Teaching the Alternative Ceramic Firing Techniques to Preservice Visual Arts Teachers: A Case Study*

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Abstract

The aim of this study is to explain the case that preservice teachers will enable alternative experiences to today's visual arts education by using alternative ceramic firing techniques. In this study, qualitative research was carried out using a single-case study during the 2018-2019 academic year. Six preservice teachers were chosen using the criteria of having the necessary knowledge and skills for ceramic training and teaching, and for being educated in the Fine Arts Education Department. In the collecting data part of the research, the techniques of alternative firing such as; fumed firing, raku firing, saggar firing, and obvara firing techniques were practised in the context of this study. The main research data were based on the observation data collected through the process of the practices which were conducted by the artist- researcher. In addition to observations, a data set was gathered to understand and describe the case such as; lesson instruction materials, diaries, self-evaluation forms, and product evaluation forms. The data was analysed using a descriptive framework based on art education and teacher training literature. The findings of the study represent seven themes; "Adaptation of learning to school conditions", "Organising practise steps", "Motivation for creative experiences", "Suggestions for professional practices", "Suggestions for problems", "Adaptability to teaching" and "interaction during the teaching process". According to the findings, it can be stated that the alternative firing techniques transformed into alternative ways for teaching processes in visual arts education through this case. Consequently, the discussion topics are as follows: "Alternatives motivate creative experience"; "Adapting the alternatives to school conditions"; "Organising steps for alternative practises"; Transferring alternative experiences to professional lives".

Keywords: Ceramic Education; Fumed Firing; Obvara Firing; Raku Firing; Saggar Firing

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University, Fine Arts Department in Faculty of Education. Some collected data of this study has been presented and published as an abstract in Ejer Congress in 2020.

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Ceramic Studio Courses in Visual Arts Teacher Training

Visual arts education is a long-term training process that begins as early as preschool. Throughout education, an individual comes across art in every step of learning and in many parts of their own life. As well as being an essential in life, art education should have an unchangeable place in the education process. Ozsoy described education as; "One of the most powerful tools that allows a society to keep up with novelties and contemporary civilization. To unravel a person's creativity and talents, and in developing these assets and expressing himself/herself, education plays an indisputable role" (2015, p. 13). As for the connection of art with education and the value of art education, Ipsiroglu (1998, p. 30) explained that, "Art is one of the building blocks of contemporary education and in education there is nothing that can replace art. Missing this building block in education would dig holes in personality growth". Studio courses are spaces in which knowledge meets with skills and activity, (Gocer, 2013; Dasdag, 2017; Dasdag & Gokdemir, 2017; Buyurgan, 2007). One of these practical fields, ceramics, in which art education is taught has been extensively covered in higher education institutes offering art education at undergraduate level.

Ekiz argues that in teacher training there are three main bodies which are listed as; "departmental courses at faculties of education, education sciences courses, and special instructing methods courses" (2006, p. 27). These curriculums are offered to preservice teachers in line with the theoretical and practical structures of their fields. It is widely known that studio courses, in which theoretical knowledge is taught during practice, enriching artistic skills and play a vital role in providing the transition steps to actual teaching professions. In fine arts teacher training departments, these acquisitions are offered via studio courses that provide required or elective art course options. In addition to improving the quantity of such studio courses embedded in teacher training programs, it is equally significant to elevate their qualitative features. Today, there are some emerging acquisitions in which prospective teachers unify their learning fields and creating unique practices that were learnt in a variety of courses. According to Dasdag (2017), it is important to satisfy emerging unifying needs with studio courses where such integrated experiences can be lived critically during preparation or practising processes.

It has been highlighted in researches that have been conducted that preservice teachers, having selected ceramic studio courses offered in fine arts education department/arts and craft programs should be, as qualified teachers, trained in line with the evolving and advancing conditions of the contemporary age and that ceramic education should be offered through all steps of learning starting with the preschool period. With respect to that suggestion, and by taking into account the contributions that arts and craft preservice teachers would offer to social growth, they need to be raised as creative, realistic and intellectual individuals with a developed taste for aesthetics (Duh & Zupančič, 2011) and in full coordination with art history, art criticism, humanistic, and cultural enlightenment. There are other researches that specifically focus on training preservice teachers, who would train future generations, as qualified individuals with technical competency (Aslan & Gokdemir, 2017; Buyurgan, 2007; Bulut, 2001; Li, 2019; Mui, 2010; Sessions, 1997; Yu, 2019). The same studies also suggested that starting with the preschool period, ceramic education should be reformulated in the curriculums at all grades of education, studio settings should be provided, and problems that relate to insufficient tools and equipment etc. must be corrected. A number of studies concluded that ceramic education rendered positive changes in students and could develop their handcrafting as well as visual-spatial intelligences (V. Kacar, 2018; Özçelik, 2015; Çevik, 2014; B. Kacar, 2010; Erman & Ozdag, 2019; Terwiel, 2010; Hansen, 2012; Brewer, 1991; Xiangcui, 2018; Dasdag & Gokdemir, 2017). Three-dimensional artworks include the courses starting as early as preschool grade till the end of basic education and enabling learners to design three-dimensional objects at undergraduate level. Preservice teachers who can touch, feel, and talk to mud and witness the evolution of mud into a concrete object through fantastic images in their hands would ultimately instil confidence in their students while also providing physical, cognitive and affective acquisitions via developing their thinking, drawing, touching and sensing capacity. Furthermore, required perceptions skills relating to form, depth, height, and width could also be created (Ozer & Kalkan, 2016; Capar, 2012; Kahraman, 2018).

Problem statement and significance

There is a lot of research that recommend training individuals that are capable of evaluating art education with a holistic perspective by adopting a holistic perspective. Industrial innovations offer alternative approaches to traditional ceramic art such as limitlessness in using materials in art, contemporary opportunities for presenting, theorizing a-typical ideas and practicing cultural education in art. These changes have also been strongly accentuated in the researches. Managing such changes in ceramic education within the scope of curriculums by the intuition's authorities is also vital (Saglıyan, 2019; Cetin, 2009; Sung-Min, 2014; Agatekin, 2017).

There are fundamental studies that can reasonably be recognized as guidelines in teaching alternative firing techniques (Acarturk &Timurkaan, 2016; Bozkurt, 2012; Baskırkan, 2010; Dasdag, 2009; Ozcan, 1997). According to these studies, teaching alternative firing techniques to preservice teachers that have gained some experience in ceramic studios is crucial to boosting their self-development and acquiring adaptation experience in their activity settings. These firing techniques can enable advantages by the reason of using different organic materials, and adding accessible materials to the artworks etc. By teaching these alternative skills, preservice teachers would be particularly interested in critical thinking, and problem-solving talents as well as enriching their imagination and esthetical perspective. These interventions would also help them embrace, learn and practice art and raise them as competent teachers. The main gap and necessity in the literature is to be able to explain the case about how the alternative firing techniques can be practised in instructing environments, which acquisitions or changes can be observed, and what the preservice teachers experiences have.

Purpose of the study

At the end of national and international literature reviews it has been detected that in order to keep pace with the contemporary age, art education curriculums must be revised accordingly and that proper settings as well as better suited means may be provided to achieve such transformations. Analysed researches have emphasized the need to spread art education in to all layers of society and the means of this change will be starting with children and the right type of education system that would offer them this opportunity. At this point, it is worth adding an interpretation of the education system. Within the context of this research, what makes this particular study more important is its suggestion that as a result of teaching and performing alternative firing techniques, teachers would gain adaptation experience and be provided solutions to problems if needed. The importance of this study is that in this research, teaching "alternative ceramic firing techniques" that would be presented as a case to preservice teachers in a ceramic studio course would primarily contribute to offer them an experience which they could implement in their own cases by creating essential conditions in their artistic and professional lives. The aim of this study is to explain the case that will enable alternative experiences to today's visual arts education by using alternative ceramic firing techniques.

(1) What are the acquisitions of alternative ceramic firing techniques to be implemented within ceramic studio courses in visual arts teacher training?

