Introduction

In contemporary society, people have dramatically achieved technological advancements. Among the proliferation of cutting-edge technologies, artificial intelligence (AI) has been particularly been transformative and has become an integral part of our life. We can encounter AI everywhere, including at restaurants and airports and in banking, transportation, healthcare, entertainment, and so on (Forgeard, 2023). In other words, AI has started substituting humans and has been rapidly employed in labor-intensive industries that require repetitive actions and precision but which cause human fatigue and errors (Forgeard, 2023). In terms of productivity and efficiency, the characteristics of AI, such as being faster and relying on improved processing, is completely incomparable to humans.

Under these circumstances, art has also faced substantial changes. Not only is art regarded as reproducible into mass products but also is created more and more by robots. For example, a program of a robot called CloudPainter took just four hours and 50 minutes to copy Vincent Van Gogh *The Starry Night* (Zylinska, 2020, p. 11). According to Pindar Van Arman, the robot can perform a "style transfer" between the works of established artists such as Paul Cézanne and Francis Bacon and also have its own stylistic elements (Zylinska, 2020, p. 11).

In addition, technological advances in contemporary art have caused groundbreaking effects in the field of crafts. For instance, the emergence of evolved materials and technologies has led to tremendous alterations in ceramics. The dissemination of digital fabrication, such as 3D printers and laser cutters, play an epoch-making role in ceramic casting by liberating ceramic artists from making original objects through a precise and slippery process traditionally undertaken by their own hands.

This essay, however, asserts that material practices by the hands of artists are essential to maintain because there is invaluable worth in them that cannot be replaced by any other method, including AI. Even though the products of machines and humans are equivalent, and machines have comparative advantages regarding cost and accuracy, the material practices by human hands have indescribable philosophical and psychological meanings(Sofaer, 2007, p. 2) in contemporary society. That is, they convey the value of labor and process. Thus, this essay examines how material practices by hand influence contemporary society through a comprehensive background in ceramics in art today and two examples in labor-intensive

ceramic artworks.

I

Ceramics in Contemporary Art

In early 20th century, modernization was accelerated in Europe, and mass production was generalized in manufacturing in a number of industries. Among the inventions made commonplace through the advance of industrialization and consumerism were the photograph and film, and both altered the fundamental concept of art. As a result of what they offered, there was less need to ask a painter for a portrait, visit a stage performance, or go to museums and galleries to appreciate artwork that could only be seen in one place. Spontaneously, though, people questioned whether photographs and films were art, and there was a need to reestablish what art was and was not. If it could be duplicated, was it art? Was the duplicate art as well, or merely a consumer good? Did replication diminish the value of the original? If the point of art was to admire its appearance, did it matter if one saw the original or a duplication?

The philosopher, social critic, and aesthetic theorist Walter Benjamin argued that reproduction in art in the 20th century should be considered a new phenomenon since targets of reproduction were expanded toward the entire of art and a status of reproduction in art had changed compared to the past. He explained that mechanical reproduction could affect art by using the term *aura*. According to Benjamin, aura refers to a quality that distinguishes original artwork from reproductions (Benjamin, 2008, p. 7). The aura of traditional artwork is derived from its status in religious cults as well as through their distinct location in place and time. However, as humans developed means of mechanical reproduction, such as engraving, to communicate and promote art, things changed. The invention of photography, in particular, diminished the significance of any "original," as it calls into question the uniqueness of a work of art (Freeland, 2001, pp. 179-180). However, Benjamin concluded that losing aura was not a bad thing by pivoting to a “renewal of mankind.”

Per Benjamin’s opinion, the disruption of genuineness and the disappearance of unique situations in time and space due to mechanical reproduction have resulted in the popularization

of art. In the past, art was a privilege for the upper class alone, such as royal families, nobles, and merchants accumulating wealth. Now, though, with the help of reproductions, the public can enjoy art, and even now the public can participate in artistic activities.

