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ART MAKING IN ORDER TO UNDERSTAND: IDENTITY, COMMUNICATION AND REFLECTION

Dissertação para obtenção do Grau de Mestre
em Glass Art and Science

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1. Abstract

Identity, communication and (self-) reflection (or (self-) revelation) constitute three deeply interconnected rings of a single chain. Identity, which encompasses singularity and difference, represents a uniquely creative phenomenon in the universe. Communication, in turn, functions as the connecting element between the three rings. At its best, it results in human affection. The expression of affection leads to the formation of new or enhanced identities. The experience of affection in human communication generates, therefore, new territories of identity. In addition, the dynamic character of affection translates into a deeply (self-) revelatory or mirroring act, since the mutual expression of affection reveals one person to another. Together, communication and self-revelation play an important role in the formation of individual personhood. How much can these revelatory acts change or affect our individual character? Do only government leaders influence their respective societies? Is human history limited to a chronicle of international events? If so, in what way can individuals influence one another whilst interacting within an ultimately common world? Indeed, the generalized experience of war reminds all of us that we share a planet as well as a common humanity. Thus, those whom we have never seen and may never see in our lifetime may nonetheless affect our life forever. Occurrences such as war, peacetime and armed coups across the globe affect us directly in other ways, as evidenced in fuel, energy and gold prices. Moreover, our identity has been shaped by individuals living in earlier historical periods. Religion, for example, represents a significant legacy underlying the fundamental structure of our cultural and personal character. Identity, communication and (self-) revelation together create an ever more complex human web spanning the whole of human civilization. In a process dating plausibly from 2500 years ago, according to some sociologists, and more intensely so over the past 300 years, this process is presently becoming more directly interactive and globally participatory [1].

The ultimate objective of my artistic journey, to date, as seen in both the thesis and my artwork, has been to understand how human networks are formed and what their underlying structure is. More specifically, my work reflects my attempt to understand the meaning of network systems and, in particular, my role and position – as individual node – in this complex web, as well as the nature of my artistic task as an interpreter of this all-encompassing network. My work and thought stem from my belief that, in order to meaningfully apprehend significant aspects of our world, we must first attain a clear vision of ourselves.

2. Introduction

«Lord, said David, since you do not need us,
why did you create these two worlds?»

Reality replied: O prisoner of time,
I was a secret treasure of kindness and generosity,
and I wished this treasure to be known,
so I created a mirror: its shining face, the heart;
its darkened back, the world;
The back would please you if you've never seen the face.

Has anyone ever produced a mirror out of mud and straw?
Yet clean away the mud and straw,
and a mirror might be revealed».
(Jalal ad-Din Muhammad Rumi, "Be Lost in the Call")

"I saw all the mirrors on earth and none of them reflected me..."
(Jorge Lu s Borges, *The Aleph and Other Stories*)

"Our lives, whether we know it or not and whether we relish the fact or bewail it, are works of art. To our lives as the art of living demands, we must – just as artists must – set ourselves challenges that are difficult to confront up close, targets that are well beyond our reach, and standards of excellence that seem far above our ability to match. We need to attempt the impossible. (...) The product of self-creation, the processes operated by the art of life, is supposed to be the 'identity' of the creator. Given the oppositions that self-creation struggles in vain to reconcile, and the interplay between the constantly changing world and similarly unstable self-definitions of the individuals trying to catch up with the changing conditions, identity can't be internally consistent, nor can it at any point exude an air of finality. (...) Identity is perpetually *in statu nascendi*" (Zygmunt Bauman, *Does Ethics Have a Chance in a World of Consumers?*, pp. 17, 18.)

Since childhood, I have been keen to understand aspects of the lives of people around me, i.e., the roots of the past, their paths and choices in the present and their hopes and expectations with respect to the future. As a young child, I used to lie in the back of my family's car and glance at the windows of different buildings as we drove by and imagine what might be the lives of the inhabitants of those buildings. In light of the sociologist's Zygmunt Bauman's affirmation in the above-quoted epigraph [2], the child intuitively what later may evolve – as the child evolves into an adult – to become either a scholarly research project or an artistic journey where subjective path and conceptual understanding meet to create new layers and levels of reflexive synthesis. As Bauman affirms, our lives are "works of art"; our identity is a never-ending work in progress. The artist in me believes that, for the artist, life makes sense only as it is translated into works of art. Art is therefore a mirror which reflects and refracts our own complex human identity. A work of art, like the mirror, which is an integral part of my artistic process and creation, both mirrors who we are in the here-and-now and at the same time – because an individual artistic creation can only ever be a fragment of the complex tapestry or web of experience, identity and cultural memory which make us human beings – reveals the mirror to be fragmentary, multiple, continually refracting our image into a myriad of partial but revealing images.

My innate curiosity drove me to eventually depart from my homeland to live abroad for extensive periods of time. As the Quran says: *Have they not journeyed in the land, and had minds to reason with, or ears*

to listen with? It is not the eyes that go blind, but it is the hearts, within the chests, that go blind. [3] In light of the Quran's understanding of human nature, as expressed above, we can travel both inwardly and outwardly. We can travel wishing to understand ourselves and the world, or, on the contrary, refuse to deepen our understanding of the supreme values of human existence: feeling, seeing and reasoning with the fullness of compassion, understanding, communication and curiosity. Thus, before I began the Master's degree programme at Vicarte, I began a photography project which sought to capture in images numerous places and peoples of the various countries I visited. I used the photographic medium to develop my childhood intuitions of self and otherness into a more conceptually articulated and self-aware project of observation and reflection, i.e., an early source of my identity as an artist and of my present-day artistic practice. Thus, observation and personal reflection subsequently became the synthesis of interpretative vision and conceptual language which nowadays characterise my art work.

However, it was upon entering the Vicarte Master's degree programme that I was able for the first time in my life to actively engage with and communicate on a daily basis with people from diverse backgrounds and cultural paradigms. It was the first time in my life that personal experience and intuition encountered the prismatic character of human nature: the richness of personal paths, the plurality of ideas and attitudes, perspectives and philosophical approaches to self and otherness, private feeling and historical reality. While at Vicarte, I have discovered the prismatic nature of our human reality, the abundance of identity in an ever-changing world that preserves and at the same time continually transforms our very identity.

Furthermore, owing to the fact that none of the Vicarte master's level students had any previous glass skills and experiences, we learned together, shared our experiences and helped each other along the way. Such close collaborative work created both dialogue and fresh understanding as each one of us developed his or her artistic practice and, more or less implicitly, an artistic identity. A complexity of relations grew out of the intensely lived relationship with new data stemming from various cultures. Ultimately, although students come to Vicarte to learn more about the art and science of glass, we also learnt to interpret and grow from the complex web of input, stimuli, information and inquiry which we experience every day in the Vicarte community.

During the three years I have spent at Vicarte, my identity as an artist has been deeply influenced by others: their thoughts, their ideas and their "otherness" in terms of artistic viewpoint, cultural behaviour and lifestyles. Concurrently, I have discovered to my great satisfaction that my colleagues were undergoing a similar process of *growth through difference* on every level. As the biologist Richard Dawkins in *The Selfish Gene* (1976) writes:

I think that a new kind of replicator has recently emerged on this very planet. It is staring us in the face. It is still in its infancy, still drifting clumsily about in its primeval soup, but already it is achieving evolutionary change at a rate that leaves the old gene panting far behind.

The new soup is the soup of human culture. We need a name for the new replicator, a noun that conveys the idea of a unit of cultural transmission, or a unit of imitation. 'Mimeme' comes from a suitable Greek root, but I want a monosyllable that sounds

a bit like 'gene'. I hope my classicist friends will forgive me if I abbreviate mimeme to meme. (...)

Examples of memes are tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation. If a scientist hears, or reads about, a good idea, he passes it on to his colleagues and students. He mentions it in his articles and his lectures. If the idea catches on, it can be said to propagate itself, spreading from brain to brain. As my colleague H. K. Humphrey neatly summed up an earlier draft of this chapter: "...memes should be regarded as living structures, not just metaphorically but technically. When you plant a fertile meme in my mind you literally parasitize my brain, turning it into a vehicle for the meme's propagation in just the way that a virus may parasitize the genetic mechanism of a host cell. And this isn't just a way of talking—the meme for, say, 'belief in life after death' is actually realized physically, millions of times over, as a structure in the nervous system of individual men the world over." [4].

