

Visagism: The Art of Dental Composition

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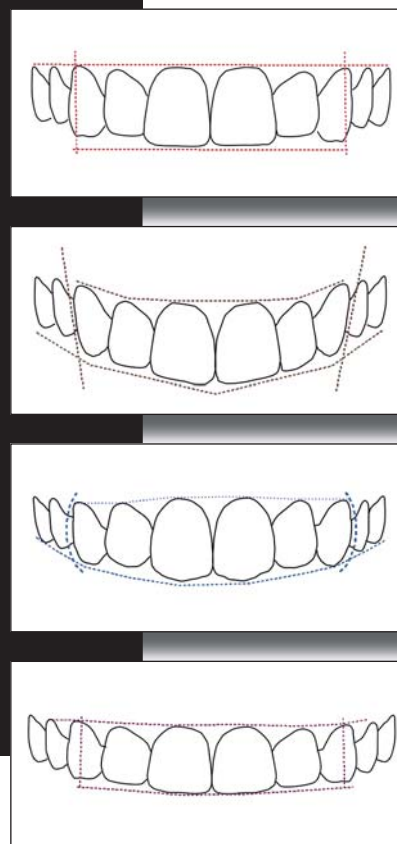
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The constant evolution of dental materials and techniques has made it possible to effectively restore tooth form and function using a minimally invasive approach. However, the final esthetic results may fail to meet the patient's expectations due to disharmony between the smile design and the patient's personality. The patient may feel that the restored teeth do not really "belong" to him or her. Without the proper knowledge, the origin of this disharmony can be difficult to identify.

For decades, dental clinicians have sought to harmonize the shapes of the teeth with the entire face based on parameters such as gender, personality, and age¹⁻⁴;

however, truly successful results have been elusive. The aim of this article is to present a novel concept: Visagism.^{5,6} The Visagism concept helps dental clinicians provide restorations that account not only for esthetics, but also for the psychosocial features of the created image, which affect patients' emotions, sense of identity, behavior, and self-esteem. These factors, in turn, affect how observers react to patients following treatment.

THE CONCEPT OF VISAGISM

Derived from the French *visage*, meaning "face," the concept of Visagism was never precisely defined until it was expanded and developed by the artist Philip Hallawell.^{5,6} Visagism involves the creation of a customized personal image that expresses a person's sense of identity. The method used to apply this concept is derived from the association of the principles of artistic visual language with disciplines such as psychology, neurobiology, anthropology, and sociology. Visagism makes it possible to determine which emotions and personality traits patients wish to express through their appearance and, specific to dentistry, through their

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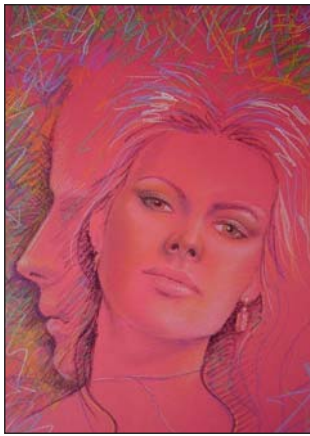


Fig 1 Choleric/strong temperament: determined, objective, explosive, intense, and passionate.

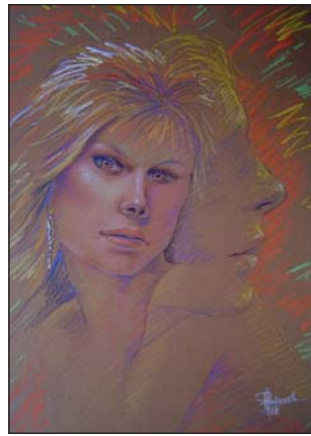


Fig 2 Sanguine/dynamic temperament: extroverted, expansive, communicative, joyful, full of life, and enthusiastic.



Fig 3 Melancholic/sensitive temperament: organized, meticulous, perfectionist, timid, reserved, and with a great capacity to think abstractly.