METHOD

Research design

Qualitative research is an analysis method in which the aim is to acquire detailed information on a subject, case or approach by making sense of experiences (Creswell, 2018). In this research one of the qualitative research designs, the single case study, was utilised. Yin argues that case studies are an empirical research method; (1) Analysing a current event with respect to its actual life framework (context), (2) In which the borders between case and experienced context are blurred, (3) Used in cases in which there are multiple evidences or data resources (Yin, 1984, p. 23). In this case study, it was aimed to explain the case that emerged with the related techniques in a comprehensive way. Unlike action research, it was not aimed to improve the process by intervention through process or

actions. For this reason, Yin's (1984) case study approach and description was adopted, and the case was limited with the applicability of alternative firing techniques throughout the ceramic studio course training process. In this research, among a small study group consisting of preservice teachers trained in the field of ceramic education, a single-case that seeks an answer to the research question was conducted.

Study group

The study group consisted of six preservice teachers fitting the criteria of having received a ceramic education and having sufficient preparedness of prior knowledge and basic experiences. With this aim, preservice teachers were determined via student identification form (SIF) on the date 21.02.2019. Additionally, one of the researchers was a participant during the case because they designed the process and taught it (Creswell, 2016, p.190). For Patton (2018) the criteria sampling strategy, one of the intentional sampling strategies, refers to examining related cases that can meet a list of predetermined criteria. Here, "the criteria can also be formed by the researcher (Yıldırım & Simsek, 2018, p. 122)". In accordance with ethical considerations, the preservice teachers participated in the research on the basis of the voluntariness principle and pseudonyms were used instead of their actual names. The necessary information of the participants in the study such as gender, whether going on main or elective art studio courses, education periods, and technique sufficiency for alternative firing techniques that were determined by researchers, can be found in the Table 1. For this case study, it is sufficient for preservice teachers to have some basic qualifications. The qualifications learned in the first semester for both main and elective art studio courses can be briefly listed as follows: defining, forming, retouching, drying, glazing and firing skills. The qualifications listed in Appendix 1. are sufficient to practice, learn and teach alternative techniques, as these are easier than the traditional firing techniques, materials brought from real life and/or nature. This is because these are primitive techniques that can be practised with various materials. The preservice teachers who had the skills required were defined after observed by both of the researchers during previous studio experiences in terms of the basic skills shown in Appendix 1. Before conducting the case study, the results as to whether they had the basic qualifications of ceramic education or not were checked separately by the researchers.

Table 1. Study group and the criteria

Participants' pseudonym/	Age range	Gender	Semester	Main/ Elective art studio	Technique sufficiency for alternative firing techniques
Pırıl	18-25	F	2nd	Elective	Sufficient
Canan	18-25	F	4th	Main	Sufficient
Buse	18-25	F	4th	Main	Sufficient
Nevin	18-25	F	2nd	Elective	Sufficient
Beren	18-25	F	4th	Main	Sufficient
Berrin	18-25	F	4th	Main	Sufficient

Researchers' roles

Creswell claims that, "A researcher's role is taking notes in the research site on the activities and actions of individuals. Via these notes, researchers take notes on activities in an unstructured or structured mode at the research site. Qualitative observers can take part in the task by fulfilling a range of missions from nonparticipant observation to full participant observation (2016, p. 190)". In this research, one of the researchers reflected her knowledge and artistic experiences regarding the ceramic art and teaching process and conducted the data collection process that happened concurrently. The other researcher is her superior and an expert on visual arts teaching methods. She contributed to the study in the processes of defining participants, preparing tools, data collection, data analysis, reporting and providing coherence of inquiry.

Data collection process and practices during the case

This research was conducted during 2018-2019 spring term in ceramic studio courses within the Arts and Crafts Teaching Program of the Fine Arts Education Department in the Faculty of Education. The data collection process was conducted concurrently with the practices which involved Fumed firing, Raku firing, Saggar firing and Obvara firing that would be performed with the participant preservice teachers and artist-researcher. The alternative techniques are cheaper than traditional firing techniques because materials used are those from real life or nature and are available for all school environments and even those studios that lack a kiln. The reason for this is that they are primitive practices that can be practised with any materials. The data collection process which was conducted concurrently with the alternative firing practices can be inspected in Table 2. The data collection process started at 28.02.2019 and finished at 29.04.2019. Within two months, the artist-researcher planned the cases according to alternative firing practices and conducted them during the five subsequent steps. Each step consisted of four hours of studio courses that were integrated with approximately two hours theory and two hours practice. Additionally, in the research an authentic evaluation process has been designed instead of a numerical measurement approach specifically for this case study. According to Dube (2009), the authentic assessment approach is suitable for lessons or situations where usual approaches are not conducted. The authentic evaluation approach is a type of assessment that allows students' diversity, originality, and individuality, and allows multiple answers to questions. It also includes cognitive, affective and psychomotor learning components. For the reason that this case study consists of various forms such as PEFs, SEFs, LOFs, PTDs, and SIFs, it can be stated that an authentic approach is used in this study.

Table 2. Data collection process and practices during the case

Step	Practice	Course credits	Data Collection Techniques	Tools	Date
1	Preparing	1 T+3 P	1. Observation 1. Document analysis	LOF-I, PTD LIM	28.02.2019
2	Fumed firing	2 T+2 P	2. Observation 2. Document analysis 1. Interview	LOF-II, PTD LIM, SIF-I, PEF I	14.03.2019
3	Raku firing	2 T+2 P	3. Observation 3. Document analysis 2. Interview	LOF-III, PTD, LIM, SIF-II, PEF II	21.03.2019
4	Saggar firing	2 T+2 P	4. Observation 4. Document analysis 3. Interview	LOF-IV, PTD, LIM, SIF-III, PEF III	04.04.2019
5	Obvara firing	2 T+2 P	5. Observation 5. Document analysis 4. Interview	LOF-V, PTD, LIM, SIF-IV, SEF, PEF IV	25.04.2019

Preparing and forming the objects and Saggar box step. For each ceramic products that alternative firing would produce, the formation procedure was started after choosing the appropriate clay and form for the firing procedure. Preservice teachers with limited to producing four basic shapes; cylinder, triangle, rectangle, and circle. They used different types of clays to see the different surface effects after biscuit firing. Biscuit firing is a basic or pre-firing step for every type of ceramic firing method. One of the objects which formed using four different clays after biscuit firing is exhibited in Photo 1 below. This is the first practice step and basic for four alternative firing techniques. The other beginning step is to prepare a firing box which is called Saggar Box and used for preventing objects while they are firing. The preparation step in the data collection process and concurrently used data collection tools can be seen as step 2 in the practice column in Table 2.

Photo 1. Preparing and forming the object and Saggar box.(1st observation-LOF-I, LIM)

Fumed firing practice step. Just like the other alternative firing techniques, the fumed firing technique is a also primitive-based firing type. In the past fume traces formed on surfaces after a firing used to be an unwanted effect. However this effect is eagerly sought-after and intentionally created by some contemporary ceramic artists (Bozkurt, 2012, p. 22). Outdoor firing is based on the principle of firing imbricated raw ceramic products that are covered with organic flammable materials like wood, leaves or tree branches. The fumed firing technique can be performed by digging holes outside or using metal containers like barrels and cans. During the practice process, a metal barrel was drilled from the bottom before the procedure so that air channels allowed good cautery and air circulation could be created inside the barrel. For the cautery procedure, tree branches, leaves, cones, sawdust, newspaper pieces, kindle and green-leaf pine branches were procured and prepared.

Photo 2. Fumed firing practice steps (2nd observation-LOF-II)

The order of this step in the data collection process and concurrently-used data collection tools are shown as step 2 and practice column in Table 2. In Photo 2, the images of the fumed firing step are displayed from left to right. To initiate the cautery practice, first the bottom of the barrel was covered with sawdust and tree branches. Then ceramic products were placed on the top of the barrel after mixing salt, colouring oxides, copper and aluminium strings. Materials were attentively placed to avoid damaging each one and they were covered with sawdust, branches and other materials to build up a pile. In Photo 3, preservice teachers' fumed firing works can be seen.

Photo 3. Preservice teachers' fumed firing artworks. (PEF-I)

Raku firing practice step. This is a firing technique in which observable effects are created on the surface of glazed and non-glazed parts of ceramics, where they meet with fire and fumes. Before the practice process each preservice teacher was asked to choose from different-clay objects that were created during the biscuit firing (in the first step). A capped metal box and water-filled container were procured for the reduction. To start the cautery procedure, materials such as sawdust, newspaper pieces, cones, and pine leaf, were prepared and carried near to the kiln. Metal containers were filled with varied amounts of saw-dusts, newspaper pieces, and other materials. Glowing ceramic products were removed from the kiln via tongs and placed inside the prepared metal. While burning, saw-dust was used to cover the surface of the products so that objects were exposed to greater amounts of fume in order to create effects on surfaces, to support the burning process. In the blazing fire, they waited a little while so that the materials would burn, and the metal containers were tightly closed to allow reduction and prevent air penetration. All steps of Raku firing are shown in Photo 4.

