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QUANTUM DESTINY: INTEGRATION OF HEISENBERG'S UNCERTAINTY PRINCIPLE AND THE CONCEPT OF DESTINY IN ISLAMIC COSMOLOGY

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ABSTRACT

In the world of modern science, Heisenberg's uncertainty principle states that at the quantum level, it is impossible to know the exact position and momentum of a particle simultaneously. Meanwhile, in Islam, the concept of destiny implies the belief that everything has been written by Allah SWT since the beginning of time (before the creation of the universe). From first glance, these two concepts seem contradictory: one emphasizes probabilistic freedom, divine determinism. while the other affirms the other. This article will try to build a quantum-theological model that integrates Heisenberg's uncertainty principle as a physics metaphor to understand how destiny and effort can be seen from the point of view of cosmology and epistemology. Using an interdisciplinary approach between quantum physics and Islamic theological thought, this article offers a new framework for understanding the relationship between human autonomy and divine plan.

Keywords: Modern Principle, Haisenberg, Quantum Physics, Qadha & Qadhar Destiny, Sains.

INTRODUCTION

The development of modern science, especially in the 20th century, has changed the way humans perceive the reality of the universe. A revolution occurred in the field of quantum physics, where Newtonian deterministic principles began to be replaced by a probabilistic view of the subatomic world. Recent developments in modern science, particularly in the fields of particle physics and cosmology, have opened up new horizons in understanding the fundamental structure of the universe. One of the revolutionary principles that emerged from the study of the subatomic world is Heisenberg's uncertainty principle, which states that at the quantum level, it is impossible to know with certainty the position and momentum of a particle at the same time (Prilly Busch, 2022). This principle not only changed the way we understand physical reality but also shook the deterministic assumptions that had long been the foundation of many classical scientific theories.

On the other hand, in spiritual and religious traditions, particularly in Islamic teachings, there is a strong belief in destiny (qadar), which asserts that everything has been predetermined by Allah SWT since time immemorial, before the creation of the heavens and the earth. This perspective is reflected in various verses of the Quran and the hadith of the Prophet SAW, such as in Surah Al-Hadid (57:22), which states that "No disaster strikes the earth or yourselves except that it is recorded in the Book (Lauh Mahfuzh) before We bring it into being." However, while the concept of destiny is often understood as absolute determinism, Islamic teachings also emphasize the importance of effort, or human endeavor in living life (Nasr, 2020).

According to Malik (2023), there is great potential to build an integrative model between science and theology that not only bridges the gap between these two domains but also creates a new framework of thought relevant to the postmodern era. Meanwhile, some researchers, such as Barbour (2021) and Polkinghorne (2020), have attempted to design interdisciplinary models between science and religion. Still, few have specifically linked the principle of quantum uncertainty with the concept of destiny from an Islamic perspective.

This research aims to fill this gap by constructing a "Quantum Destiny" framework that can serve as a foundation for interdisciplinary dialogue between modern physics and Islamic theology. Through a multidisciplinary approach involving literature review, philosophical analysis, and synthesis between scientific concepts and religious teachings, this research seeks to offer new insights relevant to both academic and religious practice.

This research aims to explain how this model can enrich the dialogue between science and religion and provide new insights into the relationship between divine will and human freedom, as well as explore Heisenberg's uncertainty principle and its philosophical implications for the modern worldview.

RESEARCH METHOD

This article was written using a qualitative methods through literature analysis. Information was obtained through various of textbooks, scientific journals, proceedings and reports. Technical data analysis is descriptive by providing interpretations and understanding of the content based on Islamic science.

RESULT AND DISCUSSION

Heisenberg's Uncertainty Principle

The Heisenberg uncertainty principle, introduced by Werner Heisenberg in 1927, is one of the main foundations of quantum mechanics. This principle states that it is not possible to know at once and with complete precision certain pairs of physical quantities, such as position and momentum, or energy and time of a subatomic particle (Busch et al., 2022). Mathematically, this principle is formulated as $\Delta x \times \Delta p \geq h/(4\pi)$, where Δx is the position uncertainty, Ap is the momentum uncertainty, and h is Planck's constant. This lower bound value indicates the existence of intrinsic limitations in the measurement of the quantum world.

