Cypriot Journal of Educational Sciences

Volume 17, Issue 9, (2022) 3367-3377

www.cjes.eu

Deficiencies and potential corrections in ceramic art education according to the ceramic industry employees

Emrah Pek [1]*, Van Yuzuncu Yıl University, Education Faculty, Department of Fine Art 65080, Van, Turkey, https://orcid.org/0000-0002-2656-052X

Sezer Cihaner Keser [2], Van Yuzuncu Yıl University, Fine Arts Faculty, Department of Sculpture 65080, Van, Turkey, https://orcid.org/0000-0001-5954-1301

Çetin Güler [3], Van Yuzuncu Yıl University, Education Faculty, Department of Computer Education and Instructional Technology 65080, Van, Turkey, https://orcid.org/0000-0001-6118-9693

Suggested Citation:

Pek, E., Keser, S. C. & Güler, Ç. (2022). Deficiencies and potential corrections in ceramic art education according to the ceramic industry employees. *Cypriot Journal of Educational Science*. *17*(9), 3367-3377. https://doi.org/10.18844/cjes.v17i9.7739

Received from May 21, 2022; revised from July 15, 2022; Accepted from September 18, 2022.

Abstract

Ceramics may be considered one of the most important and oldest inventions that give information about the history of humanity. Dating back to 8000 BC, ceramic has been used in many areas of daily life, such as kitchenware, sanitary ware, space technology, weapon industry and artistic production. In this context, the use of ceramics as an industrial material has resulted in the ceramic industry which requires education as an indispensable field. This study aims to determine the deficiencies and potential corrections for these deficiencies from the views of the employees who currently work in the field of ceramics. The study was conducted as a phenomenological study, which is one of the qualitative research designs. Fifteen employees participated in the study. The data of the study was collected by interviewing the employees. The findings of the study suggest that outdated curricula, narrow and insufficient industrial field courses, the need for self-development of the lecturer in the industrial field, the necessity of establishing a relationship between the ceramic industry and education and insufficient and inadequate computer design courses with software not suitable for the industry are the main deficiencies along with some others.

Keywords: Art education, ceramic, industrial ceramic, design, sector, employee.

[1]ADDRESS OF CORRESPONDENCE: Van Yuzuncu Yıl University, Education Faculty, Department of Fine Art 65080 Zeve Kampus, Van, Turkey
Email address: emrahpek@yyu.edu.tr /Tel.: +90 432 225 17 01-05

1. Introduction

Ceramic clay is one of the oldest and most useful easily obtained raw materials. 'If you are into gardening, you must have seen the qualities of this hard and plastic material after digging a few centimetres' (Cooper, 1978). In the early days, besides this material, human beings shaped various natural materials in a way to facilitate their daily life, while making stone axes and clothes from animal skins; they made various objects of daily use and storage containers by making use of clay, which is one of the materials that he encounters abundantly and frequently. The ease of shaping it, the ease of creating any product from it and its advantages after the product is baked have made ceramic material, namely clay, indispensable throughout human history.

The ceramic product, the main material of which is soil, has witnessed the history of humanity from its first examples to the present. The oldest and most important ceramic foundlings can be found in the Ashhava region of Turkestan (8000 BC), Jericho region of Palestine (7000 BC), various mounds of Anatolia (6000 BC) and the Tigris–Euphrates region called Mesopotamia (Ayda, 2001). The development of ceramic products has manifested itself in many areas, from tableware to sanitary ware, from space technology to artistic products and decorative elements; ceramics has joined all areas of life with its functional effect. This development has been realised by examining and understanding the ceramic raw material day by day and revealing the unique properties of the material. From this point of view, raw materials and products, which have a gradual process, have been defined in various ways. Arcasoy (1988) explains the history and meaning of the word as follows: 'The definition that gives meaning to ceramic type products comes from Greek. At ceremonies and festivities where it was customary to drink wine, wine and possibly other beverages were drunk from horn-shaped cups that served as glasses. Since the Greek word for horn is "keramos", ceramic cups began to be called by this name after the keramos were replaced by ceramic cups. Thus, the potters who produced ceramics were called "kerameus", and the area where these potters lived collectively in ancient Athens was called "keramikos"'.