Fig 4 Phlegmatic/peaceful temperament: diplomatic, pacifist, mystic, and spiritual, but with a tendency to be apathetic and conformist.

smile. With the Visagism concept, clinicians can design a smile that blends the patient's physical appearance, personality, and desires. One of most significant challenges is to uncover these personality traits and desires in order to translate them into natural tooth shapes in psychodentofacial harmony. The achievement of this goal is what we call beauty.

Archetypal Symbols and the Emotional Brain

Carl Jung spent the final years of his life researching different cultures and civilizations. He discovered that certain symbols and images have been used in all cultures with the same meaning. Jung created the term *archetypal symbols* to define these images.⁷

The simplest of these archetypes are geometrical shapes: the square, the triangle, the circle, the lemniscate (figure-eight), and their variations. Primary and secondary colors are also archetypes. Hallawell observed that every visual composition is structured on one or a combination of these shapes and that the lines that form them can also be considered archetypal. These visual elements—lines, shapes, and colors—establish a universal language, regardless of an individual's culture, race, or education.^{5,6}

Jung theorized that this language was part of the subconscious. Although it is not yet known how the

brain recognizes an archetype, recent research has explored how these symbols are processed mentally and how they affect the viewer.⁷ The neuroscientist Joseph LeDoux discovered that the limbic system is not responsible for the creation of emotions, as was commonly assumed. Several autonomous systems are associated with basic survival functions, indicating that the visual thalamus is capable of recognizing archetypes that trigger the systems that generate emotions.⁸ This would explain why an image always provokes an immediate emotional reaction, as observed by many researchers and artists. When an individual observes an image, the emotional brain first perceives it as a combination of lines, shapes, and colors that have specific meanings. Only afterward, once the visual cortex is stimulated, is the image observed as a whole concept.

When the clinician provides personalized treatment using Visagism, an immediate emotional reaction by the patient is evident and can be accompanied by changes in behavior, posture, and even phonetics.

The Temperaments

According to Hippocrates,^{9,10} an individual's personality is formed by a unique combination of four types of temperament: choleric (Fig 1), sanguine (Fig 2), melancholic (Fig 3), and phlegmatic (Fig 4). One or two of these types are generally dominant in relation to the others.



Fig 5 Trapezoidal tooth shape.

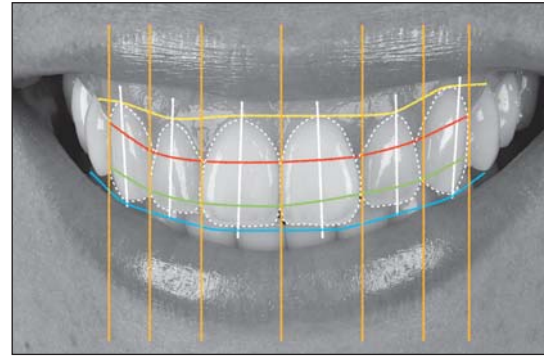


Fig 6 The smile and its configurative lines and forms: incisal plane, tooth axis, gingival zeniths, papillae, incisal embrasures, and tooth shapes proportions.

Clinicians should note, however, that patients will likely feel uncomfortable being classified as melancholic or choleric and may not understand terms such as sanguine and phlegmatic. Therefore, the authors prefer to substitute Hippocrates' original denominations with the terms strong, dynamic, sensitive, and peaceful.

Facial Analysis

By integrating the theory of archetypical symbols with visual elements from the art world, Hallawell attributed meaning to the lines, angles, shapes, and colors that compose objects. Now, all professionals who deal with facial esthetics can apply these elements to their work. The shape of the face in relation to the four temperaments can be described as follows:

