àisthesis

Discovering art with all the senses

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Handy Signs, the LIS assistant at your fingertips. No barriers between deaf and hearing people

by Emanuele Chiusaroli and Laura De Negri

LIS, Italian Sign Language, is a complete language with its own grammar, syntax and lexicon. LIS was produced by the Deaf community, has different origins, and represents a very rich cultural and linguistic heritage. Sign Languages have ancient roots and developed separately from spoken languages: they have always existed, traces can be found in Spanish and French writings and confirmation of this assertion can be found in the United States with William Stokoe1[1].

In Italy, its diffusion is linked to the history of the Deaf community (ref. Virginia Volterra), through special deaf institutes and families, education, institutions and associations (Ente Nazionale dei Sordi, Europe Union Deaf, World Federation Deaf), and thanks to the battles for the recognition of human and linguistic rights of Deaf people starting from the Declaration of Human Rights and the Declaration of the Rights of Persons with Disabilities.

LIS is composed of eight manual and non-manual parameters:

- configuration: a shape assumed by one or two hands
- movement: dynamic execution of a configuration
- place: space where the sign is performed
- orientation: dependent on the palm of the hand
- gaze: visual and/or local references
- facial expression: composed of impersonations and tones
- labialization: divided into images of borrowed words and special oral compositions
- torso posture: to indicate conceptual and temporal spaces

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[1] American linguist famous for his studies on American Sign Language (ASL) and for his comparison between ASL and spoken language.

A living language

LIS is a visually fascinating language allowing full understanding to anyone who learns it, with the same possibility of responding "conceptually": in fact, the expressive and fluid signs are both iconic and systematic or arbitrary.

Supporting the promotion of sign language is important for the Deaf in order to promote the development of a more inclusive and accessible society for all, including hearing people. In fact, it would allow them an expressive flexibility also based on conceptual schemes rather than on single words: LIS gives the possibility of grasping in depth the details and emotional states contained in speech or narration. Behind this language, there is also the Deaf Community which uses and promotes it, for the rights of communication and inclusive citizenship, and the Deaf Culture which reflects the values and traditions in common between them, recalling many sociological aspects of "Deafhood" which, according to the definition of Paddy Ladd2[2], can be defined as "the state of being deaf", consciously deaf, recognized even from outside

Often, LIS knowledge and daily use are perceived as a poor Italian knowledge or as the difficulty of communicating with a hearing person: actually, information is communicated and perceived visually through Sign Language, allowing for a more immediate conceptual understanding. Compared to Italian, which is a "sequential" spoken language, sign language is instead a multimodal channel that makes communication expressive and receptive through the natural modes of visual expression.

The ideal model of "accessibility" for deaf people varies from person to person: LIS/Italian interpretation services, subtitling and transcriptions, more inclusive websites and awareness courses aimed at everyone but especially at hearing people. On the accessibility front in recent years, significant progress has been made but there is still a lot to do, if we consider that LIS was recognized as an

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2   author of "Understanding Deaf Culture - In Search of Deafhood" where he explains the difference between deafness understood as a pathology from a medical point of view and deafness understood from a cultural point of view.

official language of the Italian Republic only in 2021 and qualified LIS personnel (LIS interpreters, communication assistants and educators) are still lacking both in the private sector and in the Public Administration, where legislation imposes legal obligations of "physical, sensorial and digital" accessibility for all services aimed at the public and towards all citizens, in particular for the most vulnerable categories.

In the vast majority of situations of service providing to citizens/users, both on the private front (Banks, Post Offices, commercial establishments) and on the PA front, there is a total lack of adequate solutions for communicating with a deaf person, and even fewer are there LIS interpretation services, despite national, European and international recommendations; this situation does not allow the full autonomy of the deaf citizen/user in using services for themselves and more generally in their relationship with the "world" of hearing people.

Handy Signs, the LIS assistant at your fingertips

In this context, Handy Signs has been made available. It is the first digital app that translates LIS into written and spoken Italian thanks to Artificial Intelligence, improving the accessibility to services for deaf citizens and facilitating communication between deaf and hearing people.