Within this great tide of change, artists initiated the advantages of reproduction for their artwork, and even tended to move away from creating work by hand. Marcel Duchamp exhibited a readymade object and claimed that art could be an idea alone. Moreover, the American conceptual artist Joseph Kosuth, in his essay "Art after Philosophy" (1969), stated that art was the continuation of philosophy. These meant a change from "appearance" to "conception," the beginning of conceptual art and conceptualism in the mid-1960s, and therefore, the traditional perception of an artist as someone who painstakingly crafts one-of-a-kind pieces as the manifestation of artistic genius is no longer valid, and artists have detached themselves from the physical process of production. Rather, artists are evaluated based on the extent to which they questioned the essence of art and what message was in their work (Petry, 2012, pp. 7-9).

This trend of change also occurred in the ceramics field. In the late 19th and 20th centuries, the Arts and Crafts movement arose in the UK, led by William Morris, as a reaction against products made through mass production in factories. It criticized the alienation of human labor caused by the instrumentalization of humans and sought to seek the true joy of labor by escaping the enslavement of humans. In addition, adherents attempted to regain human sensitivity and creativity by universalizing popular art through handicrafts and reviving the spirit of craftsmanship with the cornerstone of production by hand. It originated from the belief that valuable art should be produced, emphasizing handcraft and advocating popular art. However, the daily goods made by this movement could not be cheaper than machine-made products, and it ended up facing limitations such as the inability to exclude mechanical civilization from producing for the public. That is to say, it was also impossible to prevent changes in contemporary art due to mass production (Livingstone and Petrie, 2017, pp. 92-95).

With the advance of mass production and reproduction, pottery companies moved away from the past, when production by hand-building and pottery wheels were primary in favor of slip-casting methods suitable for mass production. They also adopted silk-screening to create complex designs without relying on hand-painting. As various pattern reproductions became possible, ceramic brands developed their own patterns for silk-screening (Livingstone and Petrie, 2017, pp. 483-484). In addition, with the rise of conceptualism in contemporary art, ceramics, which had been mainly for decorative and functional roles, started to use clay to

create ceramic sculptures to reflect current issues, and by doing so they added to the conceptual vocabulary of their work (Livingstone and Petrie, 2017, p. 309). Ceramics is now more varied, literate, adventurous, and ambitious than it has ever been and has come alive like never before (Petry, 2012, p. 8).

And so, ceramics in contemporary art has elevated ceramics, which before had been considered a craft, to something like fine art. It has freed ceramics and allowed it to convey its historical awareness, humor, and connection to both the ornamental arts and daily life (Petry, 2012, p. 8). Simultaneously, it has been determined that this has resulted in a weakening of artists' craftmanship and de-materialization in an atmosphere in which concepts and ideas are emphasized (Livingstone and Petrie, 2017, pp. 288, 314).

II

Labor and Labor-intensive Art: A Ceramic Brand, 1616/Arita Japan

1616/Arita Japan is a Japanese ceramics brand named after the ancient ceramics town of Arita in Kyushu Island (1616/Arita Japan, 2023). Arita pottery is traditionally well-known for its decorative patterns and fine craftsmanship (Hasegawa, 2014, p. 187). 1616/Arita Japan was launched in 2012 and consists of several international designers centered around the creative director Teruhiro Yanagihara. 1616/Arita Japan strives to create modern, straightforward dinnerware that is handcrafted with the exceptional craftsmanship, strength, and thinness of traditional Arita porcelain and can be utilized by people worldwide in everyday life (1616/Arita Japan, 2023).

Figure 1: The TY Standard Series.

As Figure 1 illustrates, a representative of 1616/Arita Japan is the TY Standard Series. Yanagihara created a new line of ceramics in keeping with the Arita pottery heritage by employing crushed stone clay, albeit with an altered composition. The product is a high-density clay that, even in the absence of glaze, gives the pottery pieces remarkable strength and resistance to heat and staining. The distinctive light gray, matte tone of the TY Standard Series is achieved through the addition of a unique chemical to the clay. Yanagihara's interest in borderless designs is evident in the series. Items among the products have high practicality and are stackable without any set uses or functions. For example, TY Square Plates work well for both Japanese rice and Western-style breakfast cereals. The little cup is designed for espresso but it also works well for Japanese sake (1616/Arita Japan, 2023).