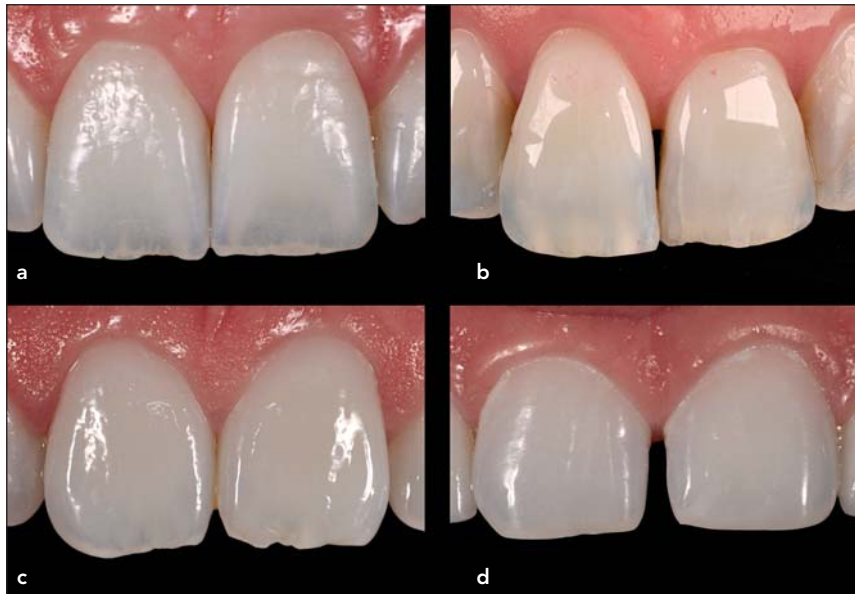
- *Choleric/strong*: This type of individual has a rectangular face formed by well-defined angles, vertical and horizontal lines around the forehead and mouth, and deep-set eyes. Choleric/strong individuals have a personality characterized by strong leadership qualities, decisiveness, daring, and fearlessness.
- *Sanguine/dynamic*: This type of individual has an angular face formed by slanting lines around the eyes and forehead, a prominent nose, and a wide mouth. The sanguine/dynamic individual is very active, communicative, and extroverted.

- *Melancholic/sensitive*: This type of individual has close-set eyes and an oval face with features that are either rounded or formed by thin lines. The melancholic/sensitive personality is characterized by gentleness and a capacity for awareness and abstract thinking.
- *Phlegmatic/peaceful*: This type of individual is gentle, discreet, and diplomatic; he or she has a round or square face, protruding lower lips, and heavy eyelids.

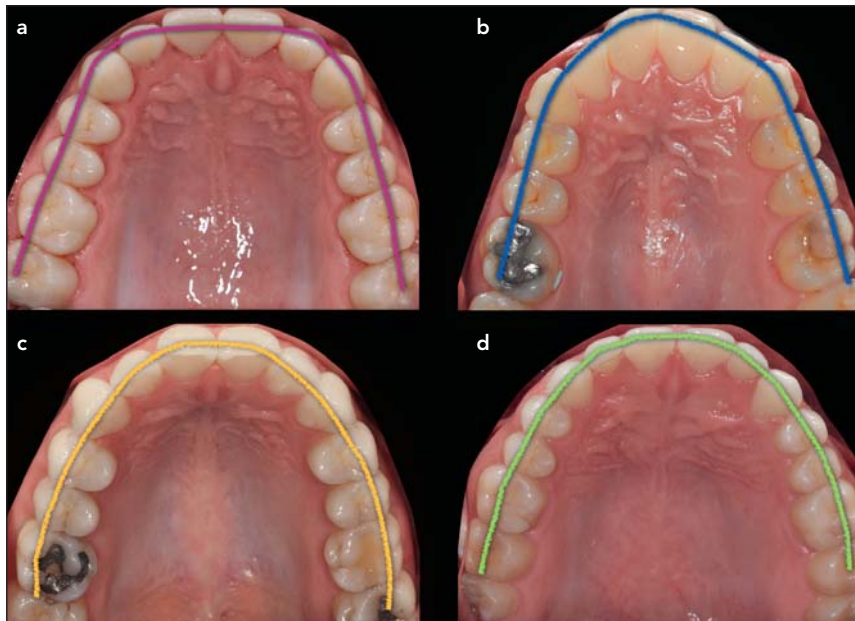
VISAGISM IN DENTISTRY

The shapes of the anterior teeth are defined by the area that reflects light directly forward, ie, the area between the cusps of reflection of mesial, distal, cervical, and incisal light, forming the so-called Pincus silhouette (Fig 5).¹¹⁻¹⁵

When observing maxillary anterior teeth, a number of reference lines should be considered, such as those that unite the gingival zeniths, incisal embrasures, gingival papillae, and incisal plane (Fig 6). These lines are archetypical symbols, which means specific variations in their composition will arouse different emotions in the observer. Clinicians must understand the emotional message behind any smile design, and this aspect should be discussed with the patient before treatment.