The French equivalent of the word is ceramique and the German equivalent is ceramic. While its English equivalent is called ceramic, it has come to the present day by being called seramik in Turkish (Akalın et al., 2011). Today, the most accepted definition when it comes to ceramics is the products, technology and art that are formed as a result of the shaping, glazing and firing process of the non-organic materials (Sümer, 1998). Ceramics for materials science: 'It covers all engineering materials other than metals and alloys, considered inorganic, and everything from their products' (Arcasoy, 1988). Ceramic is an art material, an expression – the material of expression such as idols, letters, seals, materials used in architecture and works of art – the main material of which is clay, formed by the harmonious combination of soil, water, air and fire, and by changing their shape according to different technical and aesthetic values in different and changing lifestyles (Türedi Özen, 1993).

When examined in the cultural context, it can be easily observed that ceramics have been actively used in various fields throughout the history of humanity. This situation necessitates defining the classification of usage areas of ceramics from today's point of view (Chen, 2018). In the most general framework, it is possible to express this classification as follows: classical ceramic art with its historical roots and usage areas; artistic (abstract) ceramic art, which is constructed with form, content and method, aiming to produce products with ceramic materials; and industrial ceramic, which is the mass production with scientific and technological progress and bound by demands. With its rich content, ceramic material offers an infrastructure that should be evaluated in many respects.

In artistic production, ceramic has been used as a means of expression and basic material, just like a sculptor's marble or a painter's oil paint. However, the same material has entered all areas of life as an industrial material in a wide range from tableware to floor–wall tiles, from spacecraft flooring to the weapon industry. In Turkey and the world, this material is not only used in simple forms but multifunctional, but also as a visual element and a means of aesthetics (Güven & Karakuş, 2016). To

understand the industrial limits of ceramic material, it would be appropriate to fully reveal the production areas of the industry.

After the Industrial Revolution, ceramic material had become one of the main materials of the industry (Çevik, 2015). With fast and diverse production, it has created a market in interior and exterior architecture, tableware and similar areas, and has become a product that also affects the visual culture of human life (Uludağ, 1997). When examined from this point of view, ceramic material in the field of art and industry has a connection with creating a culture of taste and visual culture. To create a functional and visual culture in industrial products, the way of directing human perception of art has been a research topic and this information has been tried to be transferred to industrial products through various education and research studies.

The aesthetic value, which is tried to be revealed by the effort to create a form in the industrial product, is tried to be created by revealing the form, line, colour, material etc., just like in a work of art. In this way, it is tried to create aesthetic value in the perception of design by directing human perception. Tunalı (2004) expresses this situation as follows: 'The fact that we like the glass we drink water from, the fork we use, the car we drive in is due to the fact that they are aesthetic objects, and the creative imagination shapes them into their real existence, metal or wood. Such shaping and the enjoyment of it is an aesthetic event. So, every design first expresses an aesthetic phenomenon on an ontological basis, and every design entity basically means an aesthetic object'. When the subject is ceramic, claiming that there is a strong relationship between the education system and present art is reasonable (Chen, 2018).

At the same time, as Fındık (2018) puts it, 'The industrial design process creates the first broad functional definition of a product with the necessary visual concept'. When evaluated from another perspective, there is no difference between a designed industrial product and a work of art in terms of being a design asset. Also, according to Alp (2009), the '21 century is a century of design'. The power of design significantly affects the economic development of countries and their competitiveness in world markets (Wu, 2020). Education can be seen as the main dynamic in the process of creating designers of this profile. Since the middle of the 19th century, schools have been established to train designers and have survived to the present day. These attempts, which sometimes repeat themselves in the historical process and sometimes leave important effects in the period, have been revised over and over again with constantly changing elements such as technology. The products and education of the ceramic industry, which are industrial commodity products, should not be evaluated independently of these movements (Wu, 2020). It should be understood from the definitions that ceramic material has to pass through the design filter (Kim, 2021) as both an artistic and an industrial product. This necessity has created the intersection point of the industrial ceramics field and ceramic art education.

