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The Role Of Paper Quality And The Amount Of Water In Watercolor Painting

Mahmudov Behruz Fathulla o‘g‘li
Namangan State University,
Faculty of Art and Sport
Department of Fine Arts and Design
60210400 – Design: Industrial Design program
Student of group DIZ-AU-23
mahmudovbehruz926@gmail.com

Abstract

This article analyzes, from both a scientific and a practical standpoint, the influence of two decisive factors in watercolor painting technique — the quality of the paper and the amount of water — on the final appearance of the work. Along with the paper’s weight (grammage), surface structure, method of manufacture, and water-absorption properties, the influence of the water-to-paint ratio on color saturation, layer transparency, and technical possibilities is examined in detail. The article consists of three main sections: the classification of paper, the technique of water quantity, and their combined influence. Each section presents practical recommendations, tables, and citations from scholarly sources.

Keywords: *watercolor, paper grammage, paper surface, cold press, hot press, rough surface, amount of water, wet-on-wet, wet-on-dry, paint absorption, transparency, glazing, granulation, blooming effect, paper preparation (stretching), capillary action, pigment settling, Arches paper, Fabriano, color layer.*

INTRODUCTION: Watercolor (French aquarelle, Latin aqua — water) is a type of painting created with the help of transparent paints

diluted with water. Both its principal magic and its principal difficulty are determined by this very transparency and its dependence on water. Unlike other genres of fine art, in watercolor it is very difficult to correct a mistake — and for this reason the artist's level of preparation and knowledge of materials directly determine the success of the work.

In watercolor, two factors determine every technical decision: the first is the paper (its structure, weight, surface, and water-absorption properties); the second is the amount of water (the paint-to-water ratio, and the state of moisture at the time of application). An artist who can correctly control these two variables may be said to have mastered the watercolor technique at the level of excellence. The aim of this article is to study these two factors systematically and scientifically, to explain their interaction, and to develop methodological guidelines for applying them in the practical work process. The article is intended for students, teachers, and independent artists.

I. THE CLASSIFICATION AND PROPERTIES OF WATERCOLOR PAPER

1.1. Paper grammage and its significance

Paper grammage is the weight of one square meter of paper in grams (g/m²). This indicator is considered the very first selection criterion for watercolor. The higher the grammage, the thicker and more durable the paper, and the less it deforms when it absorbs water:

Grammage	Thickness	Effect of water	Recommended for
190 g/m²	Thin	Wrinkles strongly, deformation	Practice and sketches
300 g/m²	Medium	Wrinkles slightly	Intermediate level; recommended
356 g/m²	Thick	Almost no deformation	Professional works
638 g/m²	Very thick	No deformation at all	Large-format works

Important: *Paper below 300 g/m² must necessarily be prepared before watercolor work (stretching — moistening the paper with water, stretching it onto a frame, and letting it dry); otherwise it wrinkles when it dries and the work is ruined.*

1.2. The three types of paper surface

Watercolor paper is produced with three different surface structures. Each is intended for different technical effects and suits different painting styles:

Name	English	Surface	Application
Hot press	Hot Press (HP)	Smooth, even, without pores	Botanical illustration, calligraphy, precise details, portrait
Cold press	Cold Press (CP)	Moderately textured, slightly rough	Universal; landscape, figure, most techniques
Rough surface	Rough	Coarse, deeply textured	Expressive techniques, fast work, texture effect, depicting water and wind

1.3. Paper composition: cotton and wood pulp

The composition of the paper determines the longevity of the painting and how it interacts with the paint. There are two main types:

▶ **100% cotton paper (Cotton rag):** The highest quality. Made from cotton fibers, acid-free, pH-neutral. It lasts more than a hundred years. It absorbs paint correctly and does not wrinkle. The brands Arches, Fabriano Artistico, and Saunders Waterford are cotton-based. An obligatory choice for professional artists.

▶ **Cellulose (wood pulp) paper:** A cheaper option. Suitable for beginning artists and for practice. Because it contains more acid, it yellows over time. It sometimes absorbs paint incorrectly — for this reason it is harder to control the amount of water.

1.4. Paper preparation — the Stretching method

Before working with paper below 300 g/m², preparing it is essential. The stretching process ensures that the paper does not wrinkle under the effect of water:

Step 1: Fully moisten the paper on both sides with warm water (hold it in water for 3–5 minutes or place it in a container).

Step 2: Place the moistened paper smoothly on a wooden frame or a special watercolor board.

Step 3: Fasten all sides immediately, gluing them with gummed tape.

Step 4: Leave it to dry naturally — never dry it with a hairdryer. As it dries, the paper becomes taut.