Figs 7a to 7d Basic shapes of maxillary central incisors: (a) rectangular, (b) triangular, (c) oval, (d) and square.



Figs 8a to 8d Basic arch forms: (a) rectangular, (b) triangular, (c) oval, and (d) circular.

There are four basic tooth shapes: rectangular, triangular, oval, and square (Fig 7), with some possible variations. Vertical, horizontal, inclined, straight, and curved lines interact in infinite ways to create the diversity of natural tooth shapes. These lines contain their own power of expression and emotional significance, which can be classified as follows:

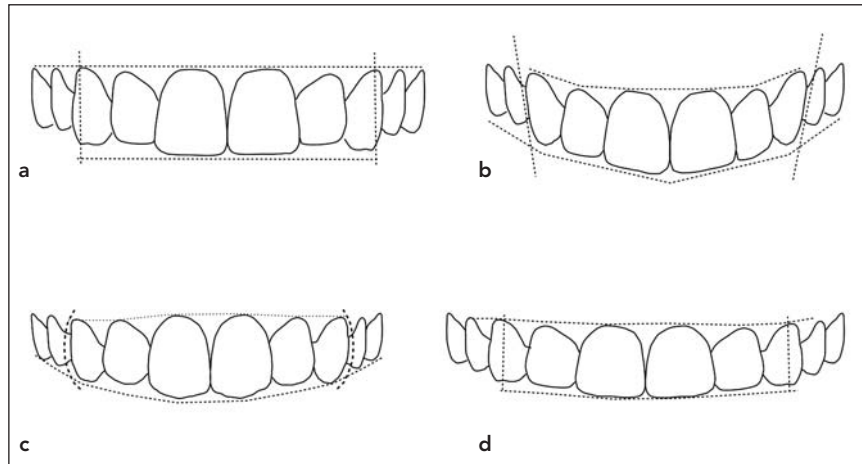
- Vertical straight lines represent strength, power, and masculinity.
- Horizontal straight lines represent the surface on which we are born, live, and die and express equi-

librium, passivity, and tranquility. They can also represent a barrier.

- Inclined straight lines express dynamism, movement, and joy.
- Curved lines represent the gradual transition between two planes (vertical and horizontal) and express gentleness, delicacy, femininity, and sensuality.

The dental arches also follow these basic formats, though it is important to note that variations are frequently encountered (Fig 8).

Figs 9a to 9d Maxillary arches with esthetic designs in relation to the four temperaments: (a) strong, (b) dynamic, (c) sensitive, and (d) peaceful.



Figs 10a to 10d Schematic drawing of maxillary teeth with esthetic designs in relation to the four temperaments: (a) strong, (b) dynamic, (c) sensitive, and (d) peaceful.



Nonverbal Communication

The oral region dominates the lower third of the face and immediately attracts the human eye because it contains both verbal and nonverbal communicative functions. Nonverbal communication, which is the primary issue of study in Visagism, occurs in only a fraction of a second. When the eye focuses on the mouth, the archetypal symbols are instantly registered in the brain and understood unconsciously and emotionally.^{5-8,16}

The maxillary central incisors are the most important dental elements in nonverbal communication because of their prominent position in the mouth.^{7,8,16} The max-

illary lateral incisors are associated with intellectual and emotional aspects of the personality, while the canines express an individual's aggressiveness, ambition, and dynamism. The lips also express important information through their shape, size, thickness, and smile width.

