



Space Grand Strategy in the Light of International Relations Theory

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Abstract

International politics has undergone a transformation in the 21st century. The course of such changes, while demonstrating the intertwining of international politics and a new phenomenon such as outer space, challenges the ability of international relations theories in a situation where the impact of international politics developments has been imprinted on their entire body.

International relations theories have experienced emergence, decline, or transformation one by one, from the formation of the first space activities during the early space age to the growth of innovation in space technologies and the continuation of activities in the new space age.

This article relies on a qualitative approach and a theoretical-applied research method in order to answer the question of what is the status of international relations theories in dealing with the transformed international politics affected by space technologies? The findings of the research, after addressing the relationship between politics and outer space and the approaches of theories categorized in the form of (a) classical: neorealism and neoliberalism, (b) synthesis: structuralism and postmodernism, and (c) modern: postmodernism and environmentalism, indicate the need to strengthen, correct, and adjust, or even fail, and emphasize the presentation of a new theoretical model that places a range of actors at the center of its attention, includes material and immaterial structures together, and considers the processes resulting from the virtualization of reality that shape the developments in international politics in the twenty-first century and affected by outer space.

Keywords: *Outer Space, International Politics, Space Macro Strategy, Classical Theories, Synthesis Theories, New Theories*

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Introduction

Since the beginning of the space age, international relations, both as a science and a domain, have interacted with outer space. This two-way relationship has been manifested in two periods: the beginning of the space age during the Cold War and the period after it, which can be referred to as the new space age.

Such relationships are influenced above all by the interdisciplinary nature of international relations, which was created about half a century before the beginning of military competitions in outer space in 1919 in response to the causes of war between states and the possibility of peace in the international system.

International relations has a significant capacity to cover various topics. Space activities, including the exploration and exploitation of outer space, pursue a variety of military and civilian objectives. As the consequences of such goals, along with a number of other factors, affect the actions of sovereign states in the international arena and the distribution of their capabilities, the evolution of international relations also has significant effects on the advancement of space activities. Therefore, the exploration and exploitation of space, for which law has also proposed arrangements and rules, is a new source for interdisciplinary research.

Where the interaction of international relations and outer space is evident, it is necessary, above all, to examine its role in the development of the evolutionary process of international relations knowledge, and theoretical structures provide a suitable basis for better understanding a new phenomenon such as the presence and activity in outer space, which has influenced the evolution of the actor, structure, and trends of international politics.

In order to answer the question of what is the status of international relations theories in dealing with international politics that has changed as a result of space technologies? First, the combination of the fields of politics and technologies of the space age is discussed in the framework of examining the nature and characteristics of the space macro strategy.

With the emergence of the need to pay attention to the role of space technologies and review the relationship between outer space and international relations, relying on a macro perspective, the mutual influence of outer space and international politics in two periods, namely in the space age during the Cold War and after this period under the title of the modern space age, will be examined.

In this framework, the changes resulting from the role of space technologies and progress in space activities as one of the effective factors in the developments of international politics will emphasize the application of international relations theories to provide a new understanding.

In this article, where data collection, analysis, and explanation rely on a qualitative approach and theoretical research method, examining outer space from the perspective of selected theories of international relations, including three categories: a. Classical theories: neorealism, neoliberalism,



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b. New theories: postmodernism, environmentalism, and c. Integrated theories: structuralism, the English school, provides an opportunity to assess their applicability in explaining the transformed international politics affected by outer space, as the goal of this research.

1. Background

A review of books and articles published on the subject of this article shows that no work has been published specifically under the aforementioned title, and only limited works cover some dimensions of the research problem.

In this context, there has been no measurable basis for testing international relations theory in relation to political relations in space, but Robert Faltzgraf in an article titled "International Relations Theory and Space Power" has theorized about space power by examining geopolitics and, following it, realism, liberalism, and structuralism.