Photo 4. Raku firing practice steps (3rd observation, LOF-III)

At this step, by creating an oxygen-free environment, the ceramic products were exposed to fumes. The carbon-gas that emerged from inside the metal containers affected the structure of the body and glazed surfaces, hence effects could be created. At the end of this practice, ceramic products were removed from the metal containers using tongs. Next they were left inside the water-filled container to cool. The order of this step in the data collection process and concurrently-used data collection tools can be seen as step 3 and practice column in Table 2. In Photo 5, preservice teachers' raku firing works can be seen.

Photo 5. Preservice teachers' raku firing artworks. (PEF-II)

Saggar firing practice step. Saggar firing is one of the alternative firing techniques that involves putting a product inside a capped container during firing to preserve glazed and unglazed ceramic products.. In practice process at the end of lining procedure the objects were, covered by copper wire, put inside a saline solution and then wrapped with squeezed cotton cloth pieces so that products could be prepared. Prior to the preparation step of saggar boxes, of which the biscuit firing had been completed, they were put inside the box which was then covered by salt, oxide and sawdust at the bottom. Additionally, in Photo 6 the saggar firing steps are exhibited.

Photo 6. Saggar firing practice steps. (4th observation, LOF-IV)

Prepared objects were put inside the box one by one and placed in piles. Later, fruit skins, pine branches, cones, walnuts, almonds and organic materials were orderly placed to separate the objects. By adding salt, oxide, metal salts and similar materials, the piling procedure could be finished. When the packaging procedure ended, the cap of the box was tightly closed. It was lined by soft clay to prevent oxygen penetration. Saggar firing boxes were placed into the kiln to burn at around 950°C-1050°C. While burning, easily-inflammable organic materials inside saggar boxes caught fire and as a result of the fumes, unique lines and effects that change from light to dark tones are formed on the surface of objects. Once the kiln was completely cooled, the saggar boxes were removed from the kiln. The thoroughly-cooled boxes were opened, and the removed objects were cleaned to remove ashes and washed. The order of this step in the data collection process and the concurrently-used data collection

tools are presented as step 4 and practice column in Table 2. In Photo 7, preservice teachers' saggar firing works can be seen.

Photo 7. Preservice teachers' saggar firing artworks. (PEF-III)

Obvara firing practice step. Obvara ceramic firing is a firing technique in which, biscuit-fired ceramic products are preheated and soaked inside a yeast solution composed of organic materials. "Obvara ceramic firing/decor technique can be explained as a technique that is generally formed by burning traces left on the ceramic biscuit product as a result of heat by organic products" (Irdelp, 2016, p. 84). In Photo 8, the steps of obvara firing techniques can be seen.

Photo 8. Obvara firing practice steps. (5th observation, LOF-V)

In the practice process, ceramic objects were put inside a kiln for heating at around 850°C-900°C. The Kiln's cap was opened and the glowing objects were removed using tongs and swiftly soaked into an organic yeast solution. Once again, they were quickly removed from the yeast container and soaked in a water-filled container; thus ceramic objects could be cooled and the effects created on the surface can be fixed. During Obvara firing, yellow and light-dark brown effects are created by the organic materials stuck on the surface of objects being burned. The order of this step in the data collection process and concurrently-used data collection tools are displayed as step 5 and practice column in Table 2. In Photo 9, preservice teachers' obvara firing works can be seen.

Photo 9. Preservice teachers' obvara firing artworks. (PEF-IV)

Data collection techniques and tools

Observation. To describe the case within defined limits, observation was the main data collection tool of the case study and the activities were video recorded in ceramic studio. For each separate activity, video and sound records that covered instructing, practice, firing and post-practice steps were created and also by using lesson observation forms (LOF), observation data could be transferred to text. In order to fully reflect the complexity of the case, observation of a case after direct participation is the best research method (Patton, 2018, p. 21).

Interview. Interviews are a qualitative data collection technique that allows interaction between the researcher and participant (Glesne, 2012, p. 140). Interviews were conducted at end of the activities by using semi-structured interview forms (SIF) that included open-ended questions that addressed research problems and questions. The prepared interview questions were based on the content of the lesson instruction materials, the aim of the research, and the research questions by artist-researcher, and then checked for validity by the other researcher who is an expert in visual arts education field in terms of compatible with the aim. A detailed example of an interview form (SIF-II) with questions for the Raku firing technique can be seen in Appendix 2.

Document Analysis. In case studies, it is very important to be able to describe the case in the most comprehensive way. For increasing research validity, in addition to interview and observation methods, documents such as printed and visual materials can be gathered and added to the analysis process; hence databases can be enriched (Yıldırım & Şimşek, 2018, p. 296). In the research, document analysis which is a data collection technique was conducted through various forms seen in Table 2 designed by the artist-researcher and the expert-researcher. Firstly, the product evaluation forms (PEF) include fundamental criteria relating to the four alternative firing techniques and based on products' practical and artistic elements such as (a) formal qualities, (b) firing effects on surfaces, colours and (c) reflections of technique comprehension. An example of the PEF form which was formed by both of the researchers can be seen in Appendix 3. An example PEF-II filled for a preservice teacher's Raku product in Appendix 7.

Additionally, to ensure all details relating to the case were described, variety in the research data was enabled through data collection tools such as lesson observation forms (LOF), lesson instruction materials (LIM), self-evaluation forms (SEF) which consist of 17 evaluation items about techniques (Appendix 6), and preservice teacher diaries (PTD) for each techniques (Appendix 5). Additionally, example of structured items requiring filling in the blanks in the diaries can be seen in Appendix 4.

Data analysis process

The data collected via observations, interviews and documents were analysed using the descriptive analysis approach. "In this approach obtained data are summarized and interpreted

according to pre-designated themes. Data can be regulated with respect to the themes put forth by research questions or by considering questions and dimensions employed in the interview and observation procedures" (Yıldırım & Şimşek, 2018, p. 239-240). Cause-effect relations were investigated, results were attained and correlated with emergent themes and explained, predictions were made and interpreted in a described data set in this analysing process. Throughout the analysing process, the researchers took lots of preventions. They separately coded the data and then, they checked each other's interpretations on relations for ensuring consistency. At the end of the process, emergent themes were checked again for reliability by the expert-researcher in terms of coherence with visual arts education field.

Validity and reliability

Different strategies such as plausibility and consistency are adopted to provide a standard in qualitative studies and to support validity and reliability. (Merriam, 2013, p. 210). The first of these strategies are long-term and require intense participation (Creswell, 2013, p. 250). To increase validity and reliability in this study, context and descriptions were provided in an open and clear format so that it would be possible to ensure variety in data resource and data collection tools. Furthermore, findings were described in a comprehensible style via direct quotations and student products for ensuring plausibility. In addition, reporting was completed in an objective manner through images of process and products. In this research, the problem statement is based on the related to the literature, objectives were identified in a compatible manner and designs were utilised in the proper way to meet designated objectives so that it would be possible to ensure consistency of study. In qualitative researches, defining the study group is extremely important. For this reason, all of the data collection forms prepared by artist-researcher were also checked by the expert-researcher art education in terms of visual art contents for ensuring validity. With respect to plausibility, the role of researchers in the case study was openly displayed related sections (Akar, 2016, p. 135).

Ethical considerations

The ethical considerations for the research were administered in line with basic principles suggested for qualitative researches by Miles and Huberman (2019). The research objective, topic, context, planning of practice steps and process implementation were extensively explained to participant preservice teachers with an aim to raise awareness and were asked to participate voluntarily. To conduct the research, required permissions were received from the institution and participants. To ensure that the research would not be biased but abide by its objectives only, gender of the participants was concealed by using pseudonyms like Pırıl. The consents of the participants for their views were obtained with forms.

FINDINGS

This research, began with the question "What are acquisitions of alternative ceramic firing techniques to be implemented within ceramic studio courses in art teacher training?". The "Professional Acquisitions" category was composed of findings that explain the case in which alternative ceramic firing techniques used. Accordingly, a category formed with themes such as "Organisation practise steps", "Suggestions for professional practices", "Motivation to creative experience", "Suggestions for problems", "Adaptability to teaching", "Interaction during the teaching process" and "Adaptation of learning to school conditions".