Intraoral Design

The design of the maxillary anterior teeth, the characteristics of the lips, and the form of the dental arch compose a potent nonverbal message. The esthetic dental design in relation to the four temperaments can be categorized as follows (Figs 9 and 10):

- *Choleric/strong*: This design is composed of the maxillary anterior teeth positioned with their long axes perpendicular to the horizontal plane, visually dominant rectangular central incisors, and vertical canine position. The choleric/strong design shows radial symmetry. The connection line of the embrasures is horizontal between the central and lateral incisors, while the connection line of the gingival zeniths from canine to canine is horizontal with the lateral incisors below it. The maxillary arch is predominantly rectangular.
- *Sanguine/dynamic*: This design is composed of the maxillary anterior teeth positioned with their long axes slightly inclined distally, with discreet radial symmetry. The connection line of the zeniths is ascendant or in a zigzag pattern, and the connection lines of the embrasures and the incisal plane are ascendant from the medial line. The central incisors are usually triangular or trapezoidal, and the labial aspect of the canines is straight and inclined palatally. The maxillary arch is predominantly triangular or polygonal.
- *Melancholic/sensitive*: This design is composed of the maxillary anterior teeth with rectilinear or distally inclined long axes, with discreet radial symmetry. The connection lines of the zeniths and embrasures descend from the medial line, creating an inverted incisal plane. The shape of the central incisors is usually oval, while the labial aspect of the canines is curved and inclined medially. The maxillary arch is predominantly oval.
- *Phlegmatic/peaceful*: This design is composed of the maxillary anterior teeth with long axes perpendicular to the horizontal plane, except for the canine, which may be slightly rotated sideways. No group of teeth is dominant. Horizontal symmetry is present, generally with diastemata in a wide arch. The connection line of the gingival zeniths is straight, as is the connection line of the embrasures. The central incisors tend to be square and small, while the labial aspect of the canines is curved and vertically positioned. The maxillary arch is usually round.

Consultation and Treatment Planning

The consultation involves an analysis of the face to determine the patient's dominant temperament(s).

Based on this information, the clinician should explain to the patient which emotions and personality traits are evoked by his or her appearance. The objective is to help patients reflect on what messages they would like to express through their smile and which personality traits they wish to emphasize. The whole process makes the patient a co-creator of the work, which enhances satisfaction with the treatment provided.

After consultation, the restorative team develops a treatment plan using the Visagism concept. The Visagism begins with one or more diagnostic digital smile designs, wax-ups, and mock-ups of the maxillary anterior region, which are evaluated by the patient and clinician with the aid of extra- and intraoral photographs.

CASE REPORT (FIGS 11 TO 31)

The 34-year-old female patient came to the clinic with complaints about the worn aspect of her teeth. The anamnesis was conducted with a visagistic approach, and all of the patient's complaints and expectations were recorded in writing. During the first consultation, irreversible hydrocolloid impressions of both arches were made. Study casts were fabricated and mounted on a semi-adjustable articulator. A complete photographic protocol was followed, including photographs of the smile, face at rest, forced smile, half-opened mouth, profile, dental arches in occlusion, anterior maxillary arch without the mandibular teeth, and maxillary and mandibular occlusal views. Further, the patient interview was video recorded, not only to keep the conversation on file, but also to capture the relationship of her teeth with the lips and face during speaking and smiling. After this session, the interdisciplinary team defined which morphopsychologic facial and intraoral features required treatment.

Next, a second consultation took place with the patient. The patient and clinician discussed how the visual elements of her teeth affected her image. The information gathered during this consultation was used to help the patient decide which characteristics of her temperament she would like to emphasize in her smile and which she would like to soften.

CASE REPORT



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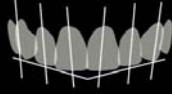

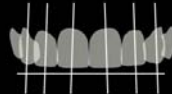
Fig 11 Photographic records according to the Digital Smile Design (DSD) protocol.

Fig 12 Intraoral preoperative view. Esthetic issues included the presence of old restorations, an inverted smile line, mandibular extrusion, and incisal and labial abrasion.