In his view, "space power provides the possibility of achieving and developing national security for states, and since space is an arena in which cooperation and competition are discussed, it is reminiscent of ongoing events on Earth and includes assumptions that are deduced from theories of international relations" (Pfaltzgraff, 2013: 32) and in this regard has limited itself to examining only a few theories. In another article titled "Grand Space Strategy: Classical Geopolitics in the Space Age", Dolman believes that "geopolitical theory for planet Earth has been developed and the geographical position of the Earth can be transferred to outer space, of course, with the strategic application of new and emerging technologies within the framework of geographical knowledge and positioning" (Dolman, 2005: 1-2). In this work, an attempt has been made to create a different field of educational realism and theoretical studies related to space and to strengthen what is known as outer space politics. In an article with the title "Perceptions of Space and International Politics Theory", Michael Sheehan has also considered how various paradigms, including realism, liberalism, post-structuralism, and feminism, have influenced our understanding and interpretation of space. Finally, he believes that "although the various theories of international relations that allow us to examine space politics provide the possibility of understanding space in different ways, ultimately space can be understood from three perspectives: space as a refuge, an arena, and a threat to war" (Sheehan, 2007: 18).

Therefore, by going through the aforementioned works, explaining the transformation of international politics in the 21st century caused by outer space within the framework of a range of classical, modern, and integrated theories shows the innovation in the present article.

Comparing the weaknesses and strengths of each theory, where they ignore new technologies, especially space technologies, and the developments resulting from them, and addressing the need for a new approach to the changes resulting from them, will have a distinctive impact on developments in international politics.



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2. Theoretical Foundations: The Nature and Characteristics of a Space Grand Strategy

Outer space has a unique geography, and outer space grand strategy is in fact the grandest of all strategies. “This strategy, in a more limited structure, is focused on human domination of outer space and reflects the combination of the political and technological spheres of the space age. In a sense, the space grand strategy is the application of the realist perspective on the competition of states in the field of politics governing outer space” (Dolman, 2005:1-2).

Thus, the starting point of the space grand strategy is considered to be the competition between great powers in outer space, and in this framework, regardless of the role of other actors, only states and in the form of great powers are active and seek superiority to achieve this field and control space and act freely, and accordingly, the space grand strategy is pursued by the great powers in order to advance their national interests.

The nature of the space grand strategy, like the land, sea and air grand strategies in the past, is tied to advanced technologies. Control over orbits, sensitive points in outer space and access to and exploitation of natural resources in this field, which provide a wide range of possibilities, will be a support for the dominant states in this field to gain power, maintain power and expand power, based on the visibility of such importance for the unique geography of outer space, which will not be achieved except through the application of the capabilities of advanced space technologies. Therefore, space technologies are considered to be the reviving geopolitical importance of a new arena after land, sea and air, which creates the basis for gaining superiority over others and dominating the Earth through competition in outer space, and in Kalenter's view, it requires examining the relationship between space and politics.



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Model 1 - Macro-space strategy