Organisation practise steps. This finding relates to the explanation of procedural steps prior to performing the obvara firing technique. Within that context it can be defined as the operation process that explains all practices in their respective order starting with the first step of activity implementation. The researcher explained the obvara activity like this:; "…first of all we will line the kiln ... in the first step this will be completed. Next we will put it inside the kiln and then fire the product. In the next step, as we did in raku, we will remove the object from kiln and soak it into the solution …" (Researcher, LOF-V) the explained activity. Additionally, in the organising practise steps

Pırıl's sample explanation, that was noted in her diary, can also be referred to as cropped image in Photo 11. In addition to this is shown in Appendix 5. In this explanation Pırıl wrote that; "We applied the line onto our form that had biscuit firing and while we left certain parts in the open we covered some others with blue lining to observe the effective ones. We put our works inside the kiln and when the heat reached around 900°C we opened the kiln and took our our works with tongs." This statement is a clear illustration of the way each activity was started and followed steps. Later the same preservice teacher remarked that "After we took out our works, we soaked them into the prepared yeast, milky solution to wait for 2-3 seconds. After removing them from the solution we soaked them into water and fixed the effects in that way." this statement highlights further steps of the practice (Pırıl, PTD-V). The other example of comprehension of technique is below in Photo 10. Pırıl had been doing Obvara practise at that moment.

Photo 10. Preservice teacher Pırıl's Obvara experience.

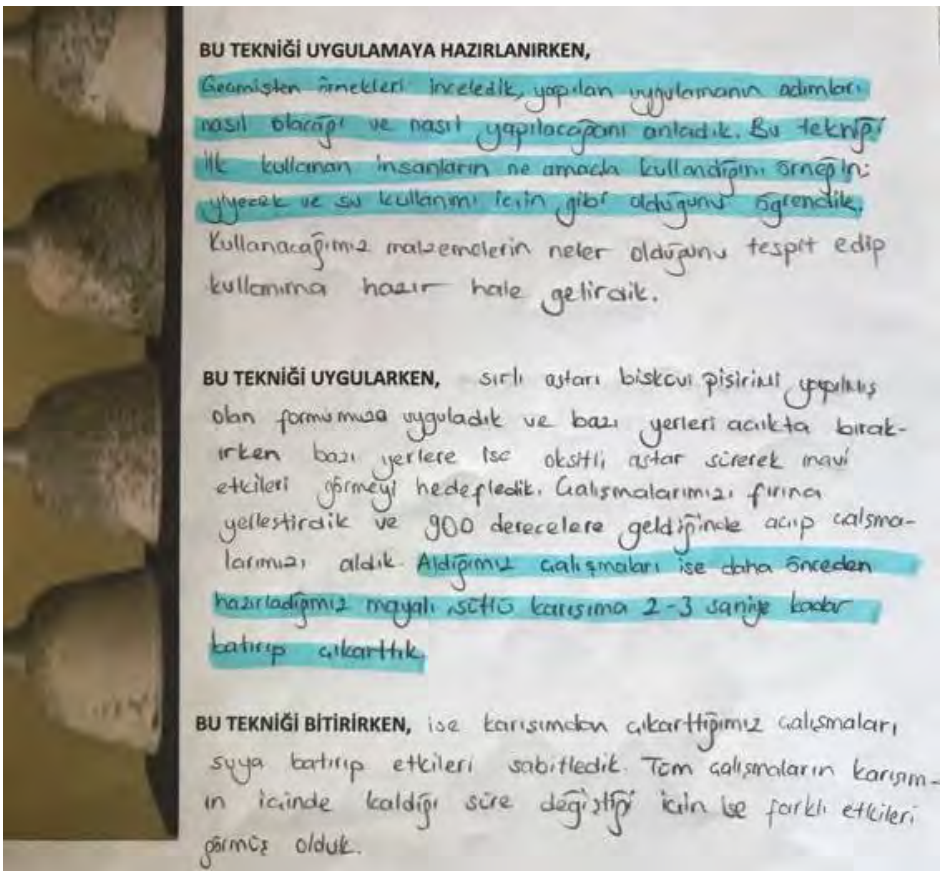


Photo 11. Pırıl's thoughts about stepping of Obvara technique (PTD-IV)

Suggestions for professional practices. This heading includes the process in which the adaptation of alternative firings performed in the research was suggested for school settings and preparing basic conditions was highlighted. The researcher's statement explains this: "You see we

perform them in such different conditions. To make obvara firing … Firstly the firing of the works should be performed inside a barrel or a suitable setting like a hole. Later, after heating inside the barrel or can, you can soak the prepared solution. In school conditions you should always have an opportunity for actual practice" (Researcher, LOF-V). Ceren made informative insights about how relevant works performed: "I absolutely believe that this is one technique that I can practice at a school but of course it must be conducted under my supervision because all the materials are natural. After a test pre-firing, I could implement this technique with my students. There are so many materials that they could bring from their home and I hope that would be an extraordinary experience for them as well" (Ceren, SIF-IV).

Motivation to creative experience. Nevin, while questioning the content of yeast solution prepared in obvara firing, stated her curiosity; "So while preparing these solutions we mix so many ingredients but is there anything that should never ever be mixed?" (Nevin, LOF-V). she continued by adding; "If lemon peel has no effect at all then it looks like there is no use in adding is" this statement is an explanation of her questioning mind. This participant responded as such; "It could be added… we just do not know why it shouldn't… or what effect it would create, hence it must be tested" as an explanation. Another relevant example is Pırıl's statement: "We could use so many materials. After we took the prepared solution out of the kiln, we added the solution to test, we could use many different materials and observe varied effects caused" (Pırıl, SIF-IV). In this step it was explained to the participants that all of the planned authentic material choices had to be first tried and tested. Additionally, artist researcher's views can be seen in Photo 12. that shows a cropped image of Buse's Obvara (PEF-II) product that are positive. Her views point out that technical maturity can be mentioned in terms of high-level skills and creativity due to the various influences on the product.

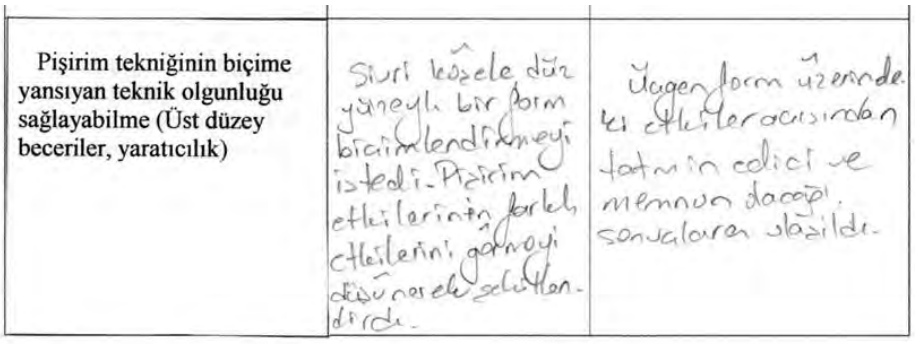


Photo 12. Artist-researcher evaluation views on Buse's Obvara Product *(a cropped image of PEF-II)*

Suggestions for problems. In this step the objects that received saggar firing and removed from the box are examined together with preservice teachers. Within that context, a researcher suggested that; "If we re-fire the lighter ones we could darken their colour tone" (Researcher, LOF-IV). In addition, by recalling earlier course narratives the researcher stated that preservice teachers could, at all times, come up with solution-driven ideas. Additionally, the other finding can be stated about this manner through a cropped image of Buse's diary in Photo 13. Buse had written on her Raku practise by using various clays as follows: " I tried to do big blanks for the second-coloring step, so I made it more colorfull according to Raku firing technique". In Photo 5 there are preservice teachers' works in which the Raku firing technique was performed.