Fig 13 Occlusal view showing severe palatal erosion.

Fig 14 Facial photograph following the DSD protocol. The facial midline and horizontal plane of reference are determined digitally.

Fig 15 Transferring the reference lines to the intraoral photograph. The tooth outline is placed according to the Visagism interview with the patient.

			
Oval	Triangular	Rectangular	Square
Dominant centrals Rounded cusps Delicate laterals Round arch	Ascendant smile line Converging axis Inclined cusps	Dominant centrals Flat incisal edge Aggressive cusps Vertical axis	Lack of dominance Diverging axis Horizontal arrangement
Melancholic	Sanguine	Choleric	Phlegmatic
Organized Perfectionist Artistic Abstractive Timid Reserved	Extroverted Communicative Enthusiastic Dynamic Impulsive	Determined Objective Explosive Intense Entrepreneur Passionate	Diplomatic Pacific Mystic Spiritual Conformist Discreet

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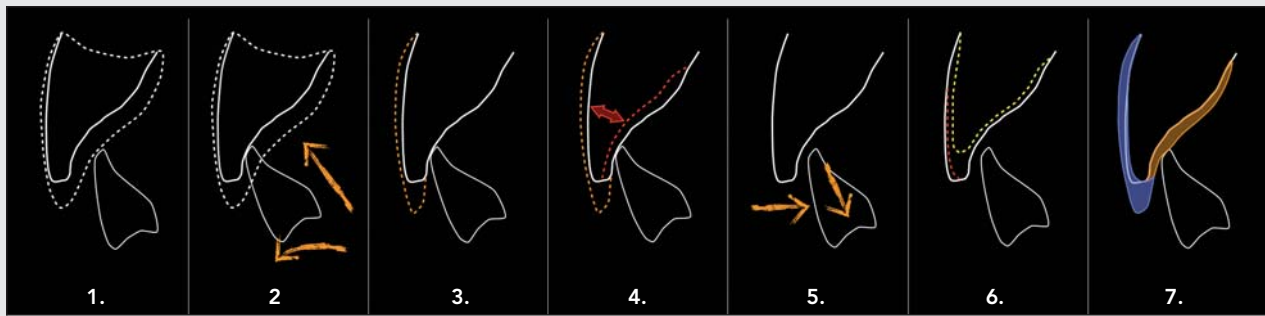
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Fig 16 Basic intraoral designs in relation to the four temperaments.

Fig 17 Guided diagnostic wax-up following the DSD protocol and the Visagism interview with the patient.

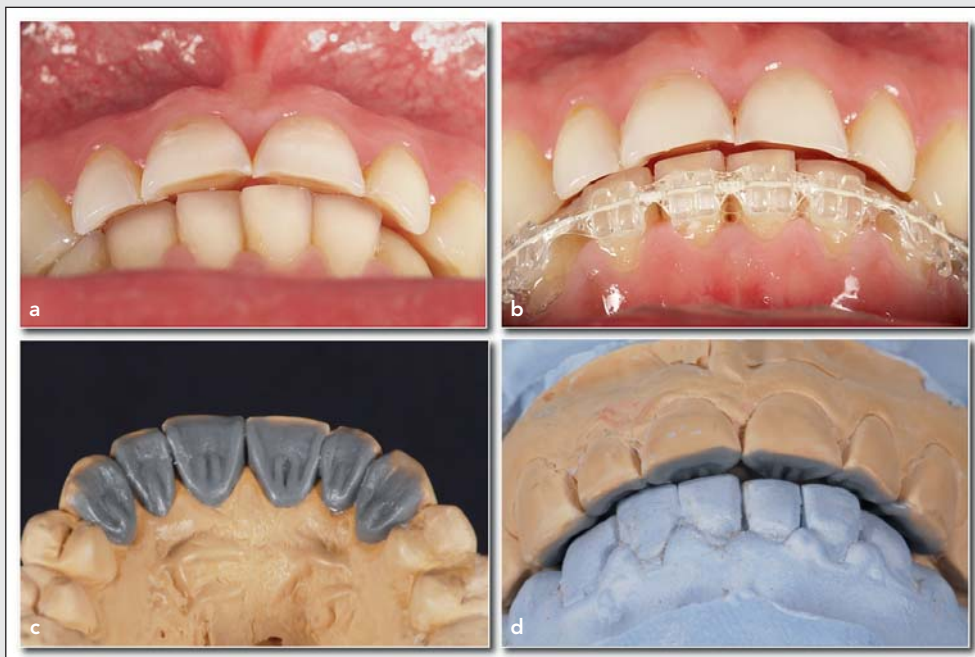
Fig 18 Mock-up done on top of the teeth with the silicone index fabricated over the wax-up cast.