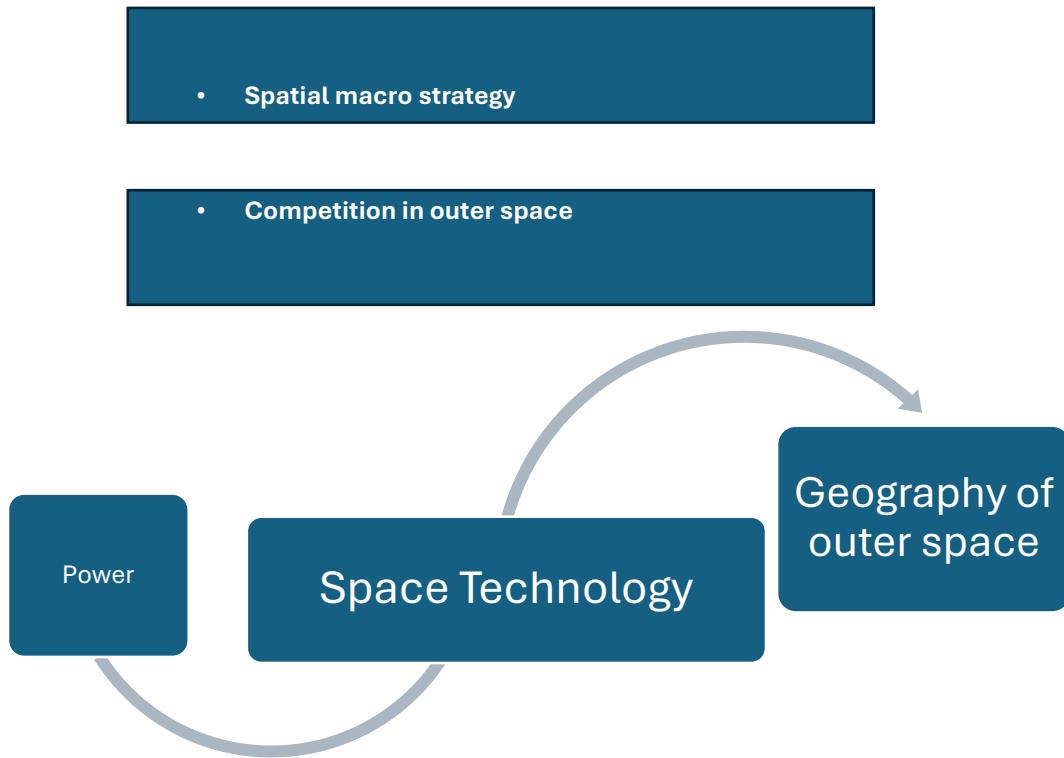


Figure 1-Astropolitic Source: (Rastegarnia, 2021)

3. History

At the height of the Cold War, the Space Age began with the launch of Sputnik and the dominance of the realist paradigm. The view of this space-influenced school of politics can be summarized in the following table:



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Table 1. Realist approach to politics influenced by outer space

<i>The School of Realism and Politics</i>	
Actor	Government: The most important space actors are governments, and it is indifferent to other actors and the risks arising from the increase in the number of non-state actors in this field. - Governments are the only authority for security in outer space, and only governments have the authority to confront space threats.
	Sovereignty: Failure to consider the erosion of state sovereignty and the transformation of the functioning of states in the space of interaction and competition of space actors. Where, affected by space technologies and the competition over them, the independence of states in full control of their borders has been questioned.
	Territory: Space is an unlimited territory including regions and places with strategic functions that, after the Cold War, have gained strategic importance in outer space only through developments in technologies such as satellites and spacecraft, similar to the conditions that in previous periods led to the emergence of the strategic importance of land, seas, and air.
Structure	Distribution of power: The distribution of capabilities determines the arrangement of power. After the Cold War, the United States was the only space power for a long time, but with the passage of time, in the present era, the world is facing a multipolar structure in outer space, while China and Russia are seeking to gain superiority in this field in an attempt to surpass the United States, and the number of space players is also increasing, influenced by the extensive capabilities of space technologies and their progress.
Trends	Security: Space power is a tool for ensuring security as the most important interest for states. - In linking politics with cooperation and competition, realists believe that cooperation is possible only as a result of rational calculations. War: The weaponization of outer space will lead to efforts to acquire and maintain space power, respond to aggression, and the outcome will be a space war.

Source: (Rastegarnia, 2021)

Following the continuous advances in space technologies, the inability to comprehensively explain the realist paradigm in the study of international politics reveals the weakness of grand theories and the necessity of using an alternative paradigm. “In the twenty-first century, meta-positivist theories and theoretical approaches have presented a new interpretation of international relations by criticizing the meta-positivist foundations” (Mansell et al., 2007: 515).