The idea for Handy Signs was born more than ten years ago when Emanuele Chiusaroli co-founded E-lisir, one of the first startups providing online LIS video-interpreting services. Thanks to that experience, Emanuele came into contact with the Deaf community of Rome and began to be passionate about the themes of Sign Language and visual communication: the almost "visionary" intuition, for the state of technology in 2014, consist of creating an accessibility service to LIS not through "human" interpreters but through Artificial Intelligence. Then in 2019, the meeting with Laura De Negri, Flavio Marsili and Giuseppe Soccodato gave a new impetus to the project and with the progress of AI in the field of image recognition/computer vision, it was possible to create the first prototype and validate the technological feasibility of the solution.

The "Handy Signs User eXperience" was designed with the help of the deaf community itself: in short, when a deaf person "speaks using LIS signs" in LIS in front of the camera of a phone or tablet, the application recognizes the signs and translates them in real time into Italian via subtitles on the display and "voice" reproduced by the speaker. Handy Signs "speaks" for the deaf person. Vice versa, when the hearing person speaks, the dialogue is transcribed into subtitles on the display, in this way, the app creates a more inclusive and immediate two-way communication, putting both the deaf person and the hearing interlocutor in their comfort zone.

Handy Signs is on market as SaaS for Companies and Public Administrations that intend to improve the accessibility and inclusivity of their services and by 2025 it will be available for everyone, deaf and hearing people as an App on the main digital stores and on the website www.handysigns.it. The first interested organizations were banks, for the accessibility of financial advice, and Healthcare to facilitate understanding between the doctor and the deaf patient; immediately after, an interest in the application emerged in the museum and cultural sector in order to make more accessible ticketing and reception services and, above all, to improve the comprehension of explanations by deaf visitors and facilitate communication with museum educators and tourist guides.

No one left behind

And what does the future hold? It seems rhetorical arguing that the best is yet to come, but for a moment let's look at some objective facts, at least on three dimensions: legislation, sustainability and technology.

Following the recognition of LIS in 2021, new regulations have been promulgated (including the DL-Legislative Decree no. 222 of 12/13/2023) with the aim to implement the rights to accessibility and inclusion for all categories of citizens, not just the disabled.

On the sustainability front, the SFDR "Sustainable Finance Disclosure Regulation" is a milestone for the integration of ESG (Environment, Social, Governance)

objectives within the Company Sustainability Balance sheets and it is destined progressively to extend from public entities to all companies.

Finally, as regards Artificial Intelligence, after the inevitable enthusiasm for the enormous opportunities offered by Large Language Models (LLM or Transformer as chatGPT), and perhaps also thanks to the knock-on effect created by those technologies, new more "vertical" Machine Learning models are gaining ground, focused on specific use cases and based on certified and reliable data, collected and processed in compliance with EU data protection rules.

Putting these three macro-trends together, we can be optimistic about a future in which technology will be at the service of human beings, and not vice versa, building an increasingly accessible and inclusive society where, finally, no one is left behind.

A multisensory journey into Kandinskij's painting

by Anna Gioia, researcher and teacher of art and scenography

I am standing in line, blindfolded, with my right hand on the shoulder of the person in front of me. A voice gently guides me on what to do, it reassures me, I am in a protected place with expert people I can trust. I am in a museum and I am about to live a deeply enriching experience: the immersion in an unknown world for me, but where blind people are immersed every day. A world where a myriad of sensations, like hearing the voices of passers-by, the noise of traffic, the smell of freshly baked bread describe the characteristics of places providing a well-defined physiognomy to blind people.

Feeling the beauty of art by touch, perceiving the shape, the toughness, every small variation of matter, enjoying, in the silence of the room, the sound of my fingers touching them; being guided in the exploration of the works makes concrete the emptiness that surrounds me. Those sensations make you reflect about the perception of the world by those who are forced to manage reality through different methods. This is an "exhibition in the dark" organized by the Museo Tattile Statale Omero of Ancona and it is exactly from these small anxieties that the idea and the desire of investigating, deepening the theme of tactile perception, and not only in relation to visual disability, guided the design of the multisensory object I talk about in this article.

The multisensory experimentation object identified with the name "Verso l'alto tra tocco e suono" (Upward between touch and sound) is the end of a journey passing through different stations. Investigating visual impairment, declining it towards the world of art allowed me to think outside the box and to design in a creative way but with "method", as said by Bruno Munari a multifaceted artist very attentive to the educational power of art.

A "small" challenge around the concept that if painting is art, art is culture and culture can be taught to everyone, then painting or at least its aesthetic pleasure

can be taught to people with visual impairment. How? Through a multisensory project that borrows a work by Vasilij Kandinskij, entitled "Verso l'alto" (upward), and its poetics that he meticulously describes in his essay "on the spiritual in art".