Unlike classical physics which is deterministic, quantum mechanics describes reality as probabilistic. This means that the results of measurements cannot be confirmed, but can only be expressed in terms of probability. This changes the way we understand the universe: not as a giant machine that works with perfect precision like a clock, but more like a dynamic system that leaves room for variation and uncertainty.

From a philosophical point of view, the uncertainty principle has profound implications for human understanding of reality, freedom and knowledge. One of the fundamental questions that

arises in whether the uncertainty is ontological (part of reality itself) or epistemological fa limitation of human knowledge. Many scientists and philosophers argue that quantum uncertainty is not the result of rudimentary technology, but rather an essential property of nature (Werner, 2020). If this is true, then this means that the universe has an innate degree of "freedom" that allows for events that are not completely predictable.

Furthermore, this principle also invites reflection on the role of the observer in determining the outcome of the measurement. In the Copenhagen interpretation, which is one of the dominant interpretations of quantum mechanics, the measurement causes the wave function to collapse to one of the possible outcomes. This opens up a discourse on whether human consciousness or observation has a direct impact on the structure of reality, an idea that is interesting to study in an interdisciplinary context, including with spiritual and theological perspectives.

Against this backdrop, the uncertainty principle becomes more than just a rule of physics; it changes the way we view the world, as well as the relationship between humans, nature, and possibly God. In the framework of this research, the principle will be used as an analogy to understand the concept of destiny in Islam whether divine decrees can be envisioned as Jobal probability schemes that leave room for endeavors as local manifestations of available opportunities.

The view of the universe underwent a fundamental change when science moved from the classical framework to the quantum world. In classical physics especially developed by Newton the universe is considered a huge machine that works deterministically: if we know the position and momentum of all particles at a given time, then the entire future and past of the system can be predicted precisely (Barrow, 2021). This approach is very linear, absolute, and leaves no room for uncertainty.

However, when entering the realm of subatomic particles, the rules of classical physics begin to break down and are replaced by new, more complex and probabilistic principles. This is the essence of quantum mechanics, that reality at its fundamental level is uncertain and can only be expressed in terms of probability. For example, electrons do not have fixed positions, but are spread out in the form of wave functions that describe the probability of their existence at various points (Werner, 2020).

One of the most striking differences between the classical and quantum worlds is the superposition principle in the quantum world. Particles such as photons or electrons can be in two places at once until a measurement is taken. This contradicts the logic of the macroscopic world, where real objects cannot be in two places at the same time.

In addition, the concept of non-local connectedness or entanglement is also a unique feature of the quantum world. Two particles can connect to each other instantly, even if they are separated by a great distance a phenomenon Einstein called "spooky action at a distance". This shows that the laws of physics at the quantum level are not completely reducible to classical rules. From a philosophical perspective, this difference changes the way humans understand reality, causation, and knowledge. Classical physics assumes that objects have intrinsic properties that exist independently of the observer. However, in quantum mechanics, the outcome of a measurement can change depending on whether it is observed or not, as illustrated in the double-slit experiment (Busch et al., 2022). This opens a discourse on the role of consciousness and observation in shaping reality itself.

Metaphysically, the transition from classical to quantum views also implies the need for are understanding of determinism. If the classical world believes that everything is predetermined, the quantum world suggests that the universe has the potential to vary and evolve in many ways. This understanding could be an important foundation in connecting science with spiritual concepts such as destiny and endeavor. Furthermore, this difference also changes the paradigm of how we view time and the history of the universe. In the context of general relativity, time is a dimension that can be curved and relative, while in quantum, time is often treated as an external parameter. This difference makes the unification of gravitational and quantum theories or the theory of everything a major challenge in modern physics.