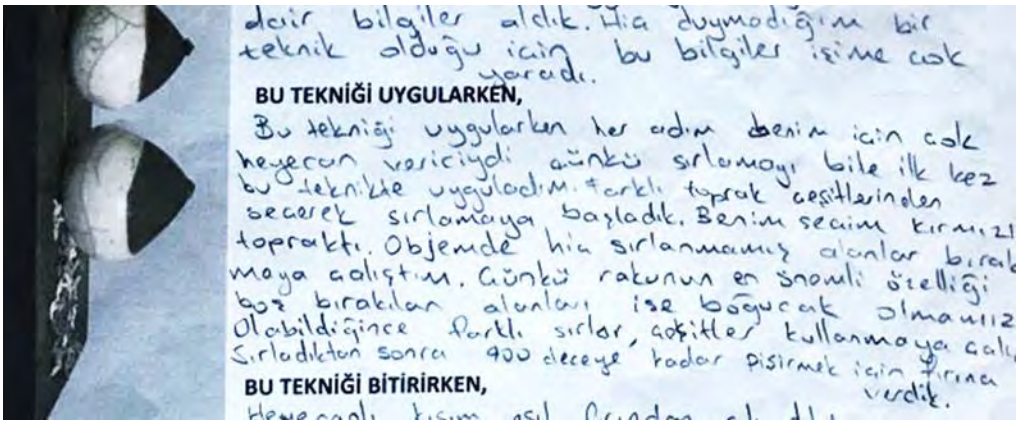


Photo 12. Buse's suggestions on Raku technique.(a cropped image of PTD-II)

Adapting discoveries to school conditions. In the course context where alternative firing techniques are explained and required forms for practices are also produced, the process in which adaptability of scheduled alternative firings into the teaching profession is integrated. Researcher's statements for this step are as follows: "When you become a teacher you should perform these practices in a simple setting by adapting them to the school's conditions" (Researcher, LOF-I). There are a lot of thoughts in diaries of Pırıl, Ceren, Nevin, Buse, Beren and Berrin about the theme of adapting in the data and one example of them is shown as a cropped image in Photos 13.

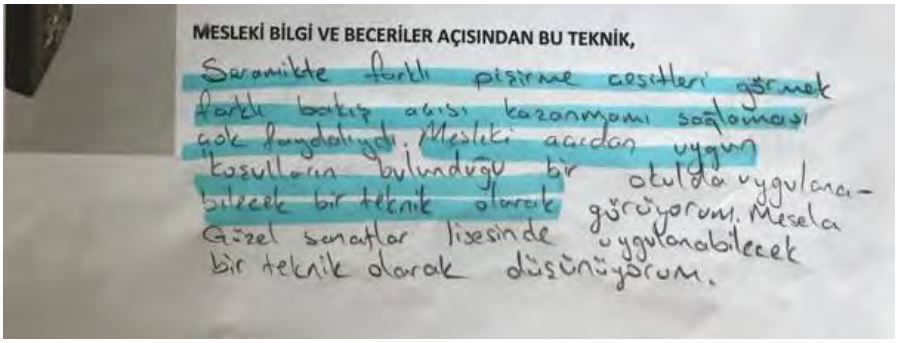
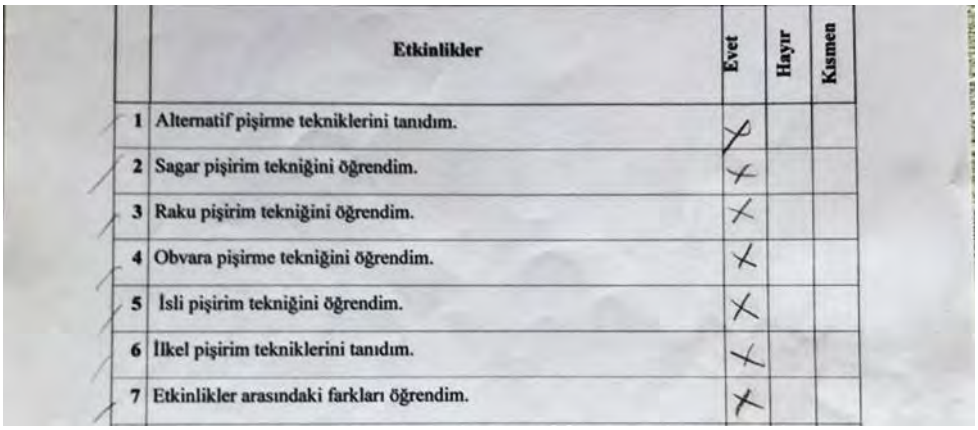


Photo 13. Nevin's thoughts in her diary about adapting of Raku (a cropped image of PTD-II)

Adaptability to teaching. This heading when placed within the professional acquisitions theme of the fumed firing technique refers to the process in schools. It may be explained in terms of the notion to encourage preservice teachers to attempt activities that are suitable for schools with outdoor facilities. The same argument is clearly worded in researcher observations: "This firing method is a practice that can be performed outside in many different schools" (LOF-II). In that sense, some of the statements of preservice teachers can be given as examples: Beren, "I think that if necessary conditions are provided by observing work safety, then this is a technique that I can comfortably teach to my students" (Beren, PTD-II) and Beren's statement as; "I consider that if the required conditions are provided, I can apply this technique in any high school. Particularly for students in fine arts high schools, I hold the belief that this technique is useful to help them gain different perspectives and develop their knowledge about ceramics" (Nevin, PTD-II). Similarly, Buse said that; "When I become a teacher, being able to display to my students primitive methods is one technique that could be used if needed, if there are favourable conditions provided in my assigned school. This could furnish students with a different perspective. It could contribute to their learning by experiencing it and it could help to make learning permanent" (Buse, PTD-II). At the same time, for the question of "learning about primitive firing techniques" Pırıl, Ceren, Nevin, Buse, Beren and Berrin answered "Yes" (SEF, 6th item). The answer can be seen via the cropped image in Photo 14.



	Etkinlikler	Evet	Hayır	Kısmen
1	Alternatif pişirme tekniklerini tanıdım.	X		
2	Sagar pişirim tekniğini öğrendim.	X		
3	Raku pişirim tekniğini öğrendim.	X		
4	Obvara pişirme tekniğini öğrendim.	X		
5	İsli pişirim tekniğini öğrendim.	X		
6	İlkel pişirim tekniklerini tanıdım.	X		
7	Etkinlikler arasındaki farkları öğrendim.	X		

Photo 14. 6th item about primitive techniques (a cropped image-SEF)

Since fumed firing is a low-cost and low-grade firing method that offers quick results, it is not hard to adapt this firing for a school setting. It has another advantage since this firing does not require a kiln to setup. A similar notion was shared by Buse, "I have learnt a different technique. It is a simple and a rather primitive technique and I do believe that I could perform this technique in the settings of my own design. This is exactly what I have learnt. It is also reasonable in terms of finance" (Buse, SIF-I).

Interaction during the teaching process. Whilst -the lining and glazing step of raku firing procedure was explained, and in response to preserviced teachers' feedback, the researcher, who also acted as the implementer in the entire procedure, formed empathy and asked "Did I explain it in a confusing way?" (Researcher, LOF-III) and criticized herself. Berrin, in response, stated that "Transparent lining, glaze... all that has been confused in my mind". In that sense, and with an aim to prevent any potential confusion for preservice teachers, the researcher used simpler and less complex statements till the end of the process. Regarding the LOFs, it can be indicated that interaction in the studio was not only between artist researcher and preservice teachers but also among preservice teachers during the case. Interaction about the teaching process which occurs among the preservice teachers during the teaching process can be seen below in Photo 15.

Photo 15. Interaction between preservice teachers and artist-researcher(right side) 3rd observation (LOF-III)

The study group were informed that the narrative style had a - critical role and it was necessary to explain the lesson in a way to match preservice teachers' comprehension level.

DISCUSSION AND SUGGESTIONS

This research, began with the question "What are acquisitions of alternative ceramic firing techniques to be implemented within ceramic studio courses in art teacher training?". In this section,

the findings listed previous are discussed by making connections to the literature through comprehensive titles, and various suggestions are made. The results in qualitative studies are unique, case-specific and cannot be generalized. For this reason, the discussion titles which emerge after the research process can be generalized only within readers' comprehensive and comparative views or approaches.

Alternatives motivate creative experience

Motivation to creative experience shows that preservice teachers had a tendency to adopt different practice approaches, creative thoughts, materials or surface effects seen through LOFs, PEFs, PTDs and SIFs. Looking at their thoughts and views during interviews about techniques, process etc., behaviours observed during practises, and the products created after their practises, they clearly felt motivated and creative. Creativity and motivation through alternative techniques can be comprehended in three dimensions within this research. The first dimension is for individual artistic changes, the second is interaction during production, and the last is their readiness or eagerness for being a visual arts teacher and reflecting their experiences to teaching processes.

Firstly preservice teachers agreed that experiencing alternative firing techniques enhanced their creativity, assisted in creating different insights and consequently encouraged them to explore alternative thoughts, alternative practices with various materials from daily life or nature, and to be open to various thoughts through interactions in the studio as seen in LOFs, PTDs and SIFs. Alternative firing techniques practiced can be understood in terms of completing products successfully, as seen in product evaluation forms and also for the "suggestions for problems" theme. The findings align with the objectives issued by YOK in 2019 under the title of regulations for Arts and Craft Teaching Undergraduate Program. The regulation obligates that students must have taken required and elective art studio courses "and must have learnt to create works via different techniques and materials should experiment varied techniques and practices must be able to teach them through creative-boosting activities in their own profession" (YOK, 2019, p. 25). Aslan and Gokdemir (2017) stated in the conclusion of their study that preservice teachers perceive ceramic education as an art discipline that increases their imagination. Ozdag (2019) and B. Kacar (2010) stated that children who receive ceramics education at an early age are especially compatible with their environment and that revealing their contributions in terms of their social and psychological development at an early age contributes to creativity. When comprehensively analysing many other studies conducted at primary and secondary education level that support these views (Ozer & Kalkan, 2016; Capar, 2012; Kahraman, 2018), analysis of ceramic teaching and three-dimensional artworks with respect to learning processes and creativity can be seen. By endowing visual arts course teachers with ceramic education it is viable to train teachers who can instil love of ceramic among future generations and also to let them invest in enhancing of ceramic art.

The second dimension of the motivation is about interaction in the studio. Interaction can be understood not only in terms of the acquiring "seeing different perspectives" explanation, but also in terms of the "interaction during the teaching process" result that revealed that before, during, and after the practice such activities helped to increase interactions seen in the LOFs and PTDs. It can be stated that interaction about teaching process occurred not only between artist researcher and preservice teachers but also among preservice teachers during the case. Cevik's (2014) study deserves attention in that examining communication skills targeted in ceramic education: "Through the ceramic design and technology program it is primarily aimed to give to people the knowledge and skills of basic sciences as well as instilling the ability to form effective human relations as a requirement of our age, to engage in communication, to adapt to changes and current technologies, to construe and use systems and materials" (p. 161).

When it comes to the last important dimension in providing motivation and creativity through alternative techniques, it can be said that preservice teachers are extremely willing to learn and teach alternatives based on PTDs, SIFs and LOFs. According to the authentic evaluation (Dube, 2009) in this case, all participants expressed their satisfaction with learning alternative methods and techniques,

and producing works using different materials in the interviews in SIFs, reflections in PTDs, and the artworks evaluated with PEFs, and especially in actions seen with LOFs. Briefly, they actually also felt motivated to reflect such approaches onto their teaching experience as seen in the PTDs and SIFs. The findings in the LOFs, SIFs and PTDs indicate that most of the acquisitions which are aimed to be instilled in preservice teachers like thinking, designing, observing and questioning in today's art education. This would assist them in guiding future generations to keep up with today, and adapting alternative techniques to the schools through alternative firing techniques. This manner is also in parallel with the results of many other studies. This result about visual art teachers' guiding future generations corresponds to the Council of Higher Education's suggestions, as follows: "…by taking into account artistic development features of primary and secondary education students, making a connection with today's art approach as well as interdisciplinary and intercultural works related to artistic practices" (YOK, 2019, p. 25). This objective stated within the visual arts teacher training context of the common curriculum is abided by all Higher Education Institutes in Turkey and offers similar findings to many other researches in the art education field (Li, 2019; Mui, 2010; Sessions, 1997; Yu, 2019). In relation to the same issue, Bulut (2001, p. 84) argued that, "Studios could be treated as an education system where theory and experiment can concurrently be executed". Similarly, the statement by Ozsoy and Sahan (2009, p. 211) "It presents a list of humanistic methods that call for practice, thinking, perception, sensing, imagination and most importantly the activity" deserves attention by the reason of emphasizing the need to practice. Based on that viewpoint, that when studies focusing on child development in contemporary art education are examined, V. Kacar's work (2018) is also remarkable. He emphasized that by popularizing art lessons, in which theoretical knowledge is supported with practice, at all levels of education, will improve creative behaviours and strengthen hand-motor muscles. Bolukoglu's (2002, p. 255) remarks on the same issue draws a close parallel with the results of this study. According to her, it is essential that teachers of the future should immediately adopt a contemporary approach in practice and correct their deficiencies with no need for extra time to keep up with developments of the age.

Adapting the alternatives to school conditions

The research findings which were obtained from preservice teachers' views seen in the SIFs are mostly about the "adaptation of learning to school conditions". In this study, preservice teachers who experienced alternative firing techniques stated that the techniques are low-cost, and that low-grade firing methods offer quick results, in addition to this, they are not hard to adapt into school settings or conditions. Alternative techniques have another advantage since this method of firing offers the means to form its own setup if there is a lack of kiln or studio. Diaries, observation data and artworks fired alternative techniques show the possibilities for adaptation to various school conditions. "Adaptation of learning to school conditions", "suggestions for professional practices", "suggestions for problems" and "adaptability to teaching" themes obtained in the research refer to the adaptability of alternative activities that can be implemented in institutions having no kiln. These findings are in parallel with the recommendations referred to in many of the studies in literature in terms of adaptation to various practises (Saglıyan, 2019; Cetin, 2009; Sung-Min, 2014; Agatekin, 2017). The approaches of preservice teachers which were aimed to be acquired through alternative activities in the study indicate the attainability of the objectives. Prior to organizing similar activities, it is recommended to examine similar researches in relevant literature (Acarturk & Timurkaan, 2016; Bozkurt, 2012; Baskırkan, 2010; Dasdag, 2009; Gocer, 2013; Ozcan, 1997). Based on this context, it was determined that the most important thing about the importance of ceramics education for the training of individuals is to train teachers who can present the alternative teaching methods, and who are experienced.

Organising steps for alternative practises

In this research, findings that originate from the "organising practise steps" theme found at PTDs, SIFs and LOFs suggests that preservice teachers can properly employ these practices in their professional life. According to the authentic evaluation in this case, all preservice teachers agreed that via these activities they could plan, practise and evaluate their teaching activities, and could even offer

suggestions in their PTDs and LOFs. The data gathered via diaries, interviews, observations with LOFs and products examined with PEFs shows all of the sequential organising steps were comprehended by the preservice teachers. The preservice teachers' products were evaluated with the following three items in PEFs: (a) formal qualities presenting information, (b) firing technique qualities, effects on surfaces and (c) reflections of technique comprehension. According to evaluations, the products possess many qualities for each items such as comprehension from an art historical perspective, and formative and technical sufficiency. Preservice teachers' self-evaluations and diaries about process seen in the PTDs, techniques and products have many qualifications aimed through these techniques. These findings including also authentic evaluation are compatible with the content on ceramic education in the teacher training regulation of YOK (2019); "It covers historical development of ceramic art and ceramic's current position in everyday life; miscellaneous techniques in artistic and industrial ceramic dimensions; works that are created by adopting traditional, contemporary and authentic interpretations; besides it enables students to make connection between their works and different disciplines while also making sense of contemporary artistic works". Furthermore, in a study conducted by Aslan and Gokdemir (2017) to evaluate students' viewpoints in the ceramic department of faculties of education many of the findings communicated in the conclusion part can also be associated with the results of this case study. In their study, it is suggested that to conduct practices that integrate applying alternative firing techniques and methods is beneficial and so the participation of preservice teachers giving ceramic studio courses could be formed in different school conditions at the secondary education level and to various age groups. Therefore it is possible to offer contributions to teachers and researchers interested in visual arts teacher training.