Figs 19 and 20 Facial views with the mock-up in place.



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Fig 21 Tooth analysis prior to preparation. (1) The dotted line shows the estimated shape of the central incisor before abrasion and erosion; the full line shows the actual shape. (2) The mandibular incisors extruded and moved buccally. (3) The orange dotted line shows the mock-up and the amount of volume that was added buccally and incisally. (4) The red line shows the amount of tooth preparation needed to restore the palatal aspect of the maxillary central incisors; however, this would probably expose dentin. (5) To preserve the palatal structure of the maxillary incisors, orthodontic movement of the mandibular incisors was planned (intrusion and lingual movement). (6) The red dotted line shows the minimal reduction needed for a thin veneer; the yellow dotted line shows the reduction needed for a full crown. (7) To avoid the crown preparations and preserve tooth structure, the restoration was divided in two, with a direct composite resin on the palatal aspect and a thin veneer on the labial aspect.



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Figs 22a to 22d (a) Preoperative occlusal relationship of the incisors, showing the insufficient space for a restoration. (b) Orthodontic treatment, showing the clearance obtained for the restorations. (c and d) Palatal wax-up used to guide the direct composite resin restoration.

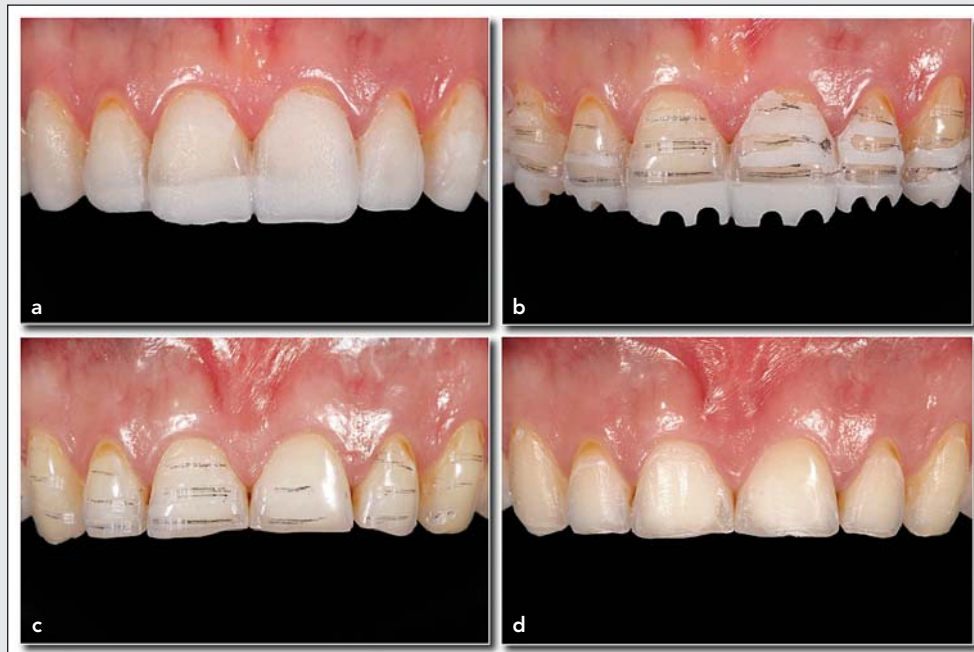
The patient wished to express the strength and sensitivity of her smile because she believed those were her most striking features. Thus, the dental team developed a design with straight lines and rectangular shapes (strength) that were slightly rounded to ac-

cent her sensitivity and femininity. The lateral incisors were designed to be straight and slightly rounded (sensitivity and intensity), while the canines were given inclined labial surfaces (dynamism and perfectionism) (see Fig 16).



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Fig 23 Fabrication of the palatal direct composite resin restoration.



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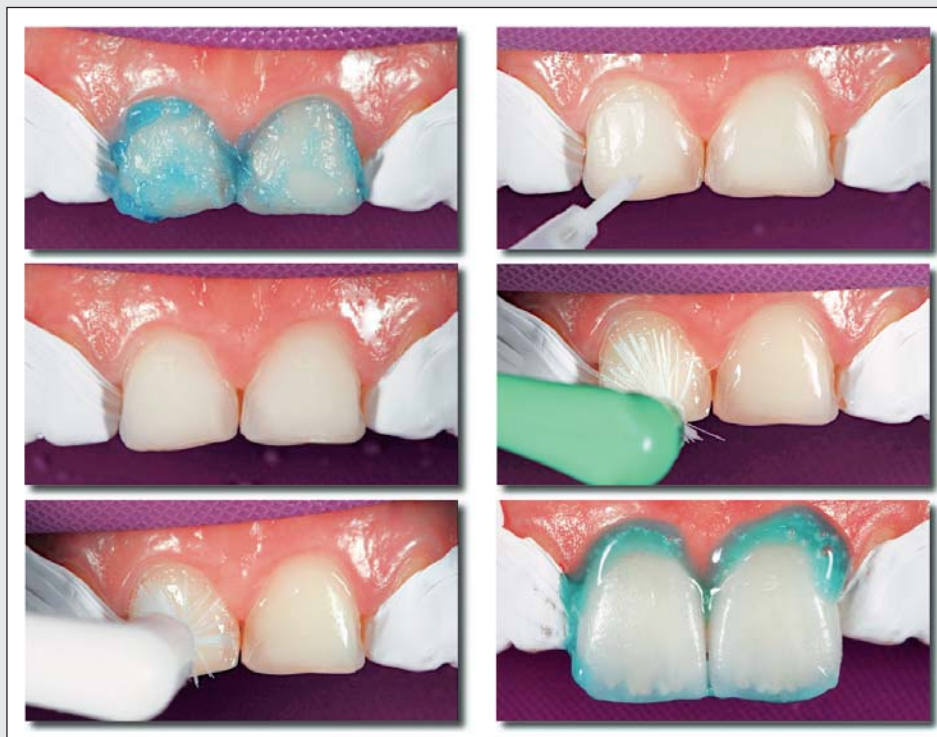
Figs 24a to 24d Tooth preparation sequence: (a) Replace the bis-acrylic resin mock-up; (b) create grooves with depth-cutter burs to guide the depth of the preparation; (c) remove the bis-acrylic resin and analyze the amount of enamel reduction; (d) finalize the preparation by smoothing the grooves, placing the finishing lines, and rounding all edges.



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Fig 25 Final ceramic veneers (IPS e.max LT ingots with incisal layering using IPS e.max Ceram, Ivoclar Vivadent).

Fig 26 Final try-in.

Fig 27 Bonding procedure.

The wax-up was produced according to the patient's desires and reproduced as a mock-up in bis-acrylic resin for the try-in stage. Some adjustments were made

before patient approval, and the ceramic veneers were fabricated in lithium disilicate glass-ceramic (IPS e.max, Ivoclar Vivadent, Schaan, Liechtenstein).



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Fig 28 Before-and-after facial views.

Fig 29 One year after bonding, good integration with the soft tissue is evident.

CONCLUSION

Visagism is a novel concept that applies the principles of visual art to the composition of a customized smile. The aim is to create a smile design that expresses the patient's personality and lifestyle, ensuring harmony between the restorations and the patient's physical appearance, values, and attitudes.



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Figs 30 and 31 Final result.

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