The community of artists existing at Vicarte, similarly to any human community, invents its own rituals and practises, dialects of exchange of ideas as well as offers a safe platform for the mutual sharing of breakthroughs, techniques and intuition. Such intense participation based on a common ground of discovery and inquiry creates an environment where Dawkin's memes, or memic communication, is abundant. Thus, our ideas quickly spread amongst ourselves; we grew individually by copying or incorporating the ideas of others. Vicarte became for us a laboratory of learning, full of artistically rich memes and multiple acts of art making. Thus, we grow through memes. In turn, memes require bodies which embody states of awareness. For instance, language is a fine-tuned medium for the sharing of memes. A meme is a kind of map and mirror of who we are and who we may become. As the biologist and entomologist E. O. Wilson states in *Consilience, The Unity of Knowledge*: "The arts are eternally discursive. They seek maximum effect with novel imagery. And imagery that burns itself into the memory, so that when recalled it retains some of its original impact." [5] The artist is simply one who holds the conviction that who she or he is, intuitively and experientially, conceptually and imaginatively, is real to the extent that she or he can answer the question of the nature of artistic creation itself. Today I understand that art commits the artist to become a being in eternal dialogue with the work of art that is life.

In addition to this meme-rich environment, strong emotional connections were also created between the artists. Although the Vicarte community of artists is comprised of individuals from many geopolitical points of the contemporary map of the world, the emotional bonds of shared discovery and communication have also greatly grown in strength. Thus, difference does not necessarily lead to distrust, or misunderstanding, or even violence. On the contrary, difference can be, instead, a bridge and a catalyst for dialogue. Difference creates a kind of living mirror – fragmented, refractive and incomplete – which, nonetheless, reveals the deeper commonality within and between us, the greater synthesis still waiting beyond us, and the unifying act of the artistic imagination which connects us to the ultimate sources and ends of creation itself. As the biologist and entomologist

E. O. Wilson also writes:

The Arts, while creating order and meaning from the seeming chaos of daily existence, also nourish our craving for the mystical. We are drawn to the shadowy forms that drift in and out of the subconscious. We dream of the insoluble, of unattainably distant places and times. Why should we so love the unknown? The reason may be the Palaeolithic environment in which the brain evolved. In our emotions, I believe, we are still there. (*Idem.*, p. 258)

In this context, and in an avowedly personal vein, I wish to relate a moment of dialogue the author of this thesis had with Dr. Richard Meitner, who once asked what was the most important and precious thing I had learnt during my master's studies at Vicarte. The growing artist in me responded with conviction that it was the human connections, i.e., the web of connections and emotional bonds, the affective bridges which were formed during my apprenticeship years spent at Vicarte as a glass art student. I have learnt at Vicarte the invaluable lesson that each one of us is, potentially, a window, a door, a garden, a mystery and an inexhaustible source of discovery. Otherness does not weaken us: it completes us.

In summary, then: during these three years of study at Vicarte, I have discovered the relations between my character and others and then identified the deeper interconnections existing between various cultures and backgrounds. I have sought to break the wall between art and science, in a way analogous to my lifelong attempt to create communicative bridges between myself and others. Interestingly, before my apprenticeship at Vicarte, I had mistakenly thought that in order to be an artist, I would have to abandon any scientific perspective. I assumed that to be a scientist meant to empower the rational part of the thinking to the potential detriment of the emotional dimension of the artist, the emotional dimension being the most needed tool to create artworks. I have grown to disavow this earlier perspective.

Nevertheless, does there not exist a wall (i.e., *not* a window), an impasse (*not* a bridge) between the so-called hard sciences and the human, or interpretative, or non-quantitative sciences, to which belongs the universe of artistic inquiry and creation? In fact, the historian at MIT, Bruce Mazlish, writes in his study *The Uncertain Sciences*:

Two fundamental connotations [...] are attached to the word *hermeneutics*: a mythical religious origin and the notion of a translator or carrier of messages. The word itself comes from the Greek for 'interpretation. *Interpretation*, in turn, comes from the Latin for 'agent, negotiator, or the act of giving meaning.' The word *meaning* [...] derives from Old English and signifies the thing that one intends to convey, especially by language; it carries with it also the sense of something intervening or intermediate. These are the key terms, with *hermeneutics* and *interpretation* sometimes being used as synonyms for a method whereby meaning results. The notion of 'exchange,' of a negotiated act, is central. The end result is a form of understanding that is distinct from and independent of ordinary scientific explanation." [6]

Notwithstanding Mazlish's important distinction, I, like the historian himself, have reached a very different understanding of the relation between art and science. Indeed, I have worked to build a bridge between art and science. I have found out that heterogeneous fields of knowledge increasingly overlap and create what have been called "trading zones" where ideas and practices mutually inform and enrich one another. A better understanding of the world depends on such exchanges and overlapping territories of inquiry. Thus, artist and scientist, humanist and technician mature as they learn to recognise and engage with different fields of knowledge in new and unpredictable ways. In fact, this is the message underlying E. O. Wilson's seminal book on consilience, or consilient understanding, i.e., an understanding predicated upon the idea that knowledge is increasingly moving towards paradigmatic unification (despite methodological and thematic differences) and that the present fragmentary state of human culture will evolve into a much more unified map of intellectual and creative "continents" interconnected by a common foundational perspective which sees life as an evolving project, an ongoing act of creation and innovation, an open-ended act of communication and consciousness occurring between knowledge seekers and knowledge creators (far beyond the more limited or specific communication practices and exchanges of ideas permitted to the specialist entrenched in his or her domain of expertise).

For artists, the situation is more critical, since, given their intuitive permeability and subjective antennae, so to speak, the artist must create out of his or her awareness of the minute and/or momentous changes occurring in their personal and social environments. The author of this thesis has striven to develop her artistic practice out of the underlying themes of communication (through the experience of difference), identity (through the intuition and philosophical conceptualisation of otherness) and growth of understanding (through the image of the mirror). Thus, the thesis functions on several levels: 1) as a personal self-portrait of the artist; 2) as a humanistic approach to the artist's path from a young Iranian woman, with a specific religious and cultural tradition, to a cosmopolitan perspective as a citizen of the XXIst century, and which has allowed her to approach the mirror tiles of her childhood both as artistic medium and philosophical concept, i.e., the mirror as fragmented identity in search of a more holistic vision of the human reality; and 3) in a scientific context, as an approach to the nature, meanings and interpretative richness of mirror neurons as understood in present-day neuroscience, as well as in sociological approaches to the action of mirror neurons in specific social contexts, such as in the case of obesity in multi-generational families we will address below.

3. Result and Discussion

Humans are more social than any other animal in the natural world. Thinkers such as Aristotle (384-322 BCE), Socrates (b. 470/469-399 BCE) and the Persian polymath Avicenna (b. 980-June 1037 CE) believed that humans are animals endowed with the ability to speak. The precise definition of this speaking ability lies in the higher-order process of thinking and sending data to another person. The whole process of sending data from one person to another could be called communication. Communication practice and theory is at the base of significant and enduring lines of inquiry throughout both philosophy and sociology. Their separate conclusions are as abundant as they are diverse. We enumerate succinctly examples taken from this rich history of inquiry below:

- Aristotle understood communication to be the art of persuading and convincing others.
- The American social psychologist Theodore Newcomb (1903-1984) states that whenever a person is affected by another person, the second person has in fact communicated to the first one [7].
- The American mathematician, electrical engineer and cryptographer, Claude E. Shannon known as "the father of information theory (1916-2001) affirms that communication comprises all the methods that a mind can use to affect another mind, this process not only contains writing and speaking but includes music, visual art, theatre, ballet and any human behaviour [8].
- The American communication science expert Mickey Smith believes that communication is the operation of transferring information, emotions, memories and thoughts among people [9].
- The Spanish philosopher and essayist J L Aranguren (1909-1996) writes that communication is transferring information in these three areas: emission, conduction and message [10].

Overall, communication could be defined as the sharing of experiences. In fact, the word "communication" derives from the Latin etymon "communis" and "communicare". The noun communis conveys the sense of common or sharing. Likewise, the verb "communicare" expresses the idea of making something common.