Between Touch and Sound: on the Spiritual in Art

For Kandinskij (1866 - 1944), art is meant to make our soul resonate, to elevate the spirit of the observer and, for the artist, this is also his social function. In fact, in his essay "On the spiritual in art", he states art is born from the "principle of an inner necessity" or rather it is intimately necessary.

Kandinskij's vision wanted to generate an evocative art, capable of moving away from the observation of reality, approaching the understanding of states of mind. For him in fact, colors are like musical notes that the artist arranges on the canvas/ sheet music for moving the soul of who is in front of the artwork. In this way, painting approaches music and colors approache sounds.

For Kandinskij, art is similar to music and his paintings are a "symphony of colors" where he tries to capture the "inner sound" of the elements, that emotional and spiritual dimension that cannot be expressed in words, because it is not tangible. In a concert in January 1911, the meeting with the music of the Austrian composer Arnold Schönberg was the decisive moment when his art changed and his thoughts took shape. He decided to represent his impressions in a painting destined to become one of his most famous masterpieces: "Impression III: Concerto". This title further underlines how close the bond between art and music was for the artist. Furthermore, struck by Schönberg's "dissonant" compositions, free from pre-established rules, Kandinskij began to write to him giving life to an interesting epistolary relationship.

The relationship between the visible and the invisible

His works are a transmission of forces, a triumph of colors taking on the freest and most varied forms; they are vibrant, abstract and fluidly geometric compositions that try to capture the symphonic experience of his senses. In fact, to understand the interior universe that he wanted to represent, it is necessary, as with music, to

get into total perceptive contact with all the senses. It is an all-encompassing art that connects the "visible" pictorial art with the "invisible" sound.

Through Kandinskij's poetics, I tried to translate one of his works to make it accessible to blind people. The intent is not to associate a sound with color in a universal way, this would be impossible, but to tell through the other senses what Kandinskij saw.

Going beyond simple tactile exploration, a didactic operation of knowledge, for approaching the most sensitive side of his art. We are lucky enough to be able to know his poetics thanks to his writings, to investigate his thought transformed into painting, and so we can try to make tactilely audible what is not visible to everyone. I am talking about the creation of a

 multisensory object with the aim of involving not only the sense of touch but also hearing, so that every point of Kandinskij's work could be three-dimensionally translated and could release a sound reflecting its soul at the simple touch. The aim is not only to return the image of the painting, which could be done with a precise verbalization, but to push those who explore to resonate with it, to tell and produce an experience respecting the artist's poetics.

After a careful analysis of his works and some of his writings, my attention was focused on the work "Verso l'alto" (upward), made in 1929, belonging to a series of paintings of abstract faces. However, only a vague structural allusion remains of the face, characterized by primary forms, such as curves and semicircles combined with horizontal and vertical elements, which is why his choice, for this experiment, was not accidental.

In this work, Kandinskij wants to obtain an energy that propagates upward by hooking the shapes together and balancing them on both sides of a continuous vertical line. In fact, the two constituent parts are in perfect balance on the vertical of the painting. It is the result of simple geometric shapes that compose themselves in a more complex structure, suspended on a vibrant green background, inside a non-existent three-dimensional space. The upper part is composed of a semicircular shape on the left side with orange tones that, sliding along the vertical diameter, exceeds the larger semicircle placed on the right side

invading the space above. The larger semicircle is further divided into two parts: the upper part recalls the tones of blue with a blue dot in the center, the lower part recalls the tones of light and cold red. These shapes, combined with black and red horizontal straight lines, represent a face in profile that delicately rests on the tip of the geometric shapes placed below representing a body with sloping shoulders. The black shape cuts out at the base of the central motif, itis a probable allusion to the initial of Empor, the original title of the painting.

The geometric synthesis of this work can be translated into three dimensions almost immediately. It has well-described geometric shapes that I was able to create through the "Tinkercad" software, designed by Autodesck, and 3D printing and that gave rise to the experimentation of "Verso l'alto tra tocco e suono" (Upward between touch and sound).