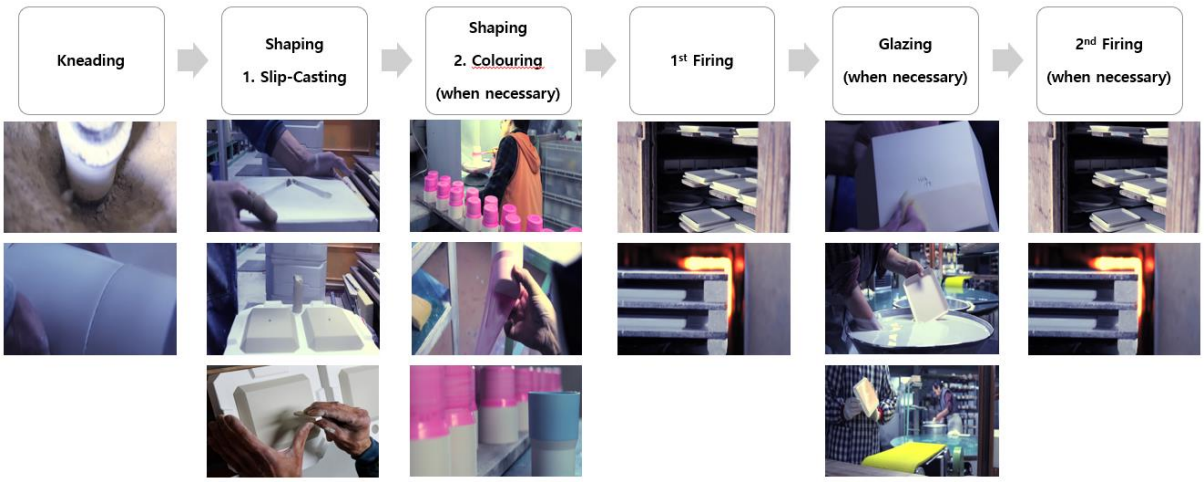

Figure 2: The production processes of 1616/Arita Japan.

Regarding the artwork process, as Figure 2 illustrates, 1616/Arita Japan still produces ceramics made by local craftsmen who have profound experience and skills. The Arita porcelain production process is, briefly speaking, comprised of kneading, shaping, and coloring (when necessary), then first-firing, glazing (when necessary), and then second-firing (when necessary). They use clay made from crushed stone from the region and make ceramics though a way of traditional slip-casting, and they continue to fire ceramics in traditional Arita kilns.

The beauty of 1616/Arita Japan is in the process of slip-casting. Craftsmen follow the way of traditional slip-casting by hand. It is, to put it simply, a method of shaping a clay item, called a casting, by pouring a liquid clay mixture into a plaster mold. Water from the casting slip is absorbed by the mold, causing the walls of the mold to dry up and become rigid. Most slip-

casting molds are made by pouring plaster over a prototype, which can be either an object found in the wild or a form designed from plaster clay. While some ceramists utilize molds to create unique forms that cannot be sculpted by any other method, others use slip-casting techniques to increase output by manufacturing many identical pieces (Martin, 2006, p. 8).

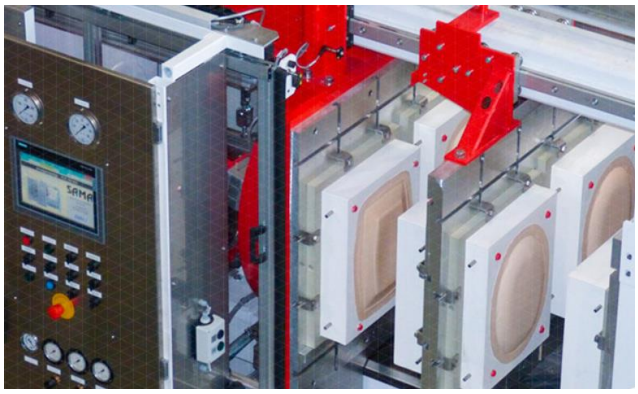

Figure 3: The high-pressure casting machine.