Moreover, human communication has two main varieties which exist independently of dimension. Thus, communication can occur: 1) from individual self to individual self; 2) within a more or less numerous group of individuals, or; 3) by way of mass communication. There is also verbal communication (which is very common, encompassing both speech and writing) and nonverbal communications. For example, the colour, shape and even material of our clothing constitute non-verbal messages which we continuously send to others during our communication acts.

Apparently, the human species is (plausibly) the most intensely social because our species is the most problematically social, the most self-reflexively social. If other species are indeed social (ants, bees, bats, lions, dolphins, etc.), they are (plausibly) following a long-acquired repertoire of stimuli, needs, responses, etc. to be used within a largely unchanging natural environment, whereas the human species -- endowed with the capacity for self-awareness -- communicates outside such circumscribed domains, concerns and outcomes. Sociability for human beings is essentially an intrinsic problem to

human communication and well-being. It is an ongoing concern. It is at the center of our humanity. It is our species' history.

The human species' greater self-awareness of the problematical nature of communication has been supremely expressed by the philosopher Immanuel Kant (1723-1803). In his seminal text, "Idea of a Universal History with a Cosmopolitan Intent", the Enlightenment thinker addresses the problematical but ultimately creative tensions occurring within the human species (the only species endowed with a moral history intimately linked to the practice and growth of reason – both individual and collective, and which ultimately lifts the human being out of strictly non-moral and non-rational animality), writes the following in the Fourth Thesis of the text in focus, and particularly with respect to the tense, oppositional or conflictual nature which is part of the human communicative act:

By "antagonism" I mean the unsocial sociability of men, i.e., their propensity to enter into society, bound together with a mutual opposition which constantly threatens to break up the society. Man has an inclination to associate with others, because in society he feels himself to be more than man, i.e., as more than the developed form of his natural capacities. But he also has a strong propensity to isolate himself from others, because he finds in himself at the same time the unsocial characteristic of wishing to have everything go according to his own wish. Thus he expects opposition on all sides because, in knowing himself, he knows that he, on his own part, is inclined to oppose others. This opposition it is which awakens all his powers, brings him to conquer his inclination to laziness and, propelled by vainglory, lust for power, and avarice, to achieve a rank among his fellows whom he cannot tolerate but from whom he cannot withdraw. Thus are taken the first true steps from barbarism to culture, which consists in the social worth of man; thence gradually develop all talents, and taste is refined; through continued enlightenment the beginnings are laid for a way of thought which can in time convert the coarse, natural disposition for moral discrimination into definite practical principles, and thereby change a society of men driven together by their natural feelings into a moral whole. Without those in themselves unamiable characteristics of unsociability from whence opposition springs-characteristics each man must find in his own selfish pretensions-all talents would remain hidden, unborn in an Arcadian shepherd's life, with all its concord, contentment, and mutual affection. Men, good-natured as the sheep they herd, would hardly reach a higher worth than their beasts; they would not fill the empty place in creation by achieving their end, which is rational nature. Thanks be to Nature, then, for the incompatibility, for heartless competitive vanity, for the insatiable desire to possess and to rule! Without them, all the excellent natural capacities of humanity would forever sleep, undeveloped. Man wishes concord; but Nature knows better what is good for the race; she wills discord. He wishes to live comfortably and pleasantly; Nature wills that he should be plunged from sloth and passive contentment into labor and trouble, in order that he may find means of extricating himself from them. The natural urges to this, the sources of unsociableness and mutual opposition from which so many evils arise, drive men to new exertions of their forces and thus to the manifold development of their

capacities. They thereby perhaps show the ordering of a wise Creator and not the hand of an evil spirit, who bungled in his great work or spoiled it out of envy [11].

Thus, in light of Kant's thesis, we become human, not *despite* conflict but, at least, initially, *because* of our species' "unsocial sociability". However, it is an unsociability that comes with a moral task and moral finality as well as a rational purposiveness: the total humanisation of the human animal.

Many scientists believe all behaviours in our family have influenced, that is, create affective bonds in us since our birth or, perhaps, even during our mother's pregnancy. For example, how our mother treated us during our childhood, all the hugs, kisses and punishments have had their personal influences on us. Also, there are many unrelated events in the universe that can affect our lives unexpectedly. The American sociologist and physician Dr. Nicholas Christakis (b. 1962), known for his research on social networks and on the socioeconomic and biosocial determinants of behavior, health and longevity, provides us with a pertinent example by way of the following story he recounts [12].

The story begins 20 years ago when he was a hospice doctor at the University of Chicago and was taking care of people who were dying. He regularly witnessed what happened to individuals and their relatives over the course of the patient's terminal illness. He was taking care of one special patient, a woman who was dying of dementia, and she was being cared for by her daughter. The daughter was exhausted from caring for her mother, and the daughter's husband was also sick from his wife's exhaustion. He found out accidentally by a random phone call that the husband's friend was depressed about what was happening to his friend. Christakis realised that this was a case of a man having an experience indirectly influenced (mirror-like) by people interacting with him only at a considerable social distance.

Another example could be the case of the "obesity epidemic".

Nicholas Christakis and James Fowler (b. 1970), an American Social scientist specializing in social networks, cooperation political participation and geopolitics, have carried out pioneer research concerning obesity, specifically, whether obesity is epidemic and can, in fact, spread from person to person.

They discovered that if a person's friends are obese, the risk of obesity is 45 percent higher for that person. If a person friend's friends are obese, the risk of obesity is 25 percent higher for that person. If a person friend's friend's friend, someone he probably doesn't even know, is obese, the risk of obesity is 10 percent higher for that person. (ref. Table 1)

There were three detectable possibilities regarding this phenomenon:

- Induction: as I increase weight, it induces you to gain weight.
- Homophily: A teenager wears special clothes like another because they share a similar body size.
- Confounding: People share a common exposure to something, like a health club that makes them both lose weight at the same time.

Christakis mapped a human communication network over thirty years by way of categories such as: birthdate, date of death, marriage, divorce, friendships and even defriending patterns. (ref. Figure 1) He has shown that the communication net has a memory and is dynamic. Things flow within the net, and it has a kind of consistency. People die, but their networks and connections do not die, and it has a kind of elasticity which allows it to continue over time.

All these social activities in the described network could be analyzed as living forms. Beside behaviour, a human being has emotions and these emotions are profoundly connected to the corresponding behaviours. When does a human have emotions? Why does a human have a tendency to show his or her emotions? How can people read others emotions and copy them? People close their hands involuntarily or breathe fast when watching a horror movie. What is the reason behind all these reactions?

The missing link can be found in the nature and function of mirror neuron. Neuroscientific research now knows that there exist approximately 100 billion neurons in the adult human brain. Each neuron makes something like 1,000 to 10,000 contacts with other neurons in the brain. But there is a type of neuron that was discovered in the 1980s by the Italian neurophysiologist Giacomo Rizzolatti (b. 1937) at Parma University, Italy. Rizzolatti found a subset of these neurons (around 20 percent of the total number of neurons) which also fire when we look at someone else performing the same action. Thus, mirror neurons fire when I reach and grab something, but they also fire when I watch someone else reaching and grabbing something. It is interesting to note that this neuron is performing *as if adopting the other person's point of view*. In other words, mirror neurons are performing a virtual reality simulation of the other person's action [13].

Now, what is the point of these mirror neurons? For example, they act in processes involving imitation and emulation. Because of this ability of the complex brain, our brain can read other person's point of view. Why is that important? If we look at history and back in time about 75,000 to 100,000 years ago, which coincides with the appearance of *homo sapiens sapiens*, something very significant happened specifically around that time. There occurred then a sudden appearance and rapid spread of certain skills which are unique to human beings. Skills such as the use of fire and tools, the making of shelters, the phenomenon of language itself and the ability to read someone else's mind and interpret that person's behavior together occur at this time [14].