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In considering the role of new technologies in such theories, the boundary between reality and imagination, and consequently the boundary between anarchy and order, state and non-state actors, has been removed and a new image of a new territory in international relations is presented.

4. International Politics and Outer Space

At a time when the space age was in its early days, the influence of international politics on outer space can be seen in shaping the first space activities and subsequently in the relations between the United States and the Soviet Union as the only space actors to dominate outer space.

“During this period, and following the launch of the first satellite, Sputnik, into outer space on October 4, 1957, the two rivals of the bipolar system faced each other in a new form of competition” (2017: ,al et Harrison).

Thus, space activities have been a reflection of the main issues and debates of international relations from the beginning and have affected concepts such as international peace and security, competition and cooperation, nationality and nationalism, sovereignty, interests, dependencies, politics and power.

At the same time as the preparations for the beginning of a new era in outer space were being made, in light of the end of the Cold War and the impact of new technologies in creating a communication crisis, followed by the revolution of information technologies and the new information order, the world has experienced significant changes such as changes in the structure of the international system and the collapse of the bipolar system, changes in the distribution of power, the plurality of actors, the role of regional powers, transformed wars and the emergence of new security issues. In a macro-framework, it experienced. In such circumstances, innovation in space technologies also shaped another form of space activities.

Following the fall of the Soviet Union, and the emergence of the United States as the only major space power after the Cold War, China also entered the field of space activities by sending humans into space in 2004, and based on its space capabilities and challenging the military power of the United States, it played the greatest role in drawing the new space age.

In a context of developments, the expansion of exploration and exploitation of outer space brought about the emergence of new actors and another form of relations between them in the form of cooperation in this field.

Meanwhile, the technologies that previously shaped the space age and affected the international politics of the Cold War by spreading the danger of weaponization, are affected by their increasing progress, creating new security threats in outer space, and at the same time, they also have the ability to confront space threats.



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This shows that space technologies, since the beginning of the space age, have been at the interface between outer space and international politics, reflecting the impact of this field on international politics. In other words, space technologies are considered the most important factor that, by changing the rules of the game between the two great powers during the Cold War and influencing the interactions between them, raised outer space and the politics governing it as a new subject area in international relations. In continuation of the developments resulting from them in the new space age, such as the emergence of a wide range of actors and the intertwining of their interactions, they put its relationship with international politics in a framework by demonstrating the dynamics of outer space. Outer space and the application of space technologies are considered one of the driving forces of developments in international politics during the Cold War and after, and on this basis, they have required policymakers to formulate space strategies and policies. The change in space policies resulting from the role of space technologies in the developments of international politics emphasizes the need for a new understanding.

In the context of a definition by Kenneth Waltz, "International relations theory explains the laws of international politics" (Waltz, 1979:8). In this way, a new understanding and comprehension of international politics in the twenty-first century and the new age of space, more than anything else, highlights the role and function of theories and changes in the paradigm that determine the different dimensions of the issues raised in international politics.

4.1 Theories of International Relations

Humans are inherently eager to understand the world around them and, when faced with a new phenomenon such as the presence and activity in outer space, seek to understand it through the application of theoretical structures. The wide range of theoretical approaches with different and contradictory classifications that have been formed in the context of international relations are all based on "existing political relations on Earth". The approach of some theories of international relations, beyond their complexities, sometimes comes into conflict with other similar approaches and, as they face criticisms of their assumptions, they use the same tools on their opposing approaches. Can existing theories be the starting point for discussion and thinking about the emerging realm of outer space? Thus, the evolution of international politics in the new space era is based on the functioning of three categories of classical, integrated, and new theories in the following form:

4.1.1 Classical theories and extraterrestrial space

In line with the developments of the 1980s and the need to redefine the principles and propositions of mainstream theories, realism and liberalism, under the guise of neorealism and neoliberalism, dominated the framework of international relations theorizing. In order to guide research on the path of understanding international relations theories, thinking and reflecting on their principles and assumptions will be a key element.