Slip-casting sounds simple and convenient because it is suitable for mass production. But while traditional slip-casting by hand is a common technique for commercially produced pottery, it bears several disadvantages. First, the pores in gypsum molds are worn by water that passes through them, giving them a poor toughness, an easy cause of breakage, and a short lifespan. To enable continuous production, a sizable inventory of gypsum molds must be kept on hand. Also, lengthier casting cycles result in a reduced output rate, and compared to high-pressure casting, more production space is needed to get the same results. Likewise, differential shrinkage is a cause of decreased dimensional precision (Castimo, 2023).

Due to these disadvantages and the innovations of technological civilization, slip-casting has been mechanized. As Figure 3 shows, the high-pressure casting machine is ideal for complementing the shortcomings of traditional slip-casting and maximizing efficiency while reducing labor costs. In detail, the machine has various advantages compared to traditional slip-casting. In addition to prolonging the life of a mold, the product outcome is higher and the casting cycles are faster. Also, it can be used to distribute liquid slip evenly, and it produces high-quality goods with stronger bodies and smoother surfaces. The costs of operation and maintenance are reduced, it makes demolding simpler, it can handle complex molds with more accuracy, and, in addition to all the rest, it offers the chance for a completely automated operation (Castimo, 2023).

Therefore, quite large pottery organizations, excluding individual studios and ceramic artists, naturally prefer this method over traditional slip-casting because they can get a guarantee of the gain of productivity and a return on the investment. To be specific, unlike traditional slip-casting, which utilizes plaster molds, high-pressure casting uses porous resin molds. A single porous resin mold can often generate up to 110,000 pieces. On the other hand, a typical plaster

mold needs to be changed every 90 to 130 cycles, and a manufacturing cycle can take up to eight hours. The automatic process of high-pressure casting also involves robot finishing and drying after which the mold is taken out and placed in a solidifying drier (Lippert, 2023).

Using a high-pressure casting machine results in a very high production output rate. However, why does 1616/Arita Japan maintain this method? The reason would be that even though the results of machine labor and human labor are the same, their values are significantly different (Adamson, 2010, p. 162). Even if it is simple labor that involves repeating actions, people perceive labor performed by machines and labor performed by humans differently. For example, when writing a letter, people can discern a letter written by hand and a letter created on a computer using the same font as a person's handwriting. There may be no difference if you only look at the superficial results of the letter, but in general, most people place greater value on letters written by hand. In other words, humans naturally feel a sense of dignity in the product of human labor.

Since ancient times, the importance of labor has been considered an unchanging truth. In the Bible, God worked in the creation story, Jesus worked in the Gospels, and the disciples also worked. In the Orient, Zen Buddhism teachings say, "If you do not work for a day, you do not eat for a day." It considers labor as a method of practice and meditation and accentuates labor as routine as breathing and eating. However, due to the development of civilization and mechanization, the importance of human labor has tended to be devalued. Unlike the past, when it was taken for granted that people should labor, in contemporary society, machines and AI have replaced people's work, making it possible for some to make money without having to toil. The increase in crime such as scams are a type of crime that have emerged with the advancement of civilization, but it also fragmentarily shows the characteristics of contemporary society in which the concept of basic social justice is collapsing as ignorance about the value of labor is increasing.

In this way, handmade artworks created by craftsmen such as 1616/Arita Japan are momentous in that they can convey messages about the value of labor, such as human dignity, and the importance of labor, such as social justice, to contemporary society.

III

Processes and Labor-intensive Art: A Ceramics Artist, Zemer Peled

Figure 4: Zemer Peled artwork.