In addition, the Indian neuroscientist Professor Vilayanur Subramanian Ramachandran (b. 1951), professor in the Department of Psychology at the University of California, San Diego, believes that this rapid growth in skills is due to the sudden appearance of a modern mirror neuron system which allowed us to imitate and emulate other people's reactions so that when there was a sudden unexpected discovery by one member of the group, it would spread rapidly, horizontally across the population. Consequently, this made evolution suddenly Lamarckian. It means a child can learn in five minutes how to skin a polar bear and use as clothing, and once it's learned, such an acquired skill spreads in geometric proportion across a population. In the other words, the mirror neuron system taps into the way human beings discover their abilities and actively communicate them to others.

Research has shown that mirror neurons have even more capabilities. For example, if a man watches others being touched or touching something, he will feel it in his own hand. Professor Ramachandran has identified mirror neurons endowed with this capability as "Gandhi neurons". These mirror neurons fire even if an arm has been anaesthetized. In this latter situation, the arm is numb, and no responses from outside are coming in, yet the mirror neurons fire nonetheless. In other words, a human being is connected by his/her neurons to the larger human world [15].

In summary, I understood that each person in the universe can be compared to a node in a gigantic network; this network could be called the human communication network. The change of any node in this network can participate in the transformation of the entire system. By way of our increased understanding of communication networks, with the highly significant presence of mirror neuron systems, we can attain a deeper understanding of human identity itself. The Cambridge dictionary defines "identity" in the following terms: "Who a person is, or the qualities of a person or group that make them different from others". I found two interesting points based on this definition. First, being different means possessing a specific physical and emotional character. Thus, every human on Earth is unique and different, and it is impossible to find two persons that are entirely similar. This relates to the position of a human being in the network: each node is unique. There is no other identical node in the network. Secondly, are these distinct characters inherited or are they acquired as a result of familial and social contexts? Based on human network theory, each node affects other nodes throughout the system. Evidence exists which supports this theoretical premise. Different societies have various influences on humans, both within their cultural bounds and without.

It can be concluded that not only are we affected by direct education from our family and schools, but also at every moment of our life we are under the influence of every human being in the world. Their thoughts and behaviours can change our actions and decisions. Moreover, these thoughts and behaviours form and inform the totality of human identity in a very dynamic way. It means that we do not possess a static identity. Our identities are always changing and developing based on all the events and interconnections found in the human communication network. Put simply and succinctly, each and every event, occurrence, action or even a thought can not only change our life but also contribute to the very transformation of our human identity. More than human beings, we are human "becomings" living on a shared web of a deeply interconnected humanity. In the mirror, we find fragments of this truth: we are fragments of a dynamic whole.

As a very famous Persian poet, Saadi (Persian: سعدی) (1183-1291), writes: [16]

بنی آدم اعضای یکدیگرند
که در آفرینش ز یک گوهرند

چو عضوی به درد آورد روزگار
دگر عضوها را نماند قرار
تو کز محنت دیگران بی غمی
نشاید که نامت نهند آدمی

[Human beings are members of a whole,
In creation of one essence and soul.
If one member is afflicted with pain,
Other members uneasy will remain.

If you have no sympathy for human pain,
The name of human you cannot retain.

Alternative translation:

The children of Adam are limbs of each other
Having been created of one essence.
When the calamity of time afflicts one limb
The other limbs cannot remain at rest.
If you have no sympathy for the troubles of others
You are not worthy to be called by the name of "man".]

4. Experimental design

Glass is a material that can be soft or hard, Transparent or opaque, solid or liquid. It resembles a living creature that you have to be friends with to be able to work with it and understand. Otherwise, it doesn't allow you to come to its world. Glass always has a reaction to your action. I tried to find myself by knowing glass. I tried to have a better understanding of my character and social situation, as well as aspired to master glass and torch technique. The more I could control the glass and its tricks and secrets, the more I deepened in my own character and identity. This journey was like a "Sama dance" (Turkish: *Sema*, Persian and Arabic: سماع *samāʿ*^{un} is a Sufi ceremony performed as dhiker. Sama means "listening", while dhiker means "remembrance". These rituals often include singing, playing instruments, dancing, recitation of poetry and prayers, wearing symbolic attire, and other rituals.) [17] It is a journey which has represented for me both a source of visual contemplation and inner dialogue. Nowadays, this is a journey which has reaffirmed itself as a Master's degree student at Vicarte. While I was trying to master glass, I tried to find my spiritual truth as well.

My position in this artistic project is somehow connected with reflective practice. Reflective practice is the capability to reflect on a performance so as to involve in the process of constant education [18]. We have to understand that deliberate reflection on experience is essential as there is no promise that experiencing alone leads to effective learning [19]. The growing concern in the mixture of theory and practice (the cyclic pattern of experience and the deliberate employment of lessons acquired from practice) is the center of reflective practice development. Since the 1970s, there has been an increasing research and focus on experiential education and the development and application of reflective practice. Terry Borton popularized a simple learning cycle composed of three questions which ask the practitioner: What, So what, and Now what? By this analysis, a summary of a condition is given which then leads into the analysis of the condition and the structure of data that has been acquired through the experience. Afterwards, practitioners reflect on ways in which they can personally improve the consequences of their response to the experience [20].

As a student, I felt that it is essential to be engaged in reflective practice. It is proved that adding reflection to the learning process encourages the critical reflection and decision making needed for connected training and improvement [21]. More, when students are involved in reflection practice process, they are considering how their activity meets established guidelines; they examine the effectiveness of their attempts and plan for improvement [21]. I will explain later how all my artistic and academic experiences formed my learning process and developed my artworks and more improved my personality and identity.

There are several arguments about reflective practices in art and designs beside scientific point of reflective practice. Christopher Frayling demonstrated that the procedure of doing scientific research is like designing. Furthermore, He argued that research like writing, doing science, designing, and presenting art are all practices which can be settled in a communicative, technical, and cultural circumstances [22].

Fiona J. Doloughan explained very well how these debates exist in academic institutes. For example, the new argument of UK Council for Graduate Education, recognizing the necessity to distinguish

between delivering of works for a doctorate of science and an artistic exhibition. She tried to reflect problems and possibilities of research in an academic context in the creative arts [23].

Anne Douglas [24] argued that the current concept of "the artist" as well as its values set in this profession has been challenged and doubted by new arguments in Fine art and design researches and simultaneously confronted the wider academic research community and increased anticipations of a recognizable "Science". She described that the final aim of formal research is to commit to a shared body of knowledge, then formal research approaches within Fine Art need to engage and ultimately notify educational and professional practice as part of the same society. Totally, the current way of research in Science and Technology over the past century and a half has set out to achieve reliable processes of reproduction, which establish industrial culture. However, Fine Art and Design research is located in a post-industrial and different culture and is directed to different but related complicated cultural resources. Therefore, there is a correspondingly various set of functions for research in Art and Design which is developing rather than established.

Reflexive practice is a way to show my other work process. So people can understand these experiences and I can share many aspects of my personal journey.

Working with glass and mirror took me to search other artists works and statements; Particularly, those who shared the same technique, like Monir shahroudy farmanfarmaian (Persian: منیر شاهرودی فرمانفرمائیان; born 1924) or those whose working subjects were close to my artistic research subject, like Danial Rozin (born 1961). I also inspired by the different and unique way an artist looked at mirros like Ron Gilad (born 1972).

"Identity" was the first topic in this journey that gained my attention in this inquiry and the subject of my first exhibition in the library of FCT, Universidade Nova de Lisboa (ref. Figure 2 and 3). My goal in that show was to present aspects of my character as an Eastern and Iranian woman. In the second year in Vicarte, I decided to focus more on studying glass and human interconnection in diverse situations. At the end of the second year, various glass torch works had been made based on my personal exploration of network and identity (ref. Figure 4, 5, 6 and 7).

I chose the `reflexion´ topic for my final exhibition at the City Museum of Almada, in the summer of 2016. Throughout my life, various reflections have inspired me to create my artworks.

In this exhibition, Islamic-Iranian mirror mosaic architecture was one of the primary inspiration points to create the artworks. The Emam Reza holy shrine in Mashhad (ref. Figure 8) and Shahecheragh in Shiraz are two great samples of Iranian-Islamic architecture that use mirror mosaic in a religious context. The Golestan Palace in Tehran is another example in a non-religious context.

I was born in Mashhad, a city that has one of the largest and most complex mosques in the world, i.e., the Holy shrine of Imam Reza. Throughout my childhood, I frequently visited this holy shrine.