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4.1.1.1. Neorealism and Outer Space

Neorealism emerged in the early 1980s, along with the Cold War entering a new phase of arms races and the unveiling of the capabilities of space technologies, with a revival of realism (Sheehan, 2007: 11), and after a decade, following international developments and the decreasing possibility of confrontation between space powers, it faced decline in 1990.

1. In looking at the ability of neorealism to explain international politics transformed by outer space, state-centeredness is one of the first accepted principles of this theory. Since the beginning of the space age,

With regard to space capabilities, states have been the main actors in outer space and have the space capabilities to jeopardize the security of other states.

2. The impossibility of changing the anarchic nature of the structure of the international system, according to neorealists, will only lead to war in outer space.

Although the first space activities were formed in the context of the hostile relations of the Cold War, cooperation between space powers, which is one of the characteristics of the second space age, indicates the possibility of changing the structure of the international system in the context of historical change and the entry of space actors into the field of cooperation.

3. Defenders of neorealism consider the distribution of power as the determining principle of state behavior, but

in contrast, critical theories consider the outcome of such a principle to be defending the central position of great powers and ignoring the interests of all humanity and the efforts made by a large number of countries that want to be present and active in outer space, and their number is increasing day by day.

Finally, based on the points mentioned, although the expansion of space capabilities during the Cold War is consistent with the assumptions of neorealists, this theory is not very responsive to changes in the structure and processes of the current world and interdependence and cooperation, as well as the presence of a range of actors alongside states, and it requires adjustment to the emphasis on the authority of states and their interpretation of security.

4.1.1.2 Neoliberalism and Outer Space

In the 1980s, neoliberalism, in line with the developments in international politics, revised and redefined the fundamental concepts, propositions and assumptions of liberalism. The function of this classical theory can be summarized in the following:

1- The neoliberal view is based on the plurality of spatial actors in such a way that no single actor is the main actor at the international level and the role of states is affected by the presence of other



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actors. Considering the role of institutions in outer space, the neoliberals' modified view of liberalism regarding outer space actors justifies its applicability in examining developments from the perspective of actors. "In outer space, the European Space Agency as an organization reflects neoliberal assumptions about the importance of state policies in explaining international cooperation and the strategic decision-making process that results from it. The efforts of Western European governments to coordinate their space programs with the European Space Agency in the 1960s are an example consistent with the neoliberal approach to the role of international organizations (Sheehan, 2007: 12) alongside states and different from the neorealists.

2 -The different interpretation of neoliberals regarding the anarchic nature of the international system in conditions where cooperation is possible is another notable assumption of neoliberalism. The efforts that space powers have made so far on issues of disarmament and arms control in outer space confirm this view. However, the increase in the number of space competitions shows an optimistic understanding of cooperation that is not very solidly based. In the mid-1980s, the idea of demilitarizing outer space was also raised due to the complete ban on the operation of military space systems and was in line with this view. With some of the principles and assumptions being questioned Neoliberalism and neorealism in the framework of classical theories will inevitably examine the capabilities of ground-breaking, critical, and new theories as follows.

2.1.2 New theories and the extraterrestrial space

The history of international relations in the 1980s and 1990s, by questioning the foundation of international relations theories, witnessed the crystallization of theories that reflected the inadequacy of classical theories in dealing with new issues in international relations and responding to existing crises. In such a context, the theories of postmodernism and environmentalism are considered the result of criticism and rereading of classical theories and have taken a new place among international relations theories and require examination.

4.1.2.1 Postmodernism and Transcendental Space

Postmodernism, in the form of a new paradigm, considers textual strategies as a tool for studying international politics and its issues, and in analyzing the interaction of the text, it uses two strategies of deconstruction and reinterpretation. By providing alternative definitions and solutions, postmodernism has the ability to challenge some of the principles of the realist school in examining the developments in international politics from the perspective of space, which requires explanation and explanation as follows:

1- Deconstruction in the concept of the state and considering non-state, state and third world actors, while rejecting the realist idea of the role of the great powers alone and paying attention to the military forms of power, are among the acceptable adjustments made to the principles of postmodernism.