Zemer Peled is a contemporary ceramics artist based in the United States but who was born and raised in Israel. As seen in Figure 4, Peled explores the majesty and ferocity of the natural environment in her artwork. Natural surroundings and landscapes influence her sculpture language, which itself explores issues of place, memory, and identity. Many thousands of porcelain shards are used to create large- and small-scale sculptures and installations (Zemer Peled, 2023). The shards are derived from a process of creation and destruction, and the resulting work can be interpreted in reference to outsider art, art historical traditions, and natural phenomena (Sherrie Gallerie, 2023). Peled works with clay in three different forms: unfired, fired, and shards (Reintjes, 2015, p. 4), and her work acknowledges history in its psychology, which is filled with conflict between the whole and the fractured form, the finished and the unfinished, the hazardous and the safe, the creative and the destructive, the fired and the unfired, and the shattered and the repaired (Reintjes, 2015, p. 4).

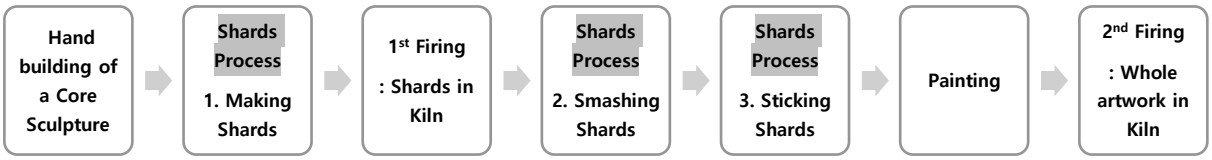

Figure 5: The creative process of Zemer Peled.

As Figure 5 depicts, Peled's artwork literally accompany labor-intensive processes. In terms of her creative processes, she broadly follows seven steps: First, she hand-builds a core sculpture into which thousands of shards can stick. Second, she makes thousands of shards. Third, she fires the shards in the kiln, and then fourth, she smashes the shards. Fifth, she sticks the shards into the core sculpture, painting the sculpture with clay together. Sixth, she paints the shards that are stuck on the core sculpture, and finally, she fires the whole in a kiln.