Even in the field of technology, this difference has a direct impact. Classical computers work based on binary bits (0 and 1), while quantum computers use qubits that can be in a superposition of 0, 1, or both at once. This opens up new possibilities in information processing and could even revolutionize the way we understand artificial intelligence, communication and data encryption. Thus, the difference between the classical and quantum worlds is not just a matter of physical scale, but also a broader epistemological and ontological paradigm. This distinction is important in the

context of this research because it opens up opportunities to build a more inclusive cosmological-theological model, where divine decree (destiny) and human freedom (ikhtiar) can coexist in a harmonious framework. One of the most interesting aspects of Heisenberg's uncertainty principle is its philosophical implications for the role of the observer in determining measurement results. In quantum mechanics, observation is not just a means of obtaining information, but instead becomes an integral part of the phenomenon itself. This is in fundamental contrast to classical physics, where physical objects are considered to have fixed properties, regardless of whether they are observed or not.

In the quantum world, particles such as electrons or photons do not have exact values for certain pairs of quantities (such as position and momentum) until a measurement is taken. The uncertainty principle states that the more precisely we know one of the quantities, the more uncertain the value of the other quantity. This is not a weakness of technology or measurement instruments, but rather an intrinsic limit on what humans can know about reality (Busch et al., 2022).

The role of the observer becomes more significant in the Copenhagen interpretation of quantum mechanics, which states that before a measurement is made, the quantum system is in a superposition i.e. a condition where it has many possible outcomes at once. It is only after the measurement is made that the wave function collapses to one of the possible outcomes. This phenomenon raises a big question: does the observer's consciousness play a role in shaping reality?

Although still a topic of debate among physicists and philosophers, some argue that the quantum interpretation makes room for the idea that reality is not completely objective, but rather depends on the interaction between physical systems and the process of observation (Werner, 2020). This changes the way we view knowledge: not as a perfect mirror of the external world, but as the result of a dynamic relationship between subject and object.

From an epistemological perspective, the uncertainty principle also suggests that there are inherent limits in the human ability to know absolutely everything. Our understanding of the universe is always partial and probabilistic. This is in contrast to the Newtonian deterministic view that believes that if all data is known, then the future can be perfectly predicted. This limit to knowledge is not a human weakness, but an essential feature of the structure of reality itself. Quantum mechanics shows that uncertainty is the basic foundation of the universe, and humans as observers must accept that they live in a system that makes room for chance, variation and uncertainty. This view is very relevant in a theological context, especially in trying to understand the concepts of destiny and effort in religions such as Islam. Thu s, Heisenberg's uncertainty principle not only changes the way we understand the physical universe, but also overhauls the philosophical framework of reality, knowledge, and humanity's role in it. It paves the way to see uncertainty not as chaos, but as part of the cosmic design that allows for freedom, choice and meaning.

The Concept of Destiny in Islam

In Islam, the concept of destiny is one of the pillars of deep belief and is part of the sixth pillar of faith. The word "destiny" comes from the Arabic qadara (قَدَرَ), which means to set, measure, or determine. In a theological context, destiny refers to the belief that everything in the universe has been predetermined by Allah SWT since time immemorial (before the creation of the universe) and occurs according to His absolute will.

The Qur'an states this clearly in several verses, one of which is in Surah Al-Hadid verse 22::

مَآ اَصَابَ مِنْ مُّصِيْبَةٍ فِى الْاَرْضِ وَلَا فِيْٓ اَنْفُسِكُمْ اِلَّا فِيْ كِتٰبٍ مِّنْ قَبْلِ اَنْ نَّبْرَاَهَاۗ اِنَّ ذٰلِكَ عَلَى اللّٰهِ يَسِيْرٌ ۖ ﴿٢٢﴾

"No disaster (whatever) strikes upon the earth or among yourselves except that it is in a Book (Lauh Mahfuzh) before We bring it into being. Indeed, that is easy for Allah."