One of the main features of the holy shrine is massive tile (Moaragh tile) mosaic handcraft and mirror mosaic handcraft. There were always hundreds of thousands of people coming to the shrine to pray and plead and the broken reflection of lights and people in the mirrors were catching my eyes all the times. Mirror is a tool we use daily to check our appearances, mostly to check our faces. A face is the first part of our body which is in great relation to our identity. even our passports is based on our facial appearances. When people look into a series of broken mirrors, their reflection will be broken as well. When changing viewing angles, a face, the symbol of human identity will change completely. Since the ceilings of holy shrine are not flat and are very complex and covered with mirrors, there are always numerous faces that are broken and mixed together, thereby suggesting a united or unified reality.

There are three critical elements in Iranian-Islamic architecture. These are light, water and the mirror which are deeply linked to Persian culture. Light is a symbol of God in the Zoroastrian religion which was the ancient religion of the Persian empire. Fire is the central symbol of Zoroastrians. This fire should always shine as it represents enlightenment against the darkness or evil.

Also, in Islam, God has been recognized as a kind of light as Quran said. *"Allah is the Light of the heavens and the earth. The example of His light is like a niche within which is a lamp, the lamp is within glass, the glass as if it were a pearly [white] star lit from [the oil of] a blessed olive tree, neither of the east nor of the west, whose oil would almost glow even if untouched by fire. Light upon light. Allah guides to His light whom He wills. And Allah presents examples for the people, and Allah is Knowing of all things."* [25]

Water as a symbol of purity, fluency and the heavenly always exists in the center of mosque's yard, in the vast shallow pool, like a big mirror that connects the reflection of mosque and sky in a frame. From my point of view, each material has its own character so their reflections will be unique as well.

Mirror, glass, plexiglass and silver leaf were my primary materials I used in my final exhibition (ref. Figure 9 and 12)

This exhibition contained two main pieces. A distributed pattern on the floor and walls accompanied these two pieces.

Piece number 1: This piece was built using mirror mosaic technique (ref. Figure 10). The work is comprised of fourteen different small parts. These pieces had the same shape but were following different patterns. All these different pieces could be thought of as individual human beings as all humans have an approximately similar biological and mental structure, but have different thoughts and reflections in the universe. Various material combinations and arrangements, as well as their unique reflections, could be compared to the human being unique identities and affections.

Although there were multiple, unique pieces in this section, ultimately, they form a single piece. Because this single art piece was made of several different patterns set at various angles, each person could see him or herself in different shapes. At the same time, many faces can be broken and mixed within a single

frame. Furthermore, this piece also contained the faces of pedestrians passing by on the nearby street who – despite their interaction with the piece – never knew what was going on in this exhibition.

Although the original mirror-mosaic technique was always employed on the ceiling of palaces and mosques (to recall the power of light and the spiritual world as well as to show the greatness of God or a kingdom), I put the piece on the ground in order to suggest to the spectator the idea that the reflection of our moves are near and intimate to us, not far away from us.

Piece number 2: was composed of ten parts with the same shape, but several different sizes (ref. Figure 13). All these parts were made of plexiglass and the surfaces of all these parts were heated and deformed. The reflection of these pieces was not a clear image but very distorted. As mentioned before, most holy places in Iran have shallow pools in order to reflect images. The surface of these pools always deforms people's reflections, twists and breaks reflections or even duplicates them. I was inspired by this composition and reproduced it with my artistic interpretation.

This piece was installed on the wall just as with a normal mirror.

People use mirrors to check themselves every day, at home, in offices or even in elevators. No one checks his or her face very deeply but rather in a fairly very rapid and superficial manner. By deforming the surface of this piece, I have aimed to connect people with themselves to encourage a mood of deeper introspection and observation regarding their faces through these diffracted images. It should be noted that a truer image of our character may be something much more inward or internal, not as it is made visible by ordinary wall mirrors.

Patterns: The distributed patterns on the floor and walls was made of silverish tape. These patterns were direct influences of my earlier artworks. I tried to draw a painting in this environment by using these tapes. I avoided designing the pattern, and all these works have been created without lengthy premeditation.

5. Conclusion

For thousands of years, the human world has been developing by way of human interconnections that we simply refer to as communication. Throughout the history of humankind, human dependency on the complex web of communication acts, expressive media and communicative events has exponentially increased. With the contemporary intensification of communication resulting from the profound transformation of technological capabilities, the earlier time to discover others' experiences has been greatly reduced. In other words, the spatial dimension associated with communication has nowadays been relatively abandoned. Spatial distance no longer severely hinders or delays the communicative event between individuals and peoples.

Social networks are valuable and precious. They can be assumed as our social capital. We are embedded in social networks. The power of these networks lies in their structures and not just in the individuals present within them. There is a good example in nature relating to graphite and diamond (ref. Figure 14) which may serve as an analogy to the nature of networks. Both graphite and diamond are materials which are made of carbon atoms, but the distinct interconnections of atoms in each material have determined their radically distinctive nature [26]. The life experiences of humans in the world greatly depend on these social structures, or networks, and on where each person and member of these structures lies in the total network, as well as on how she or he makes specific connections. As mentioned above, the foundation of our identity and character organises itself by way of the influences, bonds and affections we create in connection with the multiple personal, cultural and educational environments in which we dwell.

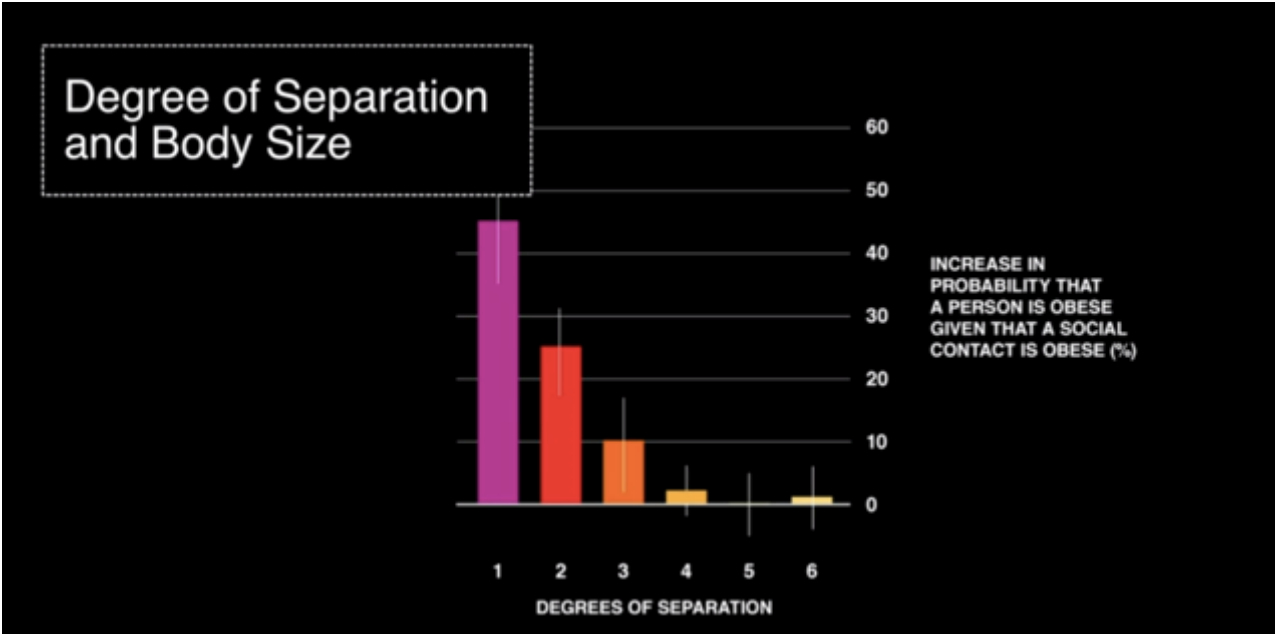
I believe that diversity of perspective will increase each person's level of wisdom and understanding. By talking with and listening to other people (including their ideas), we have the opportunity to gradually mature in terms of character, hence, this interplay of affecting others and being affected by others will continue with no foreseeable end. In my point of view, conflict in the world occurs because the human species has not yet understood or evolved out of Kant's "social unsociability" state, i.e., out of non-moral nature and non-rational animality. Such evolution in terms of communication, identity and (self-)reflection, or (self-)revelation, grows out of our ability to listen to other voices and opinions. To communicate means to embrace the responsibility of interpreting, as best as one can, the messages emitted by others. *We are the web we weave*. Our history is the history of our relative ability to interpret otherness as an integral part of ourselves. The act of communication is a fateful one and an unpredictable one: to send a message means to create a multiplicity of interpretative paths with real outcomes. The virtual space created between the messenger and the individual or group which receives the message is highly sensitive, unstable, and subject to many forms of distortion. Consequently, each communicative act contributes – as an artwork does, or a philosophical premise, or a scientific theory and, ultimately, as a part of the greater human community – to the restoration and renewal or, on the contrary, to the destruction and diminishment of the project of humanity itself.