The design of this multisensory object involved various aspects, including sounds. In fact, after having created the various elements of the 3D image, I chose the sounds with the instruments that would have to reflect Kandinskij's poetics. Seven instruments for seven colors, as he describes in his aforementioned essay. Seven instruments chosen in the lyrical-symphonic area because with this artist we enter in in the field of lyrical abstraction where green has the sound of the violin, orange of the bell, blue of the flute, cold red of the cello, warm red of the tuba, yellow of the trumpet, purple of the English horn.

At this point, we had to combine the tactile part with the sound part, for this reason the surfaces, originally plastic made, were coated with a conductive material for emitting a sound. The difficulty consisted of finding the right material which could be manipulated manually as the project required. The choice fell on copper sheets with a thickness of 0.5 mm cut with the use of special scissors and finished with iron files and sandpaper to obtain rounded edges and a more opaque surface.

When I had the three-dimensional object, the necessary copper elements and the sounds, I found a way to make them communicate using a very simple technology: the Makey Makey, a kit for creating electrical circuits and the Scratch software for programming.

Then, the whole thing was mounted on a black wooden box measuring 30x20 cm and 3 cm deep, with a hollow interior for hiding the circuit. The choice of the size of the total object was not random, it is an A4 size: in this way, the construction of the mental image can be facilitated by a limited spatial exploration. Furthermore, the activation of the sounds occurs only if the circuit is closed by touching with one hand a copper plate positioned specifically on one side while the other hand is exploring, so a first exploration can also take place without audio.

Currently, the device requires the a laptop, but also a Raspberry could be used, i.e. a small compact computer with speakers connected for the sound, compatible with the Scratch and Makey Makey applications, in order to make the whole thing easier to handle.

Highlighting individual differences for a total communication – even at school

"Verso l'alto tra tocco e suono" ("Upward between touch and sound") is a multisensory object built for blind people, but also for those who want to approach art in an alternative way, putting their sensitivity and sensoriality into play with the aim of paving the way for a broader perception of art. It also tries to respond to an inclusive teaching path in the search for a "diversified" itinerary, "for everyone and each". Its creation by an entire school class could be an opportunity to acquire transversal skills for everyone, responding to the principles of Universal Design for Learning (UDL), which invite teaching curricula towards a multiplicity of means of representing educational contents, for expressing the achieved knowledge and for involving students in learning processes.

This is an object that could be created by a class of a secondary school for a blind student of a first or second level school. The creation and use of this product become a stimulus of knowledge, involving everyone in a virtuous path in search of accessible solutions. The blind student, with his perceptive sensitivity, moreover, could become a fundamental resource for his classmates teaching the importance of the development of the other senses, demonstrating that the world is not only made of light and colors, but also of sounds, tactilely perceptible shapes, smells, flavors. Proximity, contacts, positive attributions, belonging,

sharing of paths would be created through mutual knowledge and recognition and with expectations of development. Therefore, not only the multisensory object itself becomes important, but it's important also the path to arrive at its concrete creation.

Understanding the power and use of other vicarious senses, dormant in a society where sight is the main channel of communication, is what we should push forward for building a space for dialogue between the principle of normality and speciality, defined by Ianes as "special normality". Kandinskij with his works, and above all with his poetics, provides us with the concrete possibility of making it and, with his teachings, the school can become a place where diversities meet, correct and contaminate each other, enhancing their value for the development of an inclusive education.

Knowing diversity, speaking openly about individual differences, would provide us more tools for understanding and communication, tearing down the barriers of prejudice, broadening horizons, building plural educational contexts and solid and fair social belonging, because asking ourselves what kind of education we want to activate also means asking ourselves what kind of society we want to build. Therefore, creativity and art can be a mean to valorize the differences, the many ways of being and expressing oneself, making dialogue, creating opportunities for personal development and democratic participation with the aim of transforming the school, and consequently the society, into a much more inclusive place.

Fundraising, the perfect tool to support our values

By Gianluca Federici, chartered accountant specialized in sustainability economy

Italy is a country **in default**, saved only by Europe.

This is not an exaggerated statement, but what any economist would say comparing birth rates and public debt.

In this context, the old welfare state is forced to anticipate the transition to **community welfare**, where the public effort is supported by the private sector.

Despite the fact that 70% of **consumers** prefer sustainable products, **donations** exceed 6 billion euros, in a few years **bequests without heirs** will reach 8 billion euros and over half of **savers** wants to invest their savings (for a total of approximately 4000 billion) in civil and social development of the country, there is often a lack of projects capable of attracting capital.