Another concept that needs to be defined in the industrial design is the concept of the designer. Likewise, it is inevitable for the concept of the designer to include multidimensional and various layers together. The designer should be able to carry out the production process by integrating his qualities as a creator/artist based on aesthetic values (Wu, 2020), and a craftsman within the framework of product and production. In these respects, ceramic departments of fine arts faculties can be considered as one of the carrier elements of the ceramics industry in terms of the human resources they aim to train. Determining the current situation of these faculties and requiring them to establish an up-to-date educational process are a necessity (Wu, 2016).

The need for quality human resources for the ceramic industry is greater today than in the past. Ceramic production that has proven itself in the world starts with the training of qualified personnel who know the production stages, as well as the fact that pioneering productions have been carried out in terms of design. The production of these products can be achieved by using interdisciplinary knowledge in industrial ceramics (Wu, 2016). The shrinkage in market share resulting from developing technology and production opportunities and solving the basic production problems

of many countries necessitates qualified human resources for the sector. The only institution where such qualified human resources can be created is qualified educational institutions.

Educational processes related to ceramic materials in Turkey have been organised from a multifaceted perspective. Today, ceramics education is carried on by developing, both fine arts faculties and ceramics main art branches, fine arts education departments in education faculties and within the scope of vocational school programmes. In "Traditional Turkish Handicrafts" departments of the faculties of fine arts aiming to train ceramic artists, education on product designs that reflect the ethnological and cultural identity is being carried out. The defined objectives of each educational institution differ according to their scope. It is important to examine the ceramic departments of fine arts faculties of universities in Turkey in terms of relationships between the ceramics industry and human resources. The main aim of these departments for their students is expressed as 'the ability to identify, define and solve art and design problems' (A.Ü., 2020) and 'to be able to work as a designer in ceramic factories or in different sectors' while revealing employment opportunities in the programme profiles. This situation, which is revealed in the profiles of universities with the expression of being able to work as a designer in ceramic factories or different sectors, has inevitably found a place for itself in the curricula due to employment problems. It is seen that this framework created by concepts such as design, designer, industry and ceramics industry corresponds to the names of courses and workshops created with these expressions in the curricula. However, these ceramics departments can be considered one of the most important organisations that constitute the creative capital of the ceramics industry of the country (Wu, 2016). It is assumed that the designers of the future can be given the knowledge of being participants and directors of the production processes during the ceramics education process. However, it is impossible to give a completely positive answer to the question of whether the curriculum, teaching methods and techniques suitable for the conditions of this assumption are chosen/delivered correctly.

In terms of their relationships with the industry, the ceramic departments of the faculties of fine arts constitute the field of study for this study, since they are faculties established to educate artists and designers, and also because they are the educational institutions that provide the most human resources to the ceramics industry. Each unit has different problems regarding the production process in the field of industrial ceramics, but within the scope of this study, the education of the designers, who are expected to produce products with brand value, and who will work in product design processes that can realise pioneering productions in the world, covers a very important place. From this perspective, it is necessary to examine the relationship between ceramic education and the ceramic industry (Wu, 2020), since ceramic education feeds the ceramic industry's human resources.

Since there is no academic organic relationship between the industrial ceramic design and the artistic ceramic design in Turkey, it is possible to say that the education of the contemporary ceramic industry progresses in an unplanned and undefined way. On the other hand, there are relatively up-to-date studies (Chen, 2018; Isphahani & Anwar, 2016; Kim, 2021; Wu, 2016; 2016) suggesting a need for an instructional design in the field of ceramic education which can encompass requirements of both educational institutes and the industry. The widespread use of ceramics in modern daily life necessitates studies on the renewal/update of ceramic education (Wu, 2020) in Turkey and its development in line with the conditions of the present day. The definition of the implicit relationship in question and the development of suggestions are possible with studies to be carried out in the academic field. The definition of the human resource needed by the industrial production processes and the training programmes to be created by evaluating these definitions in the training processes are of great importance for the sector. This study aims to evaluate ceramic art education from the point of view of the sector representatives/employees. The study also aims to reveal the problems that all the shareholders know but are difficult to define.

2. Method

This study was conducted as a phenomenology study, which is one of the qualitative research designs. In qualitative research, phenomenology studies focus on 'the facts that we are aware of but do not have an in-depth and detailed understanding' (Yıldırım & Şimşek, 2013). According to Patton (2002), phenomenology focuses on discovering how people make sense of experience and how they transform experience into consciousness, both individually and as shared meaning.

2.1. Participants

The participants of the research were determined by the 'typical case sampling method' among the purposive sampling types. In this direction, the research was conducted with the participation of 15 factory design unit employees in the ceramic industry. Seven of the 15 factory design unit employees interviewed were women and 8 were men. Factory design unit employees, whose seniority ranges from 1 to 28 years, are graduates of Afyon Kocatepe, Anadolu, Kütahya Dumlupınar, Sakarya, Gazi and Dokuz Eylül Universities, and only one interviewee did not have an associate degree or undergraduate diploma. Employees work at DecoVita, Güral Porselen, Keramika Seramik, Porland, Viba Seramik and Yurtbay Seramik. The interviews were held in the provinces of Bilecik, Kütahya and Eskişehir.

2.2. Instruments

To collect the data for this study, a semi-structured interview form developed by the researchers was used.

2.3. Data analysis

The content analysis method was used in the analysis of the data of this study. In the analysis of the texts obtained from the interviews, the qualitative data analysis process recommended by Miles and Huberman (2015) consisting of basic stages such as 'data reduction', 'data display' and 'drawing conclusions' was followed.

2.4. Validity and reliability

In the process of developing the semi-structured interview form used as a data collection tool in this study, the steps specified by Yıldırım and Şimşek (2013) were followed. The development of the data collection tool was carried out by reviewing the relevant literature, taking expert opinions and making the necessary updates and arrangements after each step.

To support the validity and reliability of the research, the interviews were recorded using a voice recorder. The interviews were listened to on a voice recorder and were transcribed word by word to a word processor. These texts were used by making direct quotations in the findings section. To ensure the participants' privacy, the participants are abbreviated as 'STx' for direct quotations.

The interviews, which were transcribed from speech to text, were interpreted by applying content analysis. The codes and themes created as a result of the content analysis were determined by the researchers and an expert's opinion was provided.

The results of the analysis of the data were also reviewed by another researcher; the mutually created codes were compared; and the percentage of consensus was calculated with the formula 'Reliability = Consensus / Disagreement + Consensus x 100'. The reliability coefficient among the encoders was determined as 85%. According to Hubermann and Miles (2015), the coefficients with more than 80% reliability between encoders are sufficient for reliability.

3. Findings

From the analysis of the responses given to the question 'Do you think the ceramic education curricula implemented at fine art faculties have any shortcomings? Please indicate your views on these deficiencies, if any', the codes were presented in 30 categories under a single theme titled suggestions

for the training process, courses and course content. The theme, the categories and frequencies are presented in Table 1.

Table 1

Opinions of the Industry Designers Regarding the Ceramics Education

Theme	Category	*f* = 15
Suggestions for the training process, courses and course content	Narrow and insufficient industrial field courses	8
	Insufficient and inadequate computer design courses with software not suitable for the industry	5
	Foreign language education	4
	Too many general culture courses	2
	Too many art and art history courses	2
	More technology design courses are needed	2
	Necessity to include marketing and sales courses	1
	Technical drawing courses should be improved	1
	Plaster design mould courses should be improved	1
	Self-development of the lecturer in the industrial field is needed	8
	The necessity of establishing a relationship between the ceramic industry and education	7
	Training according to industrial product differences/training according to the industrial product group	4
	The need of including industrial product projects and competitions in the training process	4
	Designing internship training	3
	Organisation of industrial design and artistic design branches	3
	Need for updating the curricula	2
	Need for pre-training in high school and vocational school	2
	Increasing investments in the education process	1
	Intensity of traditional techniques	1
	Continues development in technology	1
	Ensuring designer competence in universities	1
	Master teaching	1
	Insufficient motivation for education in terms of students	1
	Lack of time, 4 years is not enough for education	1
	Requirement of graduate students to receive education	1
	Factory trips	1
	Need to know the industrial product production process	1
	Course resources and publications are not enough	1
	Inadequacy of course content	1
	Course content and expectations should be conveyed to the student	1

From the participants' responses, for the category of 'Narrow and insufficient industrial field courses', ST13 stated that '… There is a surface design course, but the surface design you see there has nothing to do with the surface design you see here. Of course, something happens that you feed on. As an art, it opens your visual memory a little more, but the expectation of this place is not the same as the education given there. Therefore, there should be more courses that will prepare the industry for the sector. At least, to increase the job opportunities of the people who graduated from here'. ST4

said, '…Mud design or something is ok, but only up to a point. I think it should be reduced. Industrial should be increased. Plus, if you're going to do anything, you have to know the industrial. For example, in the last place we went, they made a reagent, it is mind-boggling, but the man gives you a chemical formula. You can't do anything without knowing this…'. They expressed their views on the industrial field courses in their educational curricula and emphasised the inadequacy of the courses in this field. Regarding the category of 'Insufficient and inadequate computer design courses with the software not suitable for the industry', ST11 said, '… the programme has all of them here, of course, because it is optional, computer-aided 3D ceramic design, for example, I am now drawing inferences from the courses I took myself. Here, computer-aided 3D ceramic design 2 I bought the first and the second one. In our time, we were learning a programme called Unigraphics at the university for drawing, but those who made a more specific cut aircraft engine were using it, so they shouldn't have shown it to me or I wasn't going to draw a refrigerator. This was obvious. I read ceramics instead because instead of me, its equivalent like Rhino was wrong. . What is this about, maybe in other universities, this programme may not even be this course. It was good for me to learn, but instead, I should have researched the programme that the industry is using and the university should have offered me that programme…. Yes, there is a disconnect here. There is a programme that was bought years ago and it is still being used'. He/she emphasised that the computer design course he/she took was not functional for his/her own education.

ST14, on the other hand, said, 'First of all, it is as if there is still no lesson that will give much information about the machines used in the factory. I said okay, let's teach photoshop, I guess they probably show it in these computer-aided designs. But as far as I learned from the student from Kütahya, he said that they learned 3D drawing, but they did not make superficial drawings. If we think about something like that, if we think that the taught programme is not used in factories like us, there is a possibility that it will return to zero again. That's why photoshop is the most useful programme used in ceramic factories that are tile manufacturers like us. Here, draw in Illustrator, colour in Photoshop. I think we should start there first. Why not make three-dimensional design, do it. They even graduate by doing it very well. But I don't know how meaningful it would be to make a 3D design without a superficial design. On another subject, for example, at my own university, for example, the courses are mostly the same, we do the surface design okay. I made a surface design from a material, I liked it very much. How do I transfer this to digital? There is no full tutorial on that. In other words, how can one go about transfer events or a digital design event, starting from what? Ok, I taught the programme, I taught the surface design, it should not be finished, but there should be a content that explains how to establish the connection in between. In other words, the course should not be added, but the content should be added to the course. Perhaps such an arrangement can be made'. With the expression, the concept of design with computers, which has a very important place in the design process in the ceramics industry, has revealed the importance of being a subject that should be regulated for newly graduated designers. Another training issue that sector employees put forward was foreign language education. ST4 said, 'I think there should be language education as well. It should be the professional language. It's overlooked, but I think it's important. Men develop their own concepts, you don't know'. On the other hand, ST9 said, '… I think that people who have come to university should know English as well… He can follow the articles about his profession, when he goes abroad and makes elbow contact with people related to his profession, he can communicate with them comfortably, he can express himself in every respect, so it is necessary'. He underlined the necessity of foreign language education in universities. From the categories of 'Too many general culture courses' and 'More technology design courses are needed', ST1 stated, 'For example, it seems to me that general culture courses are given to students in the faculty of fine arts to increase their credits. I don't know if there is still Turkish Language and Literature, Atatürk's History of Revolution, I don't know if there is a religion lesson, I don't think it is a very constructive thing for the student'. ST4 said, 'Ceramic is also based on technology. Technology courses should be increased. For example, this should be enough for mud turning'. They emphasised the problems and deficiencies in the course distribution with their statements.

Another point that was strongly mentioned by the sector employees was on the category of 'Self-development of the lecturer in the industrial field is needed'. ST11 stated, 'Especially the instructors should contact the field one-on-one and even walk in front of it so that the companies and the school should give information ahead of time so that it should be fuller when the students land on the field'. ST9 said, '…when I go to school now, I am not sure whether a decor teacher knows most of them. Because a decorator who hasn't left school and hasn't worked in the market will look at the children with the same logic so that the simple lesson subject can be finished with the same things if he doesn't just follow the facilities at the school and put something on it, he will do so, that is, he will finish it'. They emphasised the importance of faculty members having one-to-one relations with the sector and improving themselves in this sense.

For the category of 'The necessity of establishing a relationship between the ceramic industry and education', ST1 stated, 'I think a bridge is necessary between the two because they both need a place that they don't have. On the one hand, a world of imagination is needed here, and on the other, the vital factor needs to be revealed. I see that the ties of the two are very severed and I see that they cannot serve each other. Their relationship needs to be stronger'. This expression implies his thought regarding the dysfunctionality of the current situation of the sector and education relationship.

The findings from the analysis revealed an interesting approach which suggested that the industrial design and artistic design branches should be separated in the education process, and ST15 said, 'GSF ceramics department yes, it is a distinction, but I think it should have its own sub-branches, for example, our work with sanitary ware is not very relevant. They are all ceramic, but one of them is a three-dimensional design and ours is a two-dimensional design. Ceramics made in the workshop and on the lathe is something else entirely. It is as if there is a need to give direction to the students, perhaps with elective courses. If he is going to enter a factory and make ceramic tiles, the courses he will take should be different, if he is going to be interested in sanitary ware, the courses he will take should be different'. For the category of 'Need of updating the curricula', ST11 stated, 'Yes, there is a disconnection here. There is a programme that has been going on for years, it is still being followed'. Another important suggestion derived from the responses was the statements implying the education to be given to the student before university education. For the categories of 'Need of pre-training in high school and Vocational School' and 'Lack of time, 4 years is not enough for education', ST9 stated, 'I think it is insufficient. In 4 years, I think it is very short to cover both the technology and the history of ceramics, the history of art, technology, artistic ceramics, industrial ceramics, decor, design, technical drawing, all in 4 years. I think that those who will study ceramics should probably study high school in this direction, take the foundation there and specialise much more in university'. This expression may suggest that education should be shifted to high schools and vocational high schools due to the course load intensity. For the category of 'Increasing investments in the education process', ST2 stated, 'Your teacher should create the operating conditions for him to teach you this, and see, this is how it works, so I can't blame the teachers either. In order for this work to progress, he may need to invest in his school, but I don't know how', which may indicate that investment should be made to increase the quality in the education process.