My future intention as a human being and artist is to continue to grow in (personal-cosmopolitan and artistic-scientific) self-awareness, to observe and to understand and to communicate with and learn

from. My hope is that my future experiences and explorations will result in new artistic works and exhibits. I aim to be ever more open to dialogue and continue to create identity through difference, the cosmopolitan through the specific, the imaginative through the conceptual (and vice-versa) in order to create artworks which portray in all their complexity the multiple perspectives which have created the human world and which challenge the human community.

6. Figures and Tables

Table 1. Obesity probability based on degrees of separation



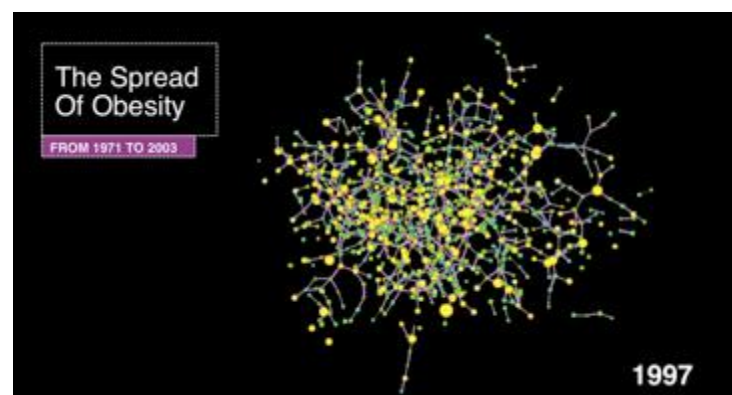
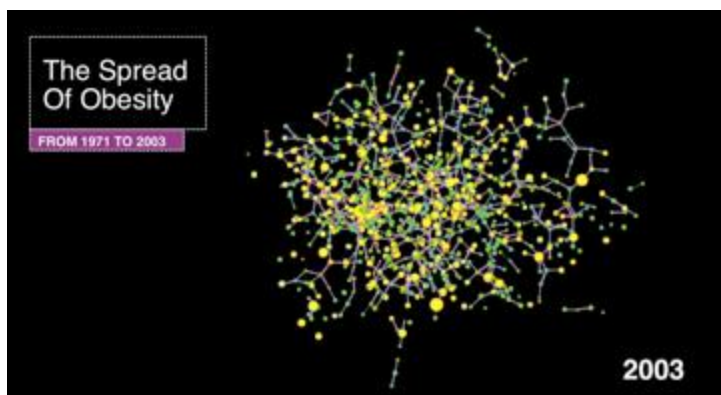
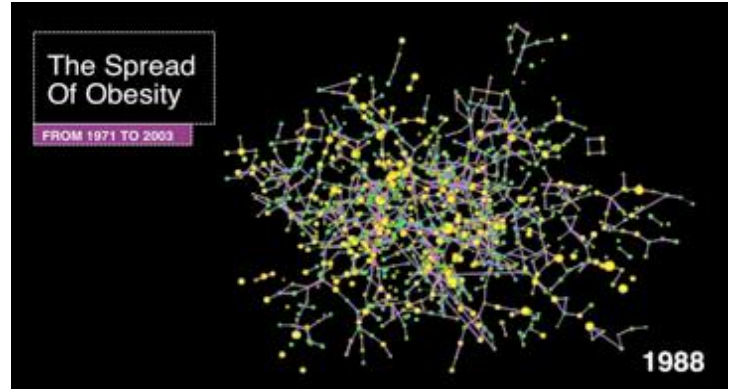
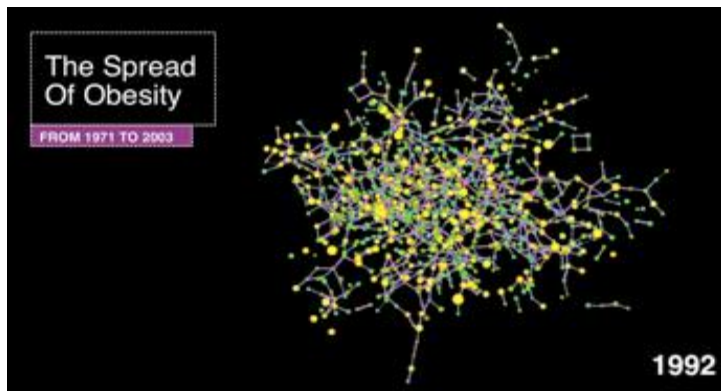
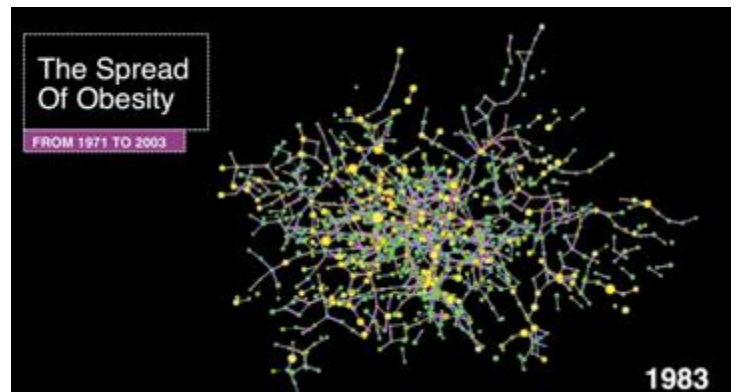
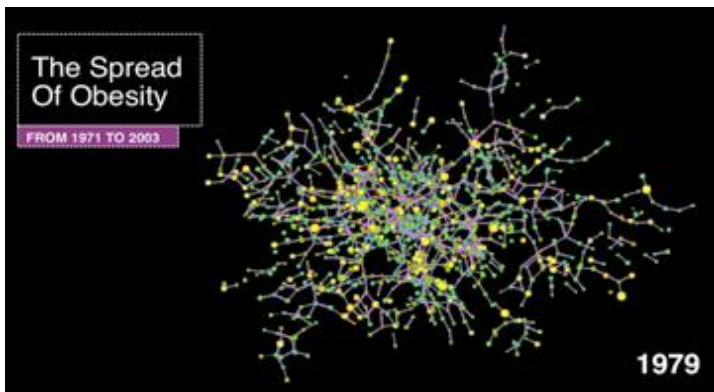
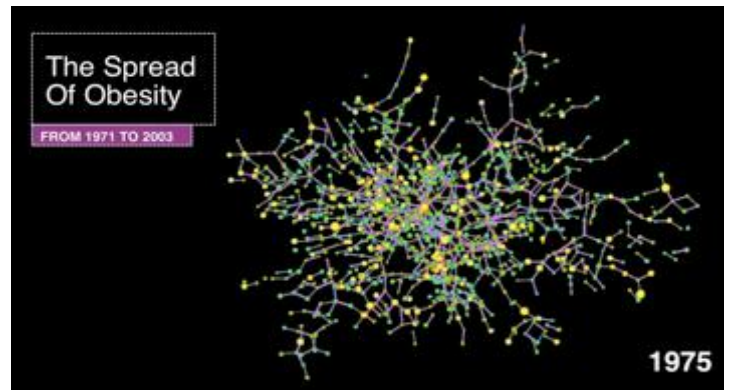
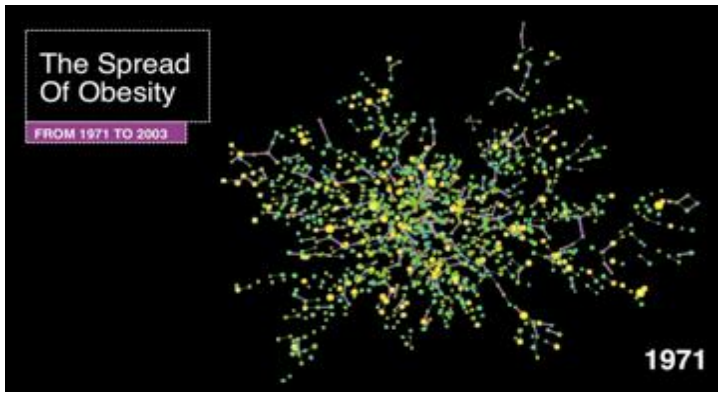


Figure 1. human's communication net through 30 years in eight frames



Figure 2. Identity

Solo exhibition, Library room studio, FCT/UNL, Caparica, Portugal, 2014.



Figure 3. Identity

Solo exhibition, Library room studio, FCT/UNL, Caparica, Portugal, 2014.



Figure 4. WE

2014, Borosilicate glass, 20cm.35cm.



Figure 5. Connection

2014, Borosilicate glass, 35cm.35cm.40cm

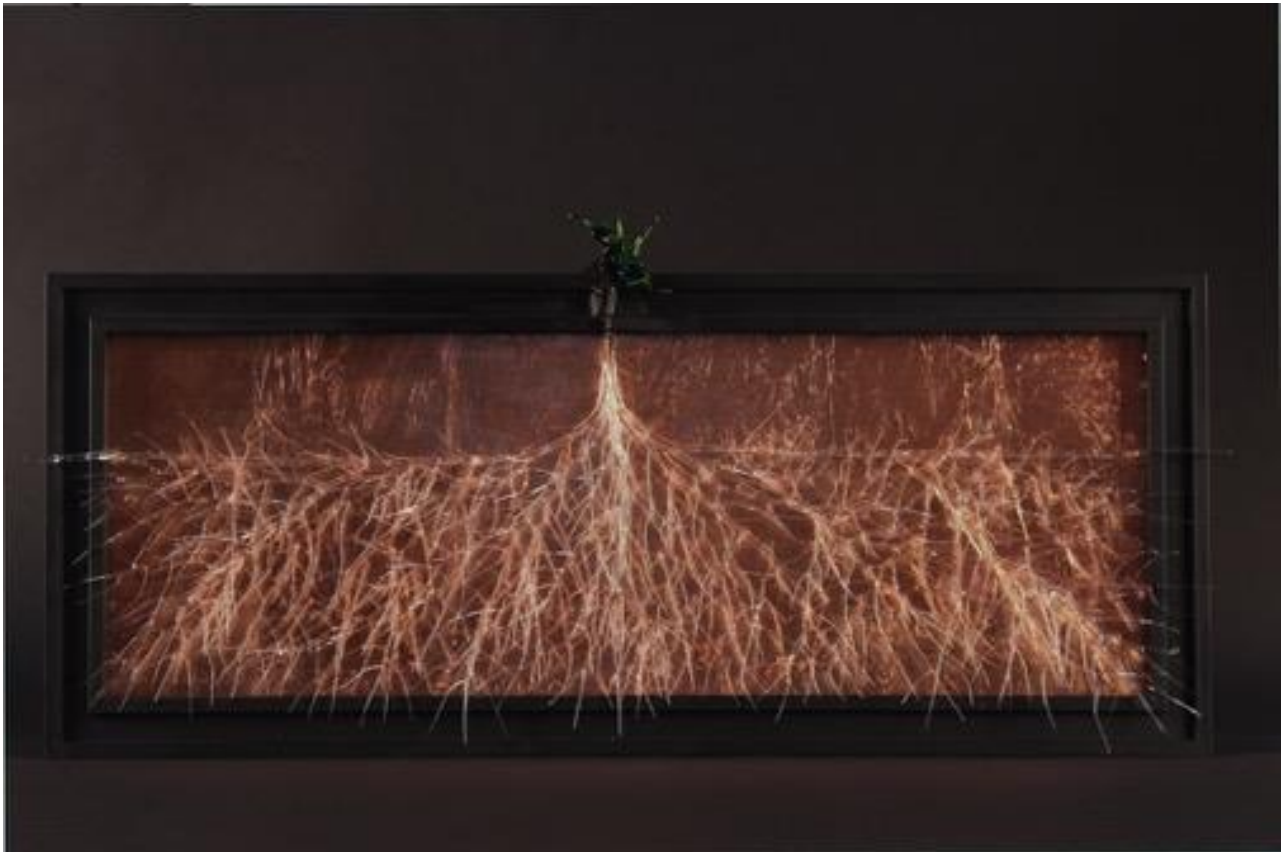


Figure 6. Revolution

2015, Borosilicate glass Soda lime glass copper leaf, 80cm.39cm

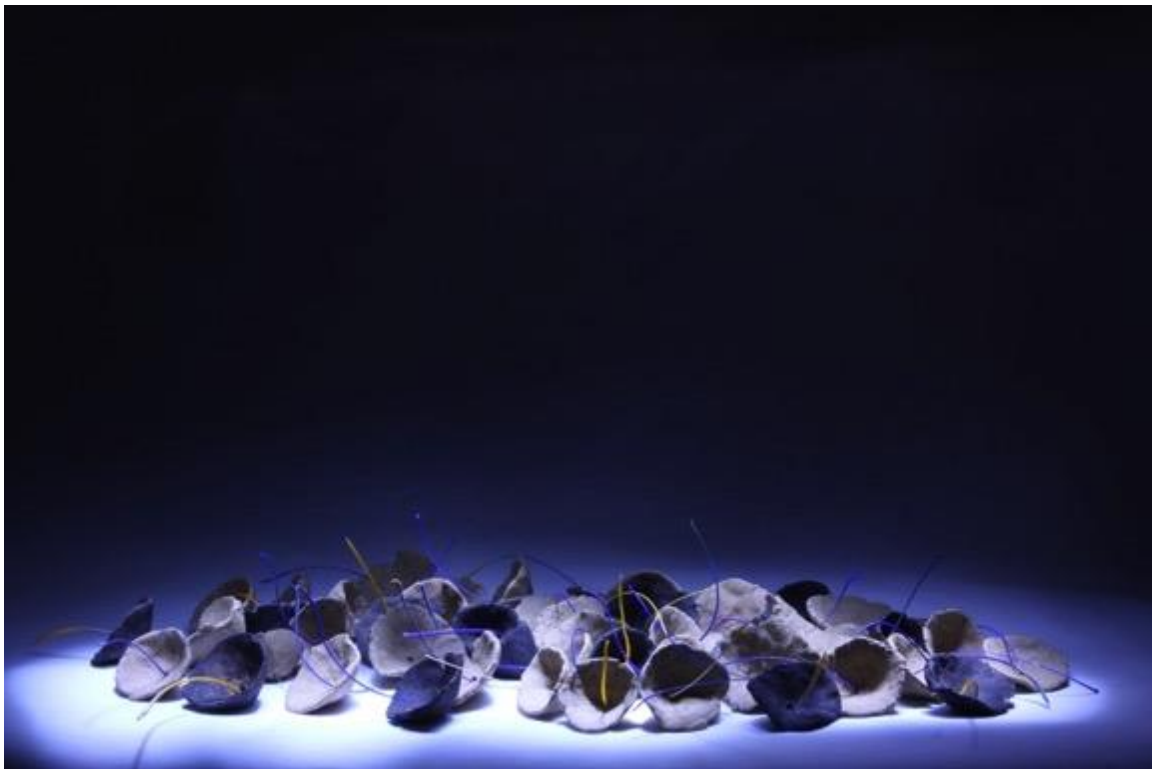


Figure 7. Colony

2015, soda lime glass, ceramic,50cm.20cm



Figure 8. Imam Reza shrine, Mashhad, Iran

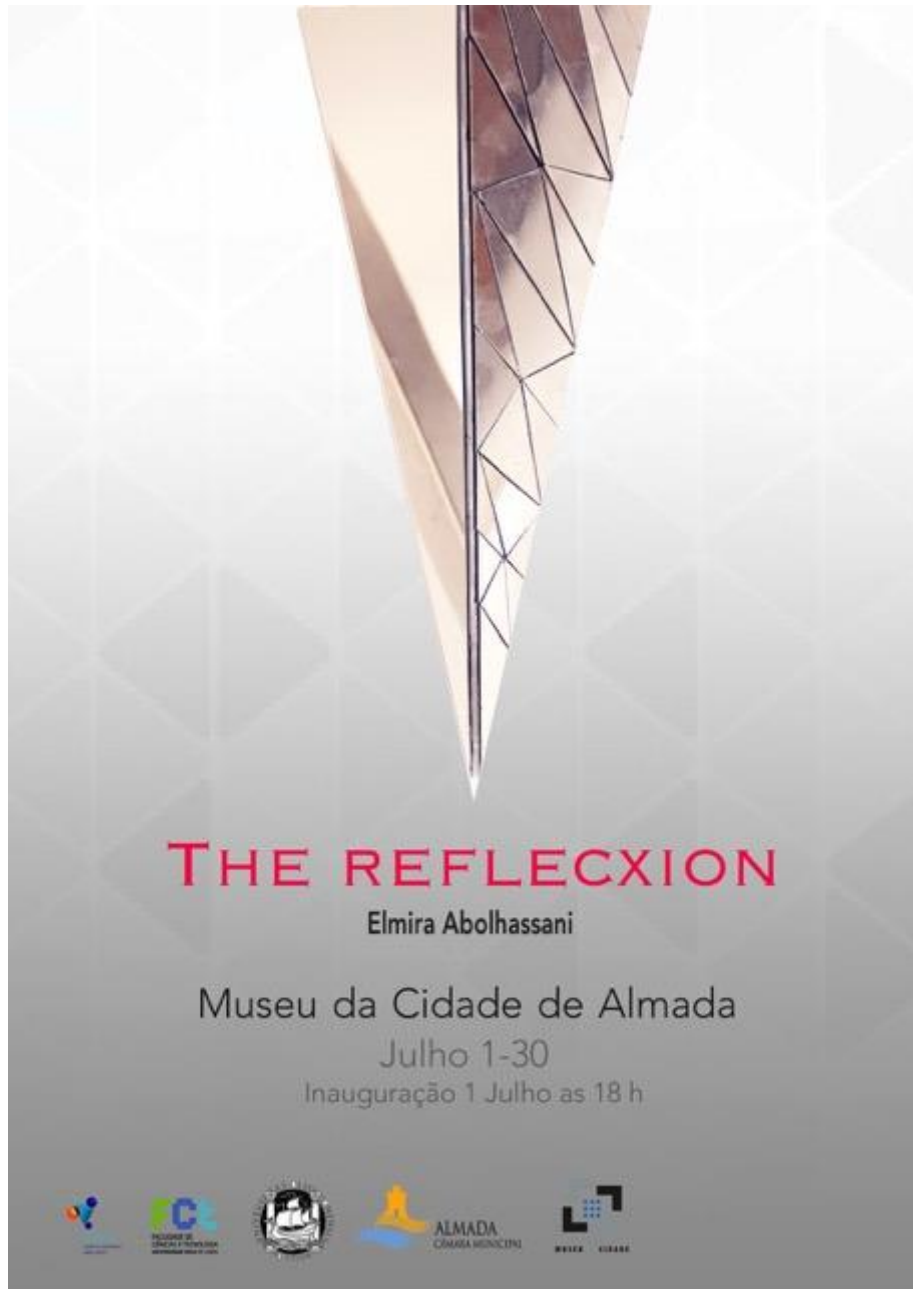