This verse illustrates that all events, whether they appear to be good or bad, have been written in the Lauh Mahfuzh, a perfect divine record. In addition, Surah Yunus verse 61 also reinforces the belief in Allah's all-pervading knowledge:

وَمَا تَكُوْنُ فِيْ شَاْنٍ وَّمَا تَتْلُوْا مِنْهُ مِنْ قُرْاٰنٍ وَّلَا تَعْمَلُوْنَ مِنْ عَمَلٍ اِلَّا كُنَّا عَلَيْكُمْ شُهُوْدًا اِذْ تُفِيْضُوْنَ فِيْهِۗ وَمَا يَعْزُبُ عَنْ رَّبِّكَ مِنْ مِّثْقَالِ ذَرَّةٍ فِى الْاَرْضِ وَلَا فِى السَّمَاۤءِ وَلَآ اَصْغَرَ مِنْ ذٰلِكَ وَلَآ اَكْبَرَ اِلَّا فِيْ كِتٰبٍ مُّبِيْنٍ ﴿٦١﴾

"And you are not in a state, nor do you read from the Qur'an a single verse, nor do you do any work, but We are witnesses to you when you do it. There is nothing hidden on earth or in the heavens that is not in the Book of Light (Lauh Mahfuz)."

In addition to the Qur'an, the concept of destiny is also reinforced in the Sunnah of the Prophet SAW. In a hadith narrated by Muslim, the Prophet Muhammad SAW said:

كَتَبَ اللَّهُ مَقَادِيرَ الْخَلَائِقِ قَبْلَ أَنْ يَخْلُقَ السَّمَاوَاتِ وَالْأَرْضِ بِخَمْسِينَ أَلْفِ سَنَةٍ

"Allah has determined the destiny of all creatures fifty thousand years before He created the heavens and the earth." (HR. Muslim).

This Hadith explains that destiny is not a spontaneous result of the interaction of the physical world, but was planned before the creation of the universe began.

However, it is important to understand that in the Islamic view, destiny does not necessarily remove human responsibility. Although everything is predetermined, humans still have the ability to choose and act, and will be held accountable for these choices. This is what is called the concept of ikhtiar, which is the human effort in living life, which goes hand in hand with the belief in divine destiny.

According to Asmadi (2021), the understanding of destiny in Islam must be seen in the context of a balance between divine decree and human freedom. This concept is not a form of absolute determinism as understood in some other religious traditions, but is more inclusive and dynamic, providing space for humans to use their reason and will in living life. In the Islamic theological tradition, especially that of the Sunni school, the concept of destiny is divided into two main terms: qada' and qadar. Although often used together and sometimes considered synonymous, these two terms have substantially different meanings within the framework of Islamic belief.

In language, qada' comes from the Arabic word qadha (قضى), which means to determine or decide. In a theological context, qada' refers to the absolute and definite decision of Allah SWT over everything. Meanwhile, qadar comes from qadara (قدر), which means to set with a certain measure, and refers to Allah's arrangement of everything according to His provisions.

According to Al-Ghazali (2021), one of the important theological figures in Sunni Islamic thought, qada' and qadar are part of the aspect of Allah's knowledge and will that encompasses all of His creation. He explains that Allah has known everything since the beginning (before creation), established it in Lauh Mahfuzh, and created it according to His will.

The Sunni school, especially the Ahlussunnah wal Jamaah school, views destiny as part of the divine attributes that cannot be questioned rationally, such as the dzatiyah (existence) of Allah. This belief is contained in the sixth pillar of faith, namely "faith in good and bad qadar" (Al-Qur'an, Surah Al-Hadid: 22; Surah Yunus: 61).

However, although the Sunni school believes in the principle of divine decree, they also assert that humans still have the ability to think, choose, and act a view called al-amr bayna al-amrayn (the problem between two problems), which is a moderate position between absolute determinism (Jabariah) and complete freedom (Qadariah). Thus, humans are still held accountable for their actions, even though everything has been known and determined by Allah.

The Prophet's Hadits states:

كُلٌّ يَعْمَلُ عَلَى شَاكِلَتِهِ فَيُسَهِّلُهُ لِمَا خُلِقَ لَهُ

"Everyone does a deed according to his nature, so Allah makes easy for him what he was created for." (HR. Bukhari and Muslim)

These verses and hadiths show that although the path of human life has been outlined by destiny, he still has moral responsibility for his choices.