4. Conclusion, discussion and suggestions

The employees who currently work in the sector expressed the deficiencies of the ceramic education programmes implemented in the fine arts faculties of Turkish universities and highlighted the lack of knowledge about production. None of the employees directly mentioned the lack of knowledge in design, design originality, monitoring fashion innovations and creating brand designs in an international context, despite the suggestions from related literature (Chen, 2018), which can be considered a very important part of ceramic education (Kim, 2021). It may be accepted among the priority problems that the existing curricula are implemented with old technologies and approaches that the course contents are insufficient in terms of industrial design (Wu, 2016) and that computer design courses cannot be given competently.

The responses of the employees of the sector were most probably put forward in the form of listing the deficiencies experienced in the current factory operations. From these responses, it is safe to say that the sector employees expect a competent foreman working on the production line rather than a competent designer. Also, the employees emphasise the importance of integrating the knowledge of vocational high schools and vocational colleges with university education, and the method of master's teaching should be used in university education, and also the 4-year university education is not sufficient. Another implication derived from the responses was that the instructors do not have sufficient knowledge in the field of industrial ceramics, assumed that the competencies of the personnel who will work in the ceramics industry would increase with suggestions such as updating the curricula (Wu, 2016; Wu, 2020), renewing the internship programmes, separating the branches of industry and art and adding/increasing factory trips to the curricula. In addition, the employees may see potential industrial product competitions to be organised as beneficial in terms of motivating the students. They also emphasised the necessity of increasing investments in education by taking into account the rapidly/continuously developing technology.

Almost all the responses have parts suggesting that the requirements of the ceramic design phenomenon were not noticed and its importance was not understood yet. It is impossible for a designer to be efficient in today's conditions of the ceramics industry as they are not trained perfectly (Wu, 2016). It should be included in the economic policy of the country (Wu, 2020) that ceramic industry managers understand the importance of unique and fashionable designs with brand identity in international commercial competition. Individual profit or input should not be a meaningful expectation to play a role in the development of the country's commercial power. It is not possible for countries that cannot take place in the global economic system with their creative capital to get rid of consumer identity, even though they produce. For this reason, the problem in question can be solved in every sector not only under the responsibility of the companies but also with the state economic strategies and responsibility that have matured with the ministries of trade and economy plans. For the time being, it may be claimed that no serious strategy training is given to raise the awareness of companies on this issue.

To conclude, it is necessary not to base the lack of knowledge of the ceramic industry regarding design, only on the desire to protect company interests superficially. Designers working in companies should implement projects that will embrace the importance of design today, with ideas and practices that will expand the company's vision. However, a strong designer, who is capable of developing the vision of the company, gains existence when he/she is fed with strong knowledge in his/her own training processes. This shows the importance of design thinking in the education process regarding ceramic (Kim, 2021). It is not possible for an employee with a designer degree to not realise the potential value of his work, to transform the industry. In this case, it should not be overlooked that it is the responsibility of universities to train internationally successful designers who will increase companies' demands for qualified designers.

Finally, this study was carried out with the participation of 15 factory design unit employees, assuming that they have reflected their objective opinions about the employees subjected to this study, including themselves. On the other hand, it is safe to say that the participants do not have sufficient information about the instructional process regarding other employees in the subject. Also, the educational process they experienced may have changed since their graduation. They express their opinions based on their experiences of work. Their experiences do not ensure all of the assumptions they made about the ceramic education process. Therefore, a prospective study with the participation of both employees like the participants of this study and faculty members may reveal more reliable, in detail and productive findings. Conducting such a study with focus group interviewing may establish a synergy of group interaction (Rabiee, 2004) and help reach the desired findings more effectively.

References

Akalın, Ş. H., Toparlı, R., Argunşah, M., Demir, N., Gözaydın, N., Özyetgin, A. M., & Tekeli, S. (2011). *Türkçe Sözlük* [Turkish Dictionary]. Türk Dil Kurumu.