Figure 9. The Reflexion

2016, Solo exhibition, Almada, Portugal



Figure 10. Piece No.1

2016, Mirror, glass, plexiglass and silver leaf, 120cm.150cm.



Figure 11. Different reflections through the main pieces



Figure 12. Four different views of *The Reflexion* solo exhibition

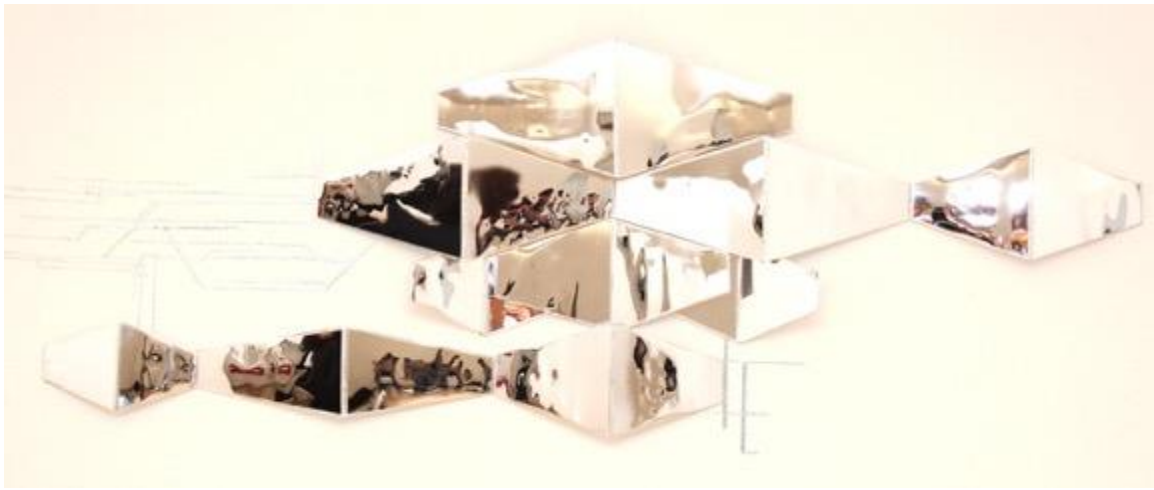


Figure 13. Piece No. 2
2016, plaxiglass, 180cm.74cm.

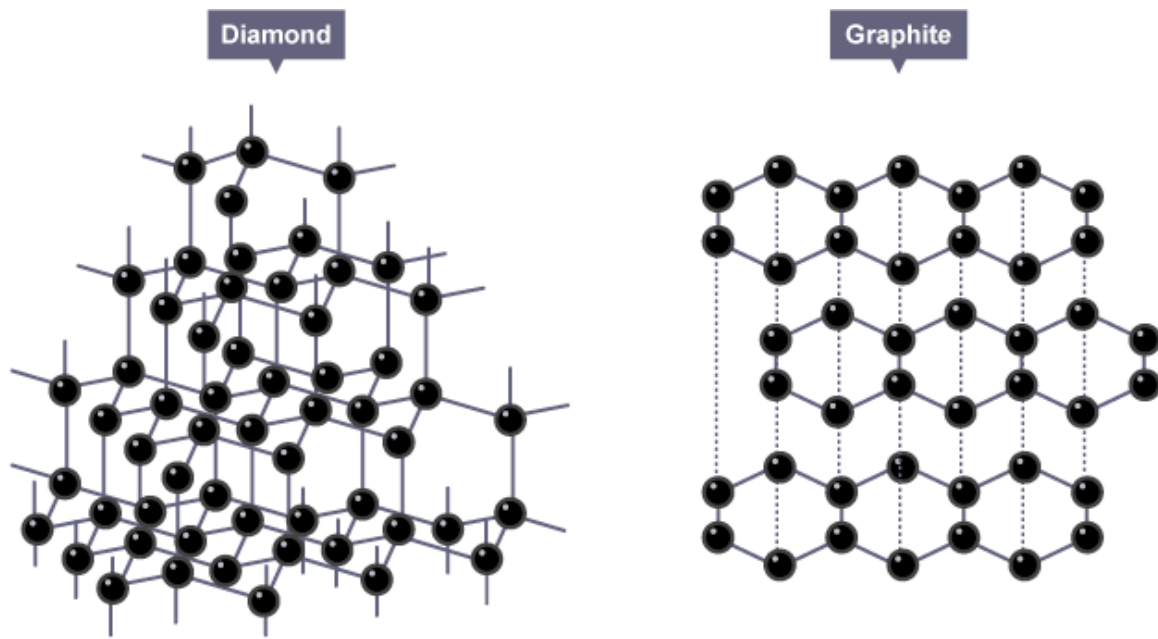


Figure 14. diamond atomic structure

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