Transferring alternative experiences to professional lives

In relation to that context, "suggestions for professional practices", "suggestions for problems" themes occurred with PEFs, LOFs and SIFs besides organising steps for alternative practises are related to Ekiz's (2009) suggestion in theorizing teacher training. Because this suggestion presents views on professional-life transition of the preservice teachers constructed with the three types of knowledge as follows: field knowledge, knowledge of field education, and professional knowledge. According to the programmes of Arts and Craft Education "In studio courses it is suggested not to focus on practice alone but also to provide the right kind of activities addressing students' written narratives on a relevant field, and active participation through reading, research, and discussions" (YOK, 2019, p. 7). Major findings of the research within the context of professional acquisitions are related to the conclusion and suggestions in many literature studies too (Aslan & Gökdemir, 2017; Buyurgan, 2007; Bulut, 2001; Li, 2019; Mui, 2010; Sessions, 1997; Yu, 2019). According to Dube's (2009) the authentic evaluation in this case, in their professional lives, preservice teachers will be able to perform these activities without being restricted by physical conditions in visual arts courses at secondary education level and compared to other techniques they can more comfortably perform the fumed firing technique under school conditions which is convenient. By blending alternative firing techniques with one another and by using their own firing materials too, teachers and students can easily apply these techniques. Cevik (2014) has an opinion on this issue as follows: "In relation to usage frequency of teaching method and techniques employed in ceramic course by teachers, it is known that the most widely employed method or technique is hands-on training" (p. 166). It may be therefore suggested that current curriculum contents of main or elective art courses in ceramics be also updated in line with various materials or firing techniques for training preservice teachers within this research. Within that context, after a reanalysis, restructuring of main art studio courses' and elective art studio courses' curriculums and studio durations has become even more vital. To help train creative and skilful teachers, with various study groups should be defined and researches in which qualitative, quantitative and mixed approaches are employed should be conducted and findings of these researches should then be compared with each other and correlated.

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Appendix 1.

Defining preservice teacher form

Preservice teacher's name: ……				
Basic qualifications in ceramic education for Alternative firing techniques	Artist-researcher decision	Visual arts education expert decision	Preservice teacher's decision on own sufficiency	Decision about sufficiency
<u>Defining knowledge and skills</u> Defining three-dimensional artworks Distinguishing artworks such as sculpture, relief and ceramic Knowing ceramic clay and its types				
<u>Preparing knowledge and skills</u> Kneading ceramic clay Preparation ceramic clay Deaeration of ceramic clay				
<u>Forming skills</u> Free technique Plate technique Sausage technique				
<u>Drying skills</u> Controlled In studio environment Without direct sunlight				
<u>Retouching skills</u> Cleaning with a sponge Cleaning with a light sander				
<u>Glazing-firing knowledge and skills</u> Knowing glaze types Practising glaze types First (biscuits) firing Firing with glaze				

Appendix 2.

Semi-structured Interview Form (SIF-II) for Raku firing technique

Preservice teacher name: Researcher name:	Interview subject: (Raku) Date:
Which knowledge did you transfer from your early learnings for this practice? Which alternative materials can you use for this practice? Which experiences did you have during this practice? Which acquisitions did you gain through this practice? What kind of problems did you encounter during this practise and how did you solve them? How do you use the alternative firing techniques in your professional life?	

Appendix 3.

Product evaluation form (PEF-II) for Artwork with firing Raku Technique

<table>
<tr><td colspan="4">Preservice teacher name:</td></tr>
<tr><td colspan="4">Reflecting qualifications on to the object within formal qualities.</td></tr>
<tr><td>During the process
Researcher’s explanations</td><td>At the end of the process
Researcher’s explanations</td><td>During the process
Researcher’s explanations</td><td>At the end of the process
Researcher’s explanations</td></tr>
<tr><td colspan="4">surface effects, color effects and textural effects etc.</td></tr>
<tr><td>During the process
Researcher’s explanations</td><td>At the end of the process
Researcher’s explanations</td><td>During the process
Researcher’s explanations</td><td>At the end of the process
Researcher’s explanations</td></tr>
<tr><td colspan="4">technique comprehension, higher skills creativity etc.</td></tr>
<tr><td>During the process
Researcher’s explanations</td><td>At the end of the process
Researcher’s explanations</td><td>During the process
Researcher’s explanations</td><td>At the end of the process
Researcher’s explanations</td></tr>
</table>

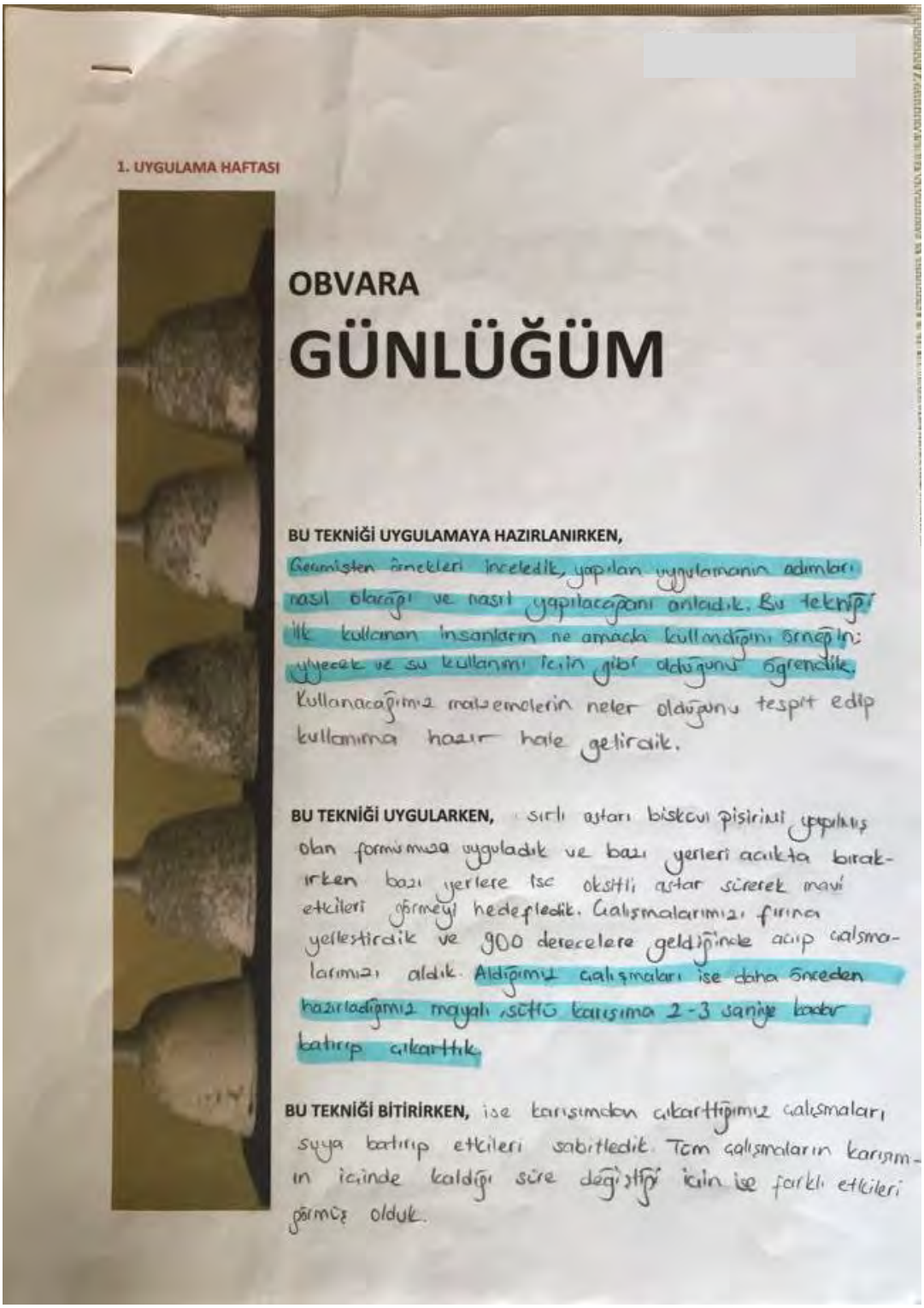
Appendix 4.

Preservice Teacher Diary (PTD-II)

My Raku Diary
While preparing for this alternative technique process, I had some new experiences … While practicing this alternative technique, I had some new experiences … During the ending process of this alternative technique, I had some new experiences … I can feel that this alternative technique in my artistic life is … I can feel that this alternative technique in my professional life is …

Appendix 5.

