students' skills of creating concepts, knowing, metaphorical thinking, seeing in depth and visualizing sounds, making comments, developing theory, problem solving, critical thinking and self-questioning have been significantly improved. In addition, it is important for the

participants to question their own bodies in their performances in the context of the concept of atonality throughout the process and to use the body as a part of their art production, in terms of bringing a different perspective to visual arts education practices. In this context, in future applications in visual arts education, students should be encouraged to reflect their experiences, which they use many senses at the same time and associate with the body, to their art productions. This approach will encourage art students and field experts to experience different methods in their learning and teaching processes, with creative practices in which different senses are used simultaneously (such as seeing sounds, hearing tastes or touching sounds) as well as exploring.

Different from tonal music, the questioning of the similarities and differences between the compositional structure and technique of atonal music and the composition elements and principles in the field of visual arts by the participants enabled the familiar approaches to be re-examined. Thus, the unique structure of each field has been examined in depth in the context of interdisciplinarity and it has been seen how different branches of art enrich the theory and practice. The semantic shifts or intentional acts of distorting the meaning that emerged within the conceptual entanglement that emerged by intermingling different disciplines also revealed mostly unconsidered research questions. In this context, it has been shown that atonal music greatly improves the pedagogical outputs in the field of visual arts, and that different ways of perception and intuition can be offered to students in visual arts education with unconventional sounds. Thus, it can be said that the ability to think theoretically, interpret and develop theory as well as practice in art education has an important place in the creation processes.

In the light of this information, it should not be forgotten how important atonal music contributes to the development of skills such as concept formation, in-depth interpretation, self-discovery, developing sensory awareness, extraordinary thinking and inquiry for researchers who want to carry out studies based on music or visual arts in the future. Especially in the processes of knowing, doing, learning, teaching, feeling and creating, it is necessary to support the studies aimed at improving the sensitivities of art students, getting to know themselves, discovering their senses, and improving their sensory awareness with a supersensory understanding. In this sense, the reflections of autobiographical studies fed by self-reflective experiences and collaborative art-based research on research processes should not be ignored. Undoubtedly, considering the necessity of the a/r/tographic method to be included in the programs of educational institutions providing art education at undergraduate and graduate level, it is expected that the number of researches, including researchers, artists and teachers, will increase in the future.

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Informed Consent: Informed consent form was obtained from all participants before the study.

Peer Review: Peer review was made.

Author Contribution: The work has a single author.

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