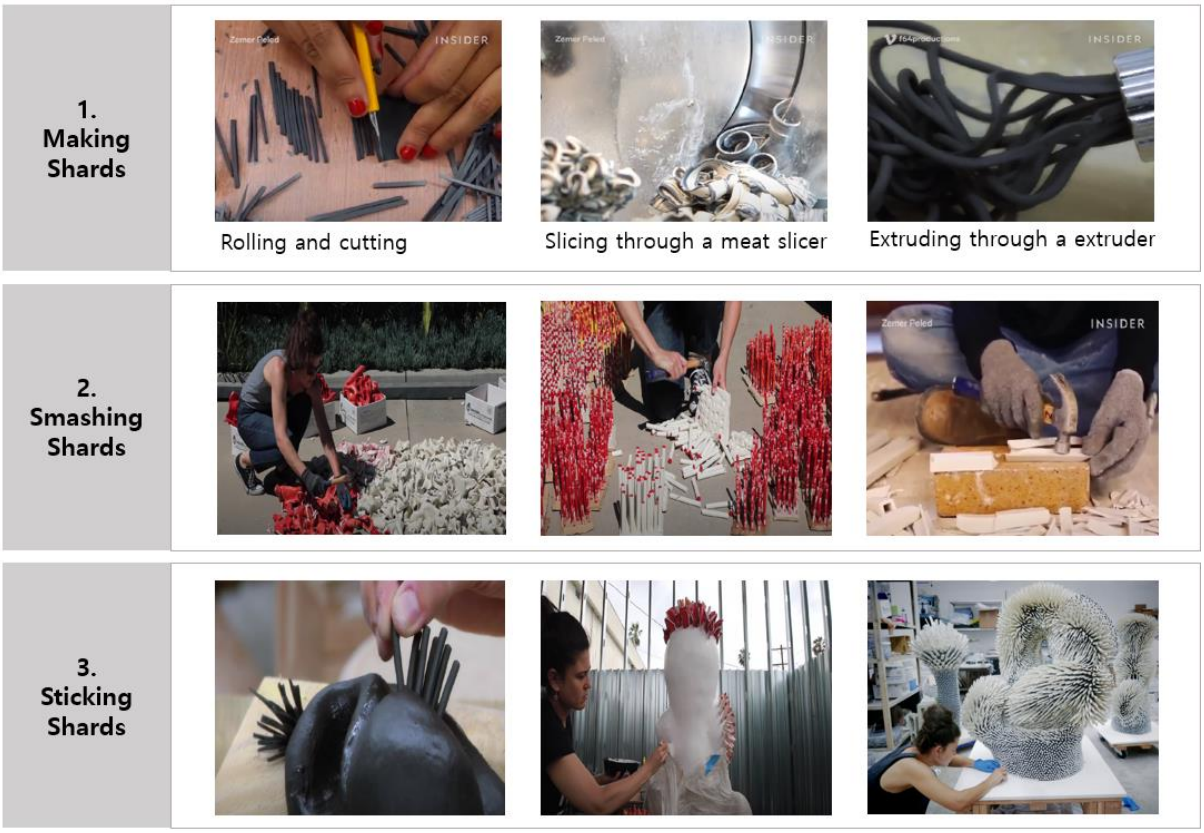

Figure 6: The shards process.

The highlight of Peled's artwork is particularly concerned with the shards process: making shards, smashing shards, and sticking them into a core hand-built sculpture, as seen in Figure 6. When making shards, Peled uses three techniques to produce a variety. One method is to use a technique adapted from glass shaping, called millefiori, to roll out thin, banded slabs of clay.

Peled flattens wet clay into large, thin sheets with a slab roller. Each layer is then burned and glazed (*Breaking Free,* 2015, p. 28) or dyed and sliced into thin, featherlike shapes while still wet. She will take these delicate points and, once fired, use her fingers to snap them to length. A second technique involves using a meat-slicing machine to create wavy sheets that are either left unglazed or coated in a solid color. After they emerge from a kiln, Peled deftly uses a hammer to purposefully break the slabs. Her last technique involves extruding lengthy clay pieces with fluted, ripped edges that resemble noodles or ribbons. Peled bakes the formed porcelain sticks at 1,200 degrees Celsius for 24 hours, after pressing them into a grid pattern in a soft clay square (Foyle, 2015, pp. 16–17). This produces a range of intricate shapes, such as square tubes with cylindrical interiors that, when shattered, create right angles or jagged channels (Reintjes, 2015, p. 4).

The third method is smashing shards. Peled breaks the shards with a hammer. This way makes her artwork unique and distinct compared to other ceramic artists. It comes from her memory of being about eight years old (*Breaking Free*, 2015, p. 28). According to Peled, when her asked her to help her knock down a wall at home, they took hammers and began smashing it until it fell apart piece by piece (Bode, 2016, p. 25). However, there was always a clear intention behind breaking something: to rebuild it. Something new would emerge from the devastation, whether it took on a new form or a different, more attractive appearance (Bode, 2016, p. 25). Peled's childhood memory influences her sculptures today. Each sculpture is made up of thousands of broken porcelain pieces that are fashioned into abstract flowers (*Breaking Free*, 2015, p. 28). The act of breaking shards is vital in her work since destruction makes room for new life (Foyle, 2015, pp. 16–17).

After smashing everything, Peled first handcrafts a core sculpture to which thousands of fragments are linked, then she separates the thousands of carefully created shards into containers (Foyle, 2015, pp. 16-17). She inserts individual shards into clay forms or frames coated in clay and concrete, keeping an approximate design in mind (*Breaking Free*, 2015, p. 28). She then creates graceful, twisted forms by pressing the shards into the clay core, which is then fired to solidify all the pieces, raw and precooked, into one piece. The largest sculptures might require up to seven days to assemble and rely on a concrete armature (Foyle, 2015, pp. 16-17).

Peled says, “I do the whole process of making the shards, though it takes forever – actually, about two months – for each piece” (Foyle, 2015, pp. 16-17). As she says, Peled’s work is

literally the culmination of a months-long process, so why is she pursuing such a long and labor-intensive process? She is concerned with the importance of process to contemporary society.

These days, Korean sociologists are paying attention to a generation called the MZ generation. There is no exact standard for dividing generations, but the MZ generation is generally referred to as the generation born from the mid-1980s to the early 2000s, which grew up with widespread mobile media and the internet (Kim, 2023, p. 11). A key characteristic of the MZ generation is that it emphasizes personal values and accepts progressive technologies while also lacking patience and seeking pleasure at all times. This generation, which has benefited from modern civilization and the internet from a very young age, has been conditioned to grow impatient and give up easily when facing obstacles and tasks that take effort (Kim, 2023, pp. 11-13). Contemporary society is truly instantaneous. Through the abundance of social networking, such as YouTube and Instagram, people can connect and communicate without much effort. This has provided great convenience to modern life, but the extreme convenience has also negatively impacted individuals. Before the internet became widespread, even trivial tasks in daily life required several steps to complete, but the MZ generation did not experience this and were not taught to value processes.

However, labor-intensive art involves numerous processes. Unlike machines that execute commands as they are entered, artists plan and predict every process while working and experience material consciousness through many attempts and failures along the way (Sennett, 2009, p. 127). In particular, ceramics work has the characteristic of being difficult to return to the previous process due to the nature of the ceramics materials. For example, when attaching another object to a piece you have made, the bonding time is very crucial because the degree of drying must be similar. In addition, even if there are no visible defects when working, unexpected cracks may occur during the firing in a kiln. In this case, the artwork into which all the time and effort was invested is generally not considered artwork, so the artist needs to go through the hassle of starting over again from the beginning. In other words, a single mistake in ceramics work is often impossible to reverse, so prudence and patience is required through the entire process. Peled's work, then, can be seen as the culmination of her material consciousness, prudence, and patience.

In this way, labor-intensive ceramic artwork that involves vast volumes of time and effort, like Zemer Peled's works, can help people contemplate the significance of processes and convey

life lessons that are applicable to modern society.

Conclusion

Technologies are continuously evolving, taking a big leap day by day, and many researchers anticipate that AI will play a greater role in shaping the future (Forgeard, 2023). Although current AI systems can only limitedly exploit and mimic some types of human intelligence (Cichocki and Kuleshov, 2021, p. 19), AI is learning, solving problems, and reinforcing its strategies practically around the clock. Even researchers suspect that many AI systems of the future may be superior to a single mental-intellectual or logical-mathematical intelligence, and this may lead to the concept of multiple intelligences that may be able to interact and communicate with other AI subsystems, nearly resembling humans and their sophisticated cognitive skills, emotional-social intelligence, and responsible group decision-making (Cichocki and Kuleshov, 2021, p.19). Indeed, it is not an exaggeration to say that almost everything human could someday be substituted by AI.

As technology continues to develop, contemporary art has also become more conceptual, and workmanship and material practice in art are no longer essential to claiming the title of artist. Therefore, it may seem very inefficient and even foolish for artists to do labor-intensive artworks themselves, but one thing to keep in mind is that AI is fundamentally different from something created by human hands. Although there may seem to be no difference between outcomes made by AI and by humans, those created by humans can contain psychological and philosophical qualities valued as expressions of life. First, handmade labor-intensive art contains the value of labor. As shown by 1616/Arita Japan's ceramics, labor-intensive artwork includes human dignity that is beyond what is capable by machines, as are social qualities such as "No pain, no gain." Second, labor-intensive artwork by hand implies the importance of process. Handcrafted artwork that requires a lot of processes and efforts, like Zemer Peled's works, suggest the value of prudence and patience in making cognitive decisions to achieve an intended result.