An example of Pırıl's Raku Diary



1. UYGULAMA HAFTASI

OBVARA

GÜNLÜĞÜM

BU TEKNİĞİ UYGULAMAYA HAZIRLANIRKEN,

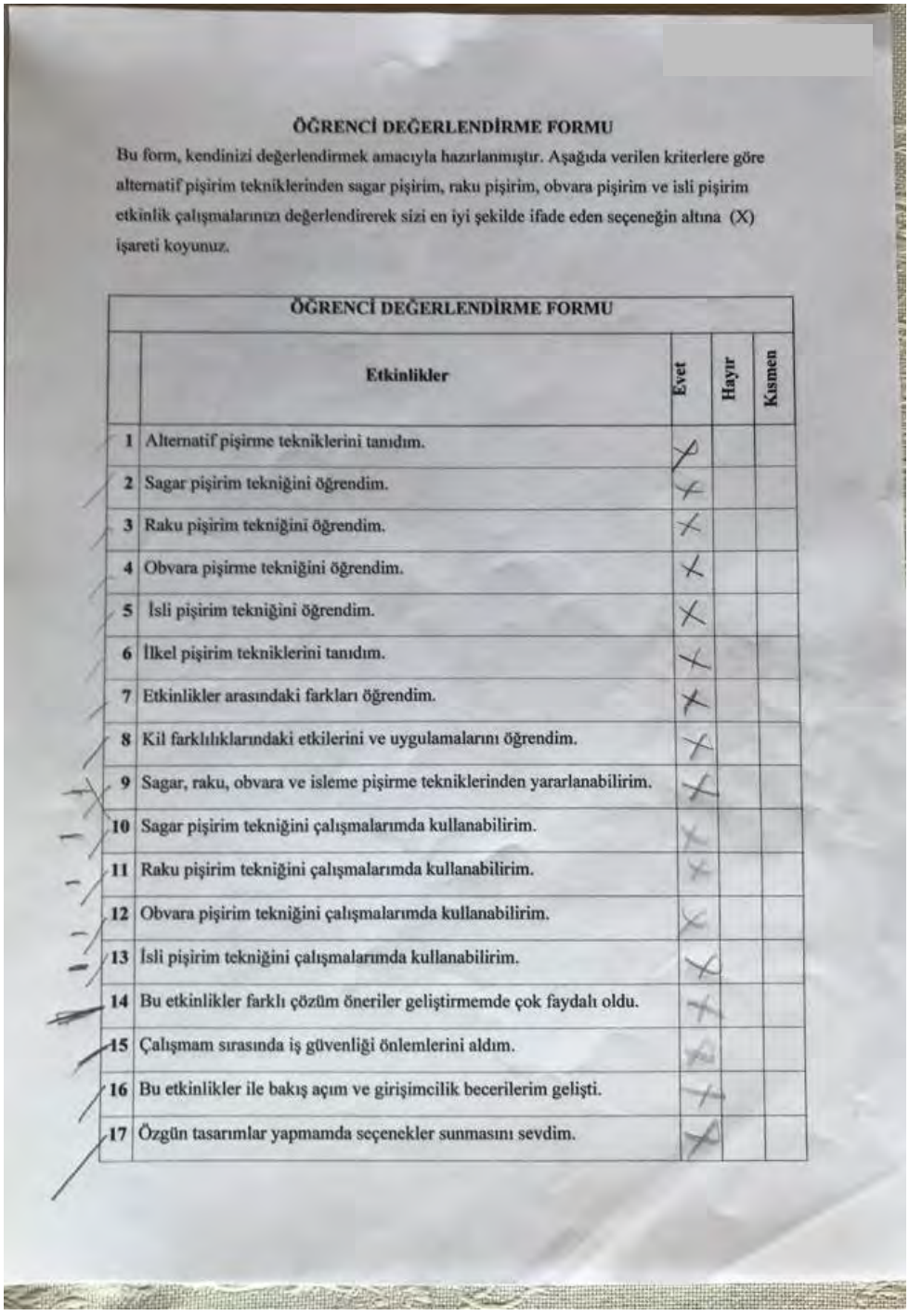
Geçmişten örnekleri inceledik, yapılan uygulamanın adımları nasıl olacağı ve nasıl yapılacağını anladık. Bu tekniği ilk kullanan insanların ne amaçla kullandığını örneğin: yiyecek ve su kullanımı için gibi olduğunu öğrendik. Kullanacağımız malzemelerin neler olduğunu tespit edip kullanıma hazır hale getirdik.

BU TEKNİĞİ UYGULARKEN, sırlı astarı biskevi pişirimi yapılmış olan formumuza uyguladık ve bazı yerleri açıkta bırakırken bazı yerlere ise oksitli astar sürerek mavi etkileri görmeyi hedefledik. Çalışmalarımızı fırına yerleştirdik ve 900 derecelere geldiğinde açıp çalışmalarımızı aldık. Aldığımız çalışmaları ise daha önceden hazırladığımız mayalı sütlü karışıma 2-3 saniye kadar batırıp çıkarttık.

BU TEKNİĞİ BİTİRİRKEN, ise karışımdan çıkarttığımız çalışmaları suya batırıp etkileri sabitledik. Tüm çalışmaların karışımın içinde kaldığı süre değiştiği için ise farklı etkileri görmüş olduk.

Appendix 6.

Nevin's Self Evaluation Form



ÖĞRENCİ DEĞERLENDİRME FORMU

Bu form, kendinizi değerlendirmek amacıyla hazırlanmıştır. Aşağıda verilen kriterlere göre alternatif pişirim tekniklerinden sagar pişirim, raku pişirim, obvara pişirim ve isli pişirim etkinlik çalışmalarınızı değerlendirerek sizi en iyi şekilde ifade eden seçeneğin altına (X) işareti koyunuz.

ÖĞRENCİ DEĞERLENDİRME FORMU				
	Etkinlikler	**Evet**	**Hayır**	**Kısmen**
1	Alternatif pişirme tekniklerini tanıdım.	X		
2	Sagar pişirim tekniğini öğrendim.	X		
3	Raku pişirim tekniğini öğrendim.	X		
4	Obvara pişirme tekniğini öğrendim.	X		
5	İsli pişirim tekniğini öğrendim.	X		
6	İlkel pişirim tekniklerini tanıdım.	X		
7	Etkinlikler arasındaki farkları öğrendim.	X		
8	Kil farklılıklarındaki etkilerini ve uygulamalarını öğrendim.	X		
9	Sagar, raku, obvara ve isleme pişirme tekniklerinden yararlanabilirim.	X		
10	Sagar pişirim tekniğini çalışmalarımda kullanabilirim.	X		
11	Raku pişirim tekniğini çalışmalarımda kullanabilirim.	X		
12	Obvara pişirim tekniğini çalışmalarımda kullanabilirim.	X		
13	İsli pişirim tekniğini çalışmalarımda kullanabilirim.	X		
14	Bu etkinlikler farklı çözüm öneriler geliştirmemde çok faydalı oldu.	X		
15	Çalışmam sırasında iş güvenliği önlemlerini aldım.	X		
16	Bu etkinlikler ile bakış açım ve girişimcilik becerilerim gelişti.	X		
17	Özgün tasarımlar yapmamda seçenekler sunmasını sevdim.	X		

Appendix 7.

Artist-researcher Product Evaluation Form for Buse's Raku Product

Bu form aşağıda verilen kriterlere göre alternatif pişirim tekniklerinden İsli pişirim, Raku pişirim, Sagar pişirim ve Obvara pişirim etkinlik çalışmalarını öğretim ve uygulama sürecine yansımaları, araştırmacı değerlendirmeleriyle belirlenmeye çalışılacaktır.

ÜRÜN DEĞERLENDİRME FORMU

Tarih: 14.12.2019

Öğretmen Adayı: Öğretmen Adayı 3
Etkinlik: Raku Pişirim Tekniği
Araştırmacı

	Süreç İçi	Süreç Sonu
Ürüne, pişirimin teknik özelliklerinin yansıtılması	Raku pişirim tekniği için form üzerinde yer yer boş alanları bırakarak şeffaf ve mavi sır ile sırlamayı tasarladı.	Sarı kil ten biçimlendirdiği formunun pişirim sonrası teknik olarak istenen sonuçları yansıttı.
Ürüne, pişirim tekniğine uygun biçimsel özellik verme (Yüzey etkisi, renk etkisi, doku)	Üçgen formunda biçimlendirdiği beyaz kil yüzeyine şeffaf sırla mavi sırlayarak özgün yüzey tasarımı ile formunu korurlaştı.	Üçgen biçimin üzerinde oluşan pişirim etkilerinin efektleri, renk geçişleri ve dokusal etkiler raku pişirimindeki sonuçlarla örtüştü. Teknik olgunluk açısından yetkili ve başarılı bir çalışma.
Pişirim tekniğinin biçime yansıyan teknik olgunluğu sağlayabilme (Üst düzey beceriler, yaratıcılık)	Sivri köşeleri düz yüzeyli bir form biçimlendirmeyi istedi. Pişirim etkilerinin farklı etkilerini görmeyi düşünerek şekillendirdi.	Üçgen form üzerinde ki etkileri açısından tatmin edici ve memnun edecek sonuçlar elde edildi.