According to Asmadi (2021), within the framework of Islamic theology, destiny is not a form of fatalism that frees humans from effort and responsibility, but rather a divine scheme that provides space for endeavor as a manifestation of the gift of reason and will given by God to humans.

In Islam, the concepts of taqdir (destiny) and ikhtiar (human effort) are often at the center of philosophical and theological discussions. On the one hand, the belief that everything is predetermined by Allah SWT raises a big question: if everything is predetermined, do humans have the freedom to act? On the other hand, religious teachings also encourage people to try, pray and take responsibility for their choices.

The central question in this discussion is: Is endeavor merely an illusion in terms of absolute destiny? To answer this, we need to understand both concepts in greater depth, as well as see how the relationship between the two is explained in the Qur'an, Hadith and Sunni theological thought.

All of this has been explained above, but to reiterate that in language, taqdir comes from the Arabic root qadara (قدر), which means to determine or measure. In the context of theology, taqdir refers to the belief that everything, whether it appears to be good or bad, has been planned by Allah

since the beginning of time (before the creation of the universe). This includes God's knowledge of everything, including the future of every living being.

Meanwhile, ikhtiar comes from the word ikhtara (اختار), which means to choose or try. In Islamic terminology, ikhtiar refers to human endeavor in living life, making decisions, and acting on the abilities of reason and will given by Allah SWT. The question "is everything predetermined?" carries important philosophical implications, especially in views on human freedom, moral responsibility, and God's justice.

If everything is completely predetermined, then it seems unfair for God to punish or praise people for deeds that they cannot change. However, if man is completely free, then this could pose a challenge to the concept of God's absolute dominion.

The solution proposed by the Sunni school is that God knows everything from the beginning, including the choices that humans will make. God's knowledge does not limit human freedom, because knowledge is not the same as causation. Thus, humans still have room to choose and act, even though everything is known by God before it happens. In the context of this research, the idea that humans have room to make efforts even though destiny has been determined can be analogized to the principle of uncertainty in quantum mechanics. Like subatomic particles that have probabilistic opportunities, humans also live in a global scheme of taqdir that provides room for local variations in the form of choice and effort.

This analogy is not meant to diminish God's authority as Creator and Decider of all, but rather to enrich the way we understand the relationship between divine determinism and human freedom. With this approach, we can see that uncertainty is not chaos, but part of the cosmic design that allows for freedom, choice and meaning.

Philosophical Analysis: Divine Determinism vs Quantum Probability

In the contemporary world of thought, the encounter between modern science and theology often presents profound conceptual challenges. One of the main topics in this discussion is the question of whether or not destiny should be understood in absolute terms. From the perspective of quantum physical science, the universe appears to be probabilistic in nature full of chance and uncertainty. Meanwhile, from an Islamic theological perspective, destiny is often explained as an absolute decree that has been written by Allah SWT since the beginning of time.

The opposition between divine determinism (absolute destiny) and quantum probability (intrinsic uncertainty at the particle level) becomes an important arena for understanding how humans can live within a religious belief system while accepting the reality of a complex and not entirely predictable physical world. On the other hand, the development of quantum physics, especially Heisenberg's uncertainty principle, brings a new paradigm in understanding reality. This principle states that at the subatomic level, we cannot know with certainty either the position or momentum of a particle at any given time. This suggests that the universe has an intrinsic structure that is probabilistic.

Werner (2020) states that quantum mechanics is not just a mathematical model, but also describes the limits of human knowledge about the physical world. He emphasizes that quantum uncertainty is not the result of technological limitations, but rather an innate property of reality itself.

In other words, if the universe is inherently non-deterministic, then this has major implications for the way we understand destiny. Is destiny also probabilistic? Can we envision destiny as a global statistical scheme that leaves room for effort as a local manifestation of available opportunities?

One of the biggest challenges in maintaining a view of absolute predestination is how to explain the existence of human freedom and moral responsibility. If everything is predetermined, then it seems unfair for God to punish or praise man for his actions.

However, if we integrate the notion of quantum probability into a theological framework, then the possibility arises that destiny does not have to be understood in absolute terms. In this model, destiny can be seen as a global probