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THEORETICAL AND PRACTICAL FOUNDATIONS OF COLOR AS A PSYCHOLOGICAL, AESTHETIC, AND ARTISTIC EXPRESSION TOOL IN PAINTING AND DRAWINGI

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Abstract: this article analyzes the significance and methodology of depicting geometric forms, particularly spherical shapes, in visual arts and painting education. Studying the light and shadow relationships of spheres and other geometric objects, as well as accurately representing their spatial positions and mutual proportions, contributes to the development of students' visual perception, spatial reasoning, constructive skills, and creative potential. Furthermore, the article highlights the pedagogical value of integrating theoretical knowledge with practical activities through exercises and modeling methods.
Keywords: geometric forms, sphere, depiction of spheres, light and shadow, spatial perception, visual thinking, visual arts education, practical exercises, modeling, painting.

One of the primary methods for mastering the principles of drawing is the systematic depiction of geometric forms and gaining practical experience. Typically, objects such as cubes, spheres, cylinders, prisms, and pyramids are first studied individually to thoroughly understand their shape and structural characteristics. Only after this stage are they incorporated into complex compositions. Depicting objects with well-defined edges, such as cubes, prisms, and pyramids, is relatively straightforward for students, whereas spherical forms particularly spheres pose challenges for inexperienced learners in determining volume and spatial characteristics [1; 5]. Exercises in drawing spheres allow students to gain a deep understanding of the spatial arrangement of curved surfaces, light-and-shadow relationships, and their proportional interactions. During this process, students model the shape simultaneously with drawing, using string or wire to visualize the object in various perspectives on a plane [2; 7]. This method helps students comprehend the constructive structure of a sphere, identify its central and hidden aspects, and understand the principles of perspective foreshortening. A distinctive feature of spherical forms is that all points on their surfaces are equidistant from the center. This spatial property is also characteristic of many objects in the surrounding environment, such as fruits, vegetables, and balls used in football or volleyball. Creating a linear representation of a sphere essentially outlining a circle may suffice for basic depiction, but expressing its volume and light-and-shadow relationships is considerably more complex [1; 6]. The essence of light-and-shadow representation lies in the fact that surfaces directly illuminated by light appear brightest, while equatorial or broad areas fall into shadow. Oblique illumination produces a halftone, where the relative brightness defines the volume and shape of the surface. As the light source moves farther from the surface, its intensity decreases, and the transition from light to shadow occurs gradually. Therefore, accurately observing light-and-shadow relationships is essential when drawing spherical objects [3; 5]. Through drawing exercises, students learn to define the linear contours of objects while avoiding common mistakes, such as incorrectly darkening peripheral lines. Surfaces closer to the viewer must be represented clearly and accurately, ensuring that volume and spatial proportions are fully conveyed [4; 8]. It is important to emphasize that visually understanding geometric forms and studying their light-and-shadow properties develops spatial reasoning, strengthens drawing skills, and enhances creative decision-making. Through both theoretical and practical exercises in drawing, students not only achieve technical proficiency but also gain a profound understanding of objects from spatial, constructive, and aesthetic perspectives [2; 7; 10]. By depicting geometric forms, students comprehend not only linear

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contours but also spatial structure. For instance, while the well-defined edges of cubes, prisms, and pyramids are relatively straightforward at initial stages, spherical forms require careful attention to surface curvature, light-and-shadow transitions, and radial distribution from the center [1; 5]. Studying spheres from different perspectives and under varying lighting conditions enhances students' spatial imagination and their ability to accurately convey volume in drawn models [3; 6]. This process trains students to observe light-and-shadow relationships on spherical surfaces, the degree of surface illumination, and the changes in shadowed areas.

Additionally, students can better understand the constructive properties of spherical forms by modeling them using three-dimensional materials such as wire or clay. These practical exercises enhance spatial skills and strengthen the visual thinking of the artist. For instance, placing and illuminating a sphere from different angles allows students to identify its visible and hidden aspects and study the principles of radial distribution [2; 7]. Moreover, this process improves students' ability to make compositional decisions, as the spatial relationships and angles between shapes become clear when one form overlaps another. Determining light-and-shadow relationships, particularly for spherical forms, is one of the most challenging tasks for students. The distance between the light source and the object, the angle of illumination, and the curvature of the surface all influence the gradation of shadows. Directly incident light produces the brightest areas, oblique light creates halftones, and shadows naturally appear on curved parts of the surface. Through this, students not only develop drawing skills but also gain an understanding of the physical properties of light and strengthen their visual perception [3; 5; 6]. Furthermore, accurately defining linear contours and avoiding the incorrect darkening of peripheral lines directly affects the precision of the drawing and the accurate depiction of volume. By clearly representing surfaces closer to the viewer, students correctly perceive the volume of the sphere, account for perspective foreshortening, and accurately reflect spatial proportions. In this way, learners integrate technical and aesthetic knowledge in visual arts and develop their capacity for creative decision-making. In summary, by depicting geometric forms especially spherical forms students not only learn drawing techniques but also acquire complex skills such as spatial reasoning, understanding light-and-shadow relationships, and identifying central and peripheral points. This process trains them in both creative and analytical thinking, reinforcing their competencies in visual arts [2; 7; 9]. Consequently, students deepen their knowledge through practical exercises and are able to seamlessly integrate aesthetic, technical, and spatial aspects when designing various art objects.

In the process of consolidating skills in depicting geometric forms, students' theoretical and practical knowledge complement each other. Theoretical knowledge helps students understand the spatial properties of objects, as well as their perspective foreshortening and proportions, while practical exercises serve to transform this understanding into visual representation. For example, drawing a sphere from various angles allows students to study the transitions of light and shadow on curved surfaces, understand the principle of radial distribution, and identify different parts of the surface. At the same time, these exercises develop students' spatial reasoning and enhance their ability to determine the positioning and proportional relationships of objects [1; 3]. Furthermore, studying geometric forms through three-dimensional modeling strengthens students' visual and constructive thinking. For instance, creating a sphere using wire or clay enables students to grasp the principle of radial distribution and understand that all points on a spherical surface are equidistant from the center [2; 6]. In this way, students develop not only representational skills but also constructive and analytical abilities, as they must comprehend both the external appearance and the internal structure of the object simultaneously.

A thorough study of light-and-shadow relationships is one of the most complex and essential stages in depicting geometric forms. The position of the light source, its angle of incidence, and the curvature of the surface determine the gradation of shadows. Areas receiving direct illumination appear as the brightest in the drawing, oblique surfaces produce halftones,

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and the darkest shadows form in the deepest recesses of the surface. Based on these observations, students learn to accurately render light-and-shadow relationships using graphic means [5; 6; 10]. This process not only enhances technical skills in visual arts but also develops visual perception and aesthetic thinking.

Another important aspect for students when drawing geometric forms is the accurate delineation of linear contours and peripheral lines. Sometimes, students darken peripheral lines while drawing surfaces closer to the viewer, which can lead to a misperception of the object's volume. Therefore, students should use peripheral lines only when visually necessary and focus on clearly representing central surfaces. Adhering to this principle enables them to accurately convey the spatial structure of the object [4; 8; 11]. In this way, depicting geometric forms particularly spherical forms and applying light-and-shadow relationships comprehensively develops students' artistic competencies. This process expands their creative thinking, enriches their spatial imagination, and strengthens their ability to make visual and compositional decisions. Consequently, students learn not only to depict objects linearly and with color but also to consider their compositional, structural, and aesthetic characteristics [2; 7; 9]. Moreover, the process of depicting geometric forms enhances students' observational skills and encourages learning through practical experiments. For example, by placing spherical objects under different lighting conditions and from various perspectives, students can study the effects of light on the object, the mechanisms of shadow formation on the sphere's surface, and visually determine its volume. This approach allows students to integrate theoretical knowledge with practical exercises, analyze artworks more deeply, and make informed creative decisions [3; 6; 12]. Overall, developing skills in depicting geometric forms is a fundamental aspect of painting and visual arts education that enhances students' creative and aesthetic potential [1; 5; 7]. This process broadens their visual perception, deepens their understanding of light-and-shadow relationships, spatial proportions, and the balance between central and peripheral elements, and strengthens their capacity for artistic decision-making.

In conclusion, mastering the depiction of geometric forms, especially spherical shapes, is a crucial component in developing students' fundamental competencies in visual arts and painting. This process integrates theoretical knowledge with practical skills, enriching students' spatial reasoning, constructive perception, and visual sensitivity. By accurately representing light-and-shadow relationships on spheres and other spherical objects, students can determine not only the volume, shape, and positioning of objects but also appreciate their aesthetic and artistic qualities. Studying geometric forms through wire, clay, or other modeling materials further enhances students' creative thinking, reinforces the transformation of theoretical knowledge into practical expression, and supports independent decision-making in art creation. Simultaneously, the ability to work with light-and-shadow, central and peripheral elements, contours, and spatial proportions ensures a deep understanding of painting and visual arts. Thus, depicting geometric forms serves as a comprehensive tool in art education, fostering students' visual perception, aesthetic sensibility, creative thinking, and capacity for informed artistic decisions. This process not only improves technical skills but also strengthens students' understanding of art, their sensitivity to color and form, and their creative potential.

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