Step 5: Once the work is finished, cut off the tape — the paper remains flat.

II. THE AMOUNT OF WATER IN WATERCOLOR TECHNIQUE

2.1. The water-to-paint ratio and its influence

In watercolor, water performs two functions: it is the means of transport that moves the paint across the paper, and it is the diluent that provides transparency. When the amount of water changes, not only the laying-on of color but the entire range of technical possibilities changes:

Amount of water	Consistency	Color appearance	Technical effect
Very little (thick)	Paste, cream	Dark, opaque appearance	Strong contrast, hides texture
Little (moderate)	Liquid cream	Dark, but transparent	Clear lines, controlled application
Moderate	Milk	Moderately saturated	Universal, most techniques
Much (liquid)	Watercolor wash	Light, transparent	Glazing, soft gradation
Very much (most liquid)	Almost water	Very light, delicate veil	Sky, fog, shadow planes

2.2. The Wet-on-Wet technique

Wet-on-Wet (adding wet paint to wet paper) is the most magical and the most difficult to control technique in watercolor. The paper is first moistened with clean water, then the paint is applied. As a result, the paint spreads on its own, forming free and organic shapes.

◆ **Advantages:** Soft, natural edges; ideal for effects of sky, cloud, water surface, and fog; allows for expressive, free expression.

◆ **Disadvantages:** Control becomes difficult; the paint may spread very quickly and in unexpected directions; precise lines cannot be drawn.

◆ **Optimal amount of water:** There should be a shiny appearance on the paper surface, but the water must not run. This is called the “powder state.”

◆ **Relationship with paper:** Rough and Cold Press (CP) papers are best for Wet-on-Wet — they hold water longer.

2.3. The Wet-on-Dry technique

Wet-on-Dry is the technique of applying wet paint to dry paper. With this method, the artist fully controls the spread of color. It allows for precise and sharp edges, fine details, and layered work:

◆ **Precise lines:** The paint does not spread; it stays within the form — essential for architecture, botany, and details.

◆ **Glazing (Layering):** Adding new transparent layers over dry layers. Each layer does not alter the previous one.

◆ **With Hot Press (HP) paper:** The best control is in this combination — on a smooth surface the paint stays precise.

◆ **With Cold Press (CP):** Moderate control — the texture introduces a little randomness, which sometimes gives a positive effect.

2.4. Special water effects: Blooming and Granulation

Under certain conditions, the amount of water creates unique effects. These effects are not misfortunes — on the contrary, they can be consciously controlled:

● **Blooming (the “flowering” effect):** Forms when very watery paint or clean water is dropped onto half-dried paint. The paint spreads outward and creates a pleasant, natural texture. It is deliberately used for the effect of sea foam, a flower petal, or an old wall.

● **Granulation:** Some pigments (ultramarine, cobalt, manganese) settle into the recesses of the paper texture and give a textured, granular effect. Increasing the water intensifies granulation — extremely useful in depicting stone, earth, and ancient surfaces.

● **Backrun (reverse flow):** When very watery paint is placed over wet paint, the water pushes the paint inward and leaves traces resembling the shape of a boat or a leaf. It is difficult to control, but in practice it is deliberately used in modern abstract watercolor.

III. THE COMBINED INFLUENCE OF PAPER AND THE AMOUNT OF WATER

3.1. Table of paper-water-paint interaction

Correctly combining the type of paper and the amount of water is the key to watercolor technique. The following table shows the main combinations and their results:

Paper type	Amount of water	Result	Suitable technique
Hot Press (HP)	Little water	Precise, sharp lines	Portrait, botany, graphics
Hot Press (HP)	Much water	Even, smooth gradation	Background, sky, sea
Cold Press (CP)	Little water	Precise + slight texture	Universal landscape
Cold Press (CP)	Moderate	Natural, free expression	Wet-on-dry, layering
Cold Press (CP)	Much water	Soft, organic shapes	Wet-on-wet, cloud
Rough	Little water	Textured effect, “dry brush”	Water, stone, expression
Rough	Much water	Strong granulation, blooming	Abstract, expressive

3.2. Famous watercolor paper brands and recommendations

On the world market there are several brands recognized for their quality indicators of watercolor paper. Knowing them prevents needless expense and loss of time:

▶ **Arches (France):** 100% cotton, 300 g/m², cold and hot press — the highest standard of the professional level. Works perfectly with various pigments.

▶ **Fabriano Artistico (Italy):** 100% cotton, acid-free, finely textured — preferred for portraits and delicate details.

▶ **Saunders Waterford (England):** 100% cotton, high water capacity — ideal for the Wet-on-Wet technique.

▶ **Canson Heritage (France):** 100% cotton, recently introduced, a professional brand with a somewhat lower price.

▶ **Strathmore 400 (USA):** Cellulose-based, good practice paper — at a suitable price for beginners.

3.3. Methodology for teaching paper and the amount of water in the educational process

In organizing watercolor lessons in fine art education, the following sequence yields the most effective results:

Stage 1 (Familiarization): Trying out combinations of three types of paper (HP, CP, Rough) and three amounts of water (little, moderate, much). With only one color — for example, ultramarine blue. The aim: to directly feel the interaction of paper and water.

Stage 2 (Control): Exercises in drawing precise shapes in the Wet-on-Dry technique. Paper: CP 300 g/m². Water: moderate amount. The aim: the skill of controlling the brush.

Stage 3 (Freedom): Depicting sky and water in the Wet-on-Wet technique. Paper: CP or Rough 300 g/m². Water: large amount. The aim: turning random effects into creative work.

Stage 4 (Synthesis): Combining both techniques in a single work. Background — Wet-on-Wet, details — Wet-on-Dry. The aim: mastering the professional language of watercolor.

CONCLUSION

This article shows that, in watercolor painting, the quality of the paper and the amount of water are not two separate factors, but a single system closely connected with each other. The conclusions of the study:

1. Paper grammage (300 g/m² and above) is considered the necessary minimum for working without deformation.

2. The three types of paper surface (HP, CP, Rough) open up different technical possibilities, and the choice is made according to the character of the work.

3. 100% cotton paper is the standard for professional watercolor; it interacts correctly with the paint and ensures the longevity of the work.
4. The Wet-on-Wet technique requires much water, works well with rough or cold-press paper, and gives free, organic effects.
5. The Wet-on-Dry technique gives the most precise result on hot-press paper with little-to-moderate water.
6. The blooming, granulation, and backrun effects are not technical errors; rather, learning to control them consciously defines mastery in watercolor.

References

1. Amanullaev, A. (2022). SPECIFIC FACTORS OF COMPREHENSIVE STUDY AND ANALYSIS OF THE HISTORY AND CULTURE OF THE UZBEK PEOPLE. ASIA PACIFIC JOURNAL OF MARKETING & MANAGEMENT REVIEW ISSN: 2319-2836 Impact Factor: 7.603, 11(02), 1-4.
2. Amanullaev, A. A. (2022). CURRENT ISSUES IN THE TRAINING OF FUTURE TEACHERS OF FINE ARTS. ASIA PACIFIC JOURNAL OF MARKETING & MANAGEMENT REVIEW ISSN: 2319-2836 Impact Factor: 7.603, 11(03), 1-3.
3. Абдимуминова, Д. А., & Амануллаев, А. А. (2018). Использование традиций этики «устоз-шогирд» (мастер и ученик) на занятиях прикладного искусства. NovaInfo.Ru, 2(85), 203-206.
4. Abdumo‘minovich, A. A. (2023). QADIMDA USTALARNING SHOGIRD TAYYORLASHDA O‘ZIGA XOS MILLIY ANANAVIY ASOSLARI. Journal of Universal Science Research, 1(5), 1440-1447.
5. ABDUMO‘MINOVICH, A. A. (2023). BO‘LG‘USI TASVIRIY SAN’AT O‘QITUVCHILARINI TAYYORLASHDA HOZIRGI DAVR DOLZARB MASALALARI. Journal of Universal Science Research, 1(5), 1423-1429.
6. Sodiq, A. M. (2022). TASVIRIY SAN’AT ASARLARIDA KOMPOZITSIYANING BADIIY QIMMATINI TAHLIL VA TASHRIH BERA OLISH VA O‘QUVCHILARNING BADIIY IDROK HAQIDAGI BILIMLARINI OSHIRISH. INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429, 11(03), 149-151.
7. Sodiq, A. M. (2023). BO‘LAJAK TASVIRIY SAN’AT O‘QITUVCHILARIDA BADIIY-IJODIY MAHORATLARINI

RIVOJLANTIRISHDA MANZARA JANRIDAN FOYDALANISH USULLARI. Journal of Universal Science Research, 1(5), 1430-1439.

8. Muhammad, A. (2022). PECULIARITIES OF THE SCIENTIFIC STUDY OF THE RELATIONSHIP BETWEEN COMPOSITION AND COLOR IN THE GENRE OF LANDSCAPE. ASIA PACIFIC JOURNAL OF MARKETING & MANAGEMENT REVIEW ISSN: 2319-2836 Impact Factor: 7.603, 11(02), 5-8.
9. Abdumo, M. A. O. G. L. (2022). Ochiq havoda insonlarni turli xolatlaridan tasvirlar bajarish texnologiyalari. Science and Education, 3(9), 474-480.
10. Abdumo'Minova, D. A. Q. (2022). Talabalarga tasviriy san'atdan mashg'ulotlarni tashkil etishda qalamtasvirning nazariy qonunlardan foydalanish. Science and Education, 3(9), 467-473.
11. Sadiq, A. M. (2024). Studying The Stages Of The Historical Development Of The Landscape Genre And Its Importance In The Development Of The Artistic And Creative Skills Of Future Visual Arts Teachers. International Journal Of Research In Commerce, It, Engineering And Social Sciences Issn: 2349-7793 Impact Factor: 6.876, 18(01), 28-32.
12. Dildora, A. (2022). TRAINING OF PROFESSIONALS WITH POSITIVE HUMAN QUALITIES IN THE LESSONS OF FINE AND APPLIED ARTS IN THE EDUCATION OF THE MODERN SPIRIT. INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429, 11(03), 152-154.
13. Dildora, A. (2022). THE EMERGENCE OF SOME MODERN PROBLEMS IN THE FIELD OF ARCHITECTURE IN THE MODERN CONSTRUCTION OF ANCIENT CITIES RICH IN HISTORICAL MONUMENTS AND RELICS. ASIA PACIFIC JOURNAL OF MARKETING & MANAGEMENT REVIEW ISSN: 2319-2836 Impact Factor: 7.603, 11(02), 9-11.
14. Қизи, А. Д. А. (2023). РАЗРАБОТКА ТЕХНОЛОГИЙ ПРАКТИЧЕСКОГО ОБУЧЕНИЯ УЧАЩИХСЯ ИЗОБРАЗИТЕЛЬНОМУ ИСКУССТВУ. Innovation: The journal of Social Sciences and Researches, 1(4), 201-203.
15. Абдумуминов, М. А. Ў. (2022). РАЗВИТИЕ ТВОРЧЕСКИХ СПОСОБНОСТЕЙ СТУДЕНТОВ ПУТЕМ ИЗУЧЕНИЯ

ПРОИЗВЕДЕНИЙ СОВРЕМЕННЫХ УЗБЕКСКИХ ХУДОЖНИКОВ-ЖИВОПИСЦЕВ. Innovation: The journal of Social Sciences and Researches, 1(2).

16. Sadiq, A. M. (2024). STUDYING THE STAGES OF THE HISTORICAL DEVELOPMENT OF THE LANDSCAPE GENRE AND ITS IMPORTANCE IN THE DEVELOPMENT OF THE ARTISTIC AND CREATIVE SKILLS OF FUTURE VISUAL ARTS TEACHERS. INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT, ENGINEERING AND SOCIAL SCIENCES ISSN: 2349-7793 Impact Factor: 6.876, 18(01), 28-32.
17. Abdinabi, A. (2024). THE COMPOSITIONAL STRUCTURE OF THE WORKS OF ARTISTS WHO CREATED STILL LIFE IN PAINTING IS THEIR SCIENTIFIC ANALYSIS. INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT, ENGINEERING AND SOCIAL SCIENCES ISSN: 2349-7793 Impact Factor: 6.876, 18(01), 17-21.
18. Dildora, A. (2024). TEACHING COMPOSITION TO STUDENTS IN FINE ART EDUCATIONAL INSTITUTIONS AND DEVELOPING ARTISTIC AND CREATIVE THINKING AS A PEDAGOGICAL PROBLEM. INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT, ENGINEERING AND SOCIAL SCIENCES ISSN: 2349-7793 Impact Factor: 6.876, 18(01), 22-27.
19. Abdinabi, A., & Rayhona, T. (2024). SPECIFIC CHARACTERISTICS OF THE FOUNDATIONS OF ARTISTIC CREATIVITY IN THE TYPES AND GENRES OF FINE ART. Web of Teachers: Inderscience Research, 2(3), 219-228.
20. Amanullayev, A. (2026, April). SPECIFIC METHODS AND FORMS OF COMPOSITION IN VISUAL ARTS. In UNIVERSAL INSIGHTS CONFERENCE ON SCIENCE AND SOCIETY (Vol. 5, No. 1, pp. 129-143).
21. Sodiq, A. M. (2026). SPECIFIC CHARACTERISTICS OF THE STAGES OF OIL STILL LIFE PAINTING. GLOBAL TRENDS IN SCIENCE AND INNOVATION, 6(1), 89-102.
22. Dildora, A. (2026). UTILIZATION OF OIL PAINTING TECHNOLOGY IN STILL LIFE COMPOSITION. GLOBAL RESEARCH AND ACADEMIC INNOVATIONS, 6(1), 74-86.