Previously, ideal-motivated activities easily struck the sensitivity of the citizen, now rightly, people want to combine ethics with efficiency.

In fact, there are frequent cases where donations or public money have been used in an unwise manner.

How can a public hospital or a school become a sustainable business model improving its social impact?

How to convince a citizen to donate time and money to a museum or an archaeological site?

Fundraising exists for this, it is in fact an economic discipline born for helping non-profit activities that usually operate in the social, environmental, cultural, school, sports, health, religion and politics sectors.

Its founder, Henry Rosso, defined fundraising as "t**he science of the economic sustainability of social causes**". Actually, Fundraising literally means an **increase in capital** both economic and especially human.

This is not only because the signature, the transfer, the active participation are made by a person, but mainly because the donating action is stimulated by a deep human involvement.

So, obviously we must select, communicate and plan the implementation of valid projects, but we often forget **to report** them accurately, penalizing relationships that could become partnerships.

Through the right tools, you can obtain important results: you can start from 2,5,8x1000 (an average of €20 per signature), and then you can engage big donor campaigns, art bonuses, associations, legacies, major events, crowdfunding, social bonds, social venture capital and, above all, corporate fundraising, i.e. "calls to action" focused on companies eager to tie themselves to a serious non-profit interlocutor.

The used **techniques** allow to optimize performance but also to create lasting relationships with donors who seek transparency, real results, reliable reports, but sometimes also a minimum economic and image return. In this context, the cultural sector is very fertile field for fundraising.

Sustainable economy

As a world superpower, Italy has mind-boggling numbers: more than 8,000 libraries, 4,500 museums, 1,800 theaters, 58 UNESCO sites, an army of over 10,000 public employees and over 60,000 non-profit organizations operating in the cultural sector. These data presuppose very high **maintenance and management** costs. The **technological** (digitalization and AI) and **socio-environmental** (17 ESG objectives) changes must be added to the obvious structural problem, all these aspects require further investments.

How can we find the needed resources and participation for providing the necessary continuity to this management? How can we convince the various "cultural bureaucracies" to make a gradual but radical change? To demonstrate that the path is much simpler than expected, we can highlight some case studies about cultural fundraising in Italy.

For example in the corporate sector, Diego Della Valle donated 25 million euros for the restoration of a part of the Colosseum, but only because he found suitable interlocutors and proposals. The Palazzo Madama Museum raised around 100 thousand euros with a **crowdfunding** campaign to bring the D'Azeglio ceramic collection back to Turin, thanks to its excellent database.

Among the structured cases, we can mention the MUST, "MUSeo Territorio Vimecartese (Vimercate in the province of Monza and Brianza, MB). After only 2 years from the beginning of the fundraising process, it has achieved the following results: revenues from commercial activities + 50% compared to 2021. Turnover from rental spaces for events + 53% (2 million euros). Direct fundraising campaigns + 111% (€98,500). Fundraising campaigns through foundations €2,092,000 (private individuals, companies, foundations, public institutions).

Then, if we then want to analyze some data relating to 5x1000, for example, a small non-profit Association, "Amici del Teatro", was able to increase the signatures from 50 to 6,500, bringing the collection from around €1,000 to €142,000 in a few years. Finally, with regard to another instrument by law, "the art bonus", in 2023, , the Municipality of Perugia in 2023 managed to carry out 24 restorations without burdening the municipal budget with a single euro. Equally significant are the cases where a cultural center plays a touristic driving force function by enhancing a location that does not have particular appeal (such as the Museum of Monza, the Egyptian Museum of Benevento).

Professional fundraising produces certain results that soon repay the investment and allow you to improve your image, earnings and **database** but, above all, change your mentality. The State will no longer be able to guarantee pensions, healthcare and obviously not even the support of culture. So, either you soon

enter this mentality as many realities have already done or you can only hope to prolong the agony.

Optimizing the management of our heritage means respecting the role of culture, enhancing its social **function** and highlighting its **usefulness**, aiming to ensure the **survival** of a fundamental asset for the economic and social **development** of the country. Fundraising is the right tool that governance must use to provide ethics to profit and efficiency to non-profit, perfecting the synergy between the three sectors and thus producing the desired **economic sustainability**.

Credits

Aisthesis
Discovering art with all the senses

Supports and publishes studies and research on sensory perception and the accessibility of the cultural heritage.