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2- In examining the processes of international politics, new technologies play an important role, especially influenced by the postmodernist perspective. "New technologies will create virtuous war, a war with a transformed and virtual nature. With the virtualization of war in this era, interests are also considered virtual. The emergence of remote-controlled weapons systems, autonomous weapons systems, and cyber warfare

show that anything connected to the Internet can be targeted anywhere without a physical presence (2017: Devanshi). Information and communication technologies can also be considered as a virtual source of intelligent power, which in the areas of information and communications enables the reflection of a country's normative power in geographical areas of greater distances. The impact of such technologies brings about a transformation in the concept of power and security intended by realists and the need to revise this theory in order to better understand them. The current era will be affected by virtual threats, and in this context, cyber attacks can be mentioned.

Cyber capabilities, like space capabilities, depend on the electromagnetic spectrum and IT infrastructure, which create damage and challenges (5: Weeler, 2015; 4: Creedon, 2012). Satellites and other space assets are vulnerable to attacks and such risks will pose serious threats to sensitive cyber infrastructure on Earth" (4, 2016: Lewis & Livingstone). Therefore, the cyber threats that affect the shape of competitions in outer space, security and power, express new issues that can be presented from the perspective of the postmodernist paradigm.

3- Apart from what has been said about the role of technologies, the emergence of weapons of mass destruction, which are considered among the military threats in outer space, is the result of the rationality arising from modernity and the rejection of ethical considerations criticized by postmodernism. Proposing deterrence as a solution to prevent an arms race in outer space reveals a disregard for ethics that must be emphasized. However, the principles of postmodernism are weak in providing a more complete explanation.

4.1.2.2 Environmentalism and Transcendental Space

Environmentalism is another critical theory that calls for environmental issues to be brought from the margins to the mainstream and criticizes modernity for its negative effects and consequences on the environment. Such a view is undoubtedly put forward against the assumptions of theories that are limited to primary politics and are indifferent to environmental issues. Their critical view of international politics can be summarized as follows:

1- Critical environmentalists believe that states play a central role. However, they emphasize the importance of other actors in addressing environmental threats alongside states, as they consider the scope of such threats to extend beyond national borders.



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2- Environmental threats have provided a platform for cooperation and the pursuit of common security. Space activities in the 21st century are increasingly creating environmental threats and affecting climate change, and in this regard, joint cooperation has been carried out between governments, organizations and agencies in the realm of outer space to deal with these types of threats, either bilaterally or multilaterally. “A large number of environmentalists are ready to expand their areas of concern to any place where travel is possible. Therefore, since we will undoubtedly be ready to move towards outer space and other celestial bodies in the next few decades, we will pursue space environmentalism.

Based on an environmentalist approach, environmental protection of outer space and its subsystems is a priority, and we must ensure that one of the few remaining accessible areas is not contaminated by our presence” (Block & Huebert, 2007: 285-286). As a critical theory, environmentalism emphasizes the negative aspects of technologies on the environment, while ignoring the ability of some space technologies, such as remote sensing satellites, to address environmental threats.

4.1.3 Integrative Theories and the Transcendental Space

In the continuation of the effort to address the hidden angles of the new issues raised in international relations, including the pervasiveness of norms, a number of reflexive theories have paved the way between reflexivity and rationalism and have been revived or born along this path.

Relying on their reflexive approach, such theories have been proposed in the form of integrative theories while criticizing the metatheoretical dimensions of classical theories without relying on their end of the road. In the meantime, the revived English school will be analyzed alongside the emerging capabilities of structuralism.

4.1.3.1 Structuralism and Transcendental Space

Structuralism entered the field of international relations theories in the 1990s with the aim of bridging the gap between rational and critical theories as a hybrid approach. This approach, which emphasizes the social or intersubjective aspect of global politics, seeks to understand the change in international relations in the form of an explanatory approach. Between the strengths and weaknesses of classical and modern theories in analyzing the developments in international politics, a few points should be noted about constructivism:

1- Constructivists, while emphasizing the role of non-state actors, sometimes rely only on a state-centered approach. Such incoherence, which is one of the challenges arising from borrowing principles from other schools, reveals the shortcomings of this theory in looking at the influence of non-state actors in the extraterrestrial space and the weakness of its explanatory power.

The lack of incoherence and a purely state-centered view are reasons for not maintaining the mission of bridging the gap between rationalist and critical theories, although constructivism, by



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emphasizing immaterial ideas and factors, unveils a new perspective in confronting the developments in international politics.

2- “The identity and priorities of states are influenced by the nature of the international system, which is itself influenced by the characteristics of the states under their control, and thus the identity and interests of states and the characteristics of the international system influence each other and mutually construct each other” (Chernoff, 2014: 147-148). States have a common identity that shapes their fundamental goals and national interests. In fact, the national interests of states are defined within the framework of their social identity.

Accordingly, similar to the relations between space powers such as the United States and the Soviet Union during the Cold War, the relations between China and the United States in the present era are a social structure in which the actors have recognized competing identities for each other and have defined their national interests in conditions of military competition. The approach and policy of European states towards space activities are influential in the construction of European collective identity.

3- Giving priority to non-material factors is one of the principles of the structuralist approach and emphasizes the role of ideas in international politics. However, by not specifying the relationship between material and non-material factors It fails to predict the structures that influence the behavior of states in the field of space activities.

4- “Just as social institutions and identities are intersubjective, structuralism takes an intersubjective view of technology, such as space technology. Structuralism provides the tools to consider technology as a political phenomenon. Technological artifacts are constructed based on human beliefs and practices in the same way that social institutions and identities are constructed” (Klinkenberg, 2016: 12).

5- As theorists such as Wendt argue, “structuralism can play an important role in identifying periods of strategic change in the global political order, while realism is ill-equipped to provide such explanations. Structuralism is an appropriate approach to studying the threat posed by China’s anti-space program to the United States, especially in the face of geopolitical change and competition between the two countries.” (Klinkenberg, 2016: 12)

4.1.3.2 The English School and Outer Space

The emergence of the English School from the margins to the mainstream after the Cold War is considered one of the most notable developments in international relations theories. The capabilities of the English School in explaining developments are largely due to the modified principles and assumptions that it presents in furthering its mission to address the shortcomings of realism and liberalism. At the same time, such principles themselves face criticism and can be raised in several cases:



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1- From the state-oriented perspective of this theory, outer space is defined as a natural territory. “Satellites are considered the property of states, they are registered with the launch of states, and nations operate in space stations under the laws of their respected country” (Stuart, 2014: 228).

The role of actors, according to the English school, is limited to the centrality of states in the international community, which share in the functioning of common institutions based on common values and interests, and this is itself a result of the modification of the state-centered view of realists.

In this regard, influenced by the normative view of the English school, relations between states are not only conflictual and do not put the struggle for power at the forefront of their relations. However, it is doomed to not consider other space actors and their relations with states, and such an approach needs to be modified.

2- “Where the international system is a reflection of interaction between states, in the international community there are mutual obligations between states” (Bull, 1972: 195) (and the common goals of states in outer space through cooperation international institutions are advancing. This type of cooperation, which only takes place with the presence and participation of great powers, helps maintain the balance of power and avoid war.

“Great power management can be seen in the United States’ acceptance of responsibility for cooperation in the Neo regime. The balance of power can also be seen where Europe established the Galileo system as an alternative to global positioning technology, but with deeper motivations for creating European independence and “in return for balance with America” (Stuart, 2014: 230).