Alp, K. Ö. (2009). Uygulamali sanatlar eğitiminde tasarim, yapi, işlev, estetik ve algi sorunu [The problem of design, structure, function, aesthetics and perception in applied arts education]. *Van Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi, 6*(1), 48–59.

Anadolu Üniversitesi Bilgi Paketi (2021). *[Anadolu University Info Package]* [Online]. http://abp.anadolu.edu.tr/tr/program/dersler/194/13.

Arcasoy, A. (1988). *Seramik teknolojisi [Ceramic technology]*. Marmara University Faculty of Fine Arts Publishings.

Ayda, D. (2001). *Seramik tasarımı [Ceramic design].* YA_PA Publishing.

Bernal, J. D. (2009). *Tarihte bilim [Science in history].* Evrensel Publishing.

Chen, G. (2018, July). Dual character of contemporary arts and ceramic education. In *3rd International Conference on Contemporary Education, Social Sciences and Humanities (ICCESSH 2018)* (pp. 314–317). Atlantis Press.

Cooper, E. (1978). *Seramik ve çömlekçilik [Pottery].* Remzi Bookstore.

Çevik, N. S. (2015). Avrupa seramik sanatında endüstrileşme süreci ve cumhuriyet sonrası Türk seramik sanatına yansımaları. *Sanat ve Tasarım Dergisi,* (16), 77–95.

Fındık, F. (2018). *Malzeme ve tasarım bilgisi [Material and design information].* Seçkin Publishings.

Güven, G. G., & Karakuş, G. (2016). *Türkiye tasarım kronolojisi.“Biz insan mıyız”*. 3. İstanbul Sanat Bianeli.

Isphahani, E. I. M., & Anwar, R. (2016). Ceramic art: An introduction to MYP curriculum design for international baccalaureate visual art. In *Proceedings of the 2nd international colloquium of art and design education research (i-cader 2015)* (pp. 21–30). Springer, Singapore.

Kim, Y. Y. (2021). Suggestion for creative idea frame of ceramic collaboration education through design thinking. *한국과학예술융합학회, 39*(3), 69–75.

Miles, M. B., & Huberman, A. M. (2015). *Nitel veri analizi*. (Transl. Ed. S. Akbaba Altun, A. Ersoy). Pegem Yayınevi.

Patton, M. Q. (2002). *Qualitative research and evaluation methods.* Sage Publications, Inc.

Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society, 63*(4), 655–660.

Sümer, G. (1988). *Seramik sanayii el kitabı*. Anadolu Üniversitesi Yayınları.

T.C. Kalkınma Bakanlığı, (2015). *Onuncu Kalkınma Planı (2014–2018) Seramik Çalışma Grubu Raporu [Tenth Development Plan (2014–2018) Ceramic Working Group Report]* [Online]. https://www.sbb.gov.tr/wp-content/uploads/2018/10/10

Tunalı, İ. (2004). *Tasarım felsefesine giriş*. Yapı-Endüstri Merkezi.

Türedi, Ö. A. (1999). Ateşin Toprağa Hükmettiği Sanat. *İstanbul: Süreli Sanat ve Kültür Dergisi, 157*.

Uludağ, K. (1997). *Sanat ve Endüstride Üretim Mantığı. [The Logic of Production in Art and Industry]. Anadolu Sanat, 7*(16), 147–159.

Wu, X. (2016, October). Exploration of innovative education model for Jingdezhen ceramic art design. In *2016 International Conference on Management Science and Innovative Education* (pp. 610–613). Atlantis Press.

Wu, X. (2020). Research on the problems existing in the development of ceramic education in Jingdezhen in modern times. *Frontiers, 1*(6).

Yıldırım, A. & Şimşek, H. (2013). *Sosyal bilimlerde nitel araştirma yöntemleri [Qualitative research methods in the social sciences]*. Seçkin Publishing.