4.2 Outer Space International Politics and International Relations Theories

The framework outlined for the transformed international politics resulting from outer space among the classical theories summarizes the neorealist view of the peripheral role they attribute to space technologies and the resistance to the changes they cause. Supporters of this theory, while ignoring the diversity of actors, do not consider the transformed state and the space state created in virtual reality to be important. In response to the transformation of the structure, they accept the impact of space technologies on the distribution of power, which is one of the characteristics of the structure.

With a materialist view, they are unable to confront the trends and dynamics that demonstrate the virtualization of reality. Therefore, the relationship The emphasis on state authority and the interpretation of security seeking in response to changing international politics require adjustment. In contrast, neoliberalism, as a classical theory and in adaptation to developments arising from outer space, has only assumptions that adhere to the role of other actors, the performance of regimes in facilitating cooperation, and the benefits of cooperation in the form of interdependence of states.



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Apart from the possibility of relying on its assumptions regarding the evolution of actors, the lack of attention to competition is one of the explanatory limitations of this theory regarding the evolution of processes. Among the new theories, the assumptions of postmodernism can be understood in rejecting the view of classical theories regarding the new issues raised in international politics and the peripheral position of space technologies. According to postmodernists, space technologies provide a new interpretation of the changed trends with the change in the nature of wars and the emergence of virtual wars.

In this framework, only the combination of its principles and assumptions with the principles of other theories and not alone will explain the changes. Environmentalism is also considered a critical and modified perspective on the transformed actors and processes of international politics, but the mere look at environmental threats, which is only one of the types of new threats from space activities, expresses a significant deficiency in it with respect to the transformation of processes.

The reaction of structuralism as a combined theory to the mere attention of rationalist theories to the material elements of the world leads to a modified approach to the actor and structure. Structuralism considers material and immaterial structures to be of equal importance, and other actors are also important alongside the state.

However, the lack of coherence and the purely state-centric view of this approach is a reason for not maintaining its mission in bridging the gap between rationalist and critical theories in dealing with developments.

An examination of the principles of the English school as another integrated theory in explaining the desired developments also shows that the ambiguities inherent in this theory are an obstacle to replacing it with realism and liberalism and are incapable of creating the necessary context for examining the developments resulting from activity in outer space. Thus, assessing the explanatory power of the selected theories shows the need for strengthening, amending, and modifying them, or even their failure.

Conclusion

In accordance with the steps taken to reflect the mutual influence of outer space and international politics in the conflict of existing theoretical perspectives, first, the nature of the macro-space strategy is tied to advanced technologies, which indicates the importance of controlling orbits, sensitive points in outer space, which will support the efforts of the dominant states in this field to excel.

In fact, what is worth considering at the boundary between the space age and the new space age is the role and function of theories and paradigm shifts in providing new insights into the developments in international politics in the 21st century, and it is influential on the development



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of the evolutionary process of international relations knowledge. Beyond the dominant view of territory in the field of international relations studies, outer space is a newly emerging territory at the macro level that includes non-material space alongside material space.

In paying more attention to the transformation of the boundaries of international relations knowledge amidst the complexities, conflicts, commonalities, and criticisms that each approach has towards the assumptions and principles of other international relations theories, although it shows the possibility of applying the three groups of classical, modern, and integrated theories to a number of issues raised in outer space, assessing their explanatory power in international political developments indicates the need for their modification, adjustment, or even failure, so that it is better to compensate for their weakness in applicability by presenting a new theoretical approach to provide a more precise understanding and bring the marginalized role of space technologies in theories into the context of international relations studies. Therefore, it is necessary to present a theoretical approach that places a range of actors at the center of its attention, encompasses material and immaterial structures, considers the processes resulting from the virtualization of reality, and addresses the changing rules and the playing field as elements that, in overlapping, shape the developments in international politics influenced by outer space in the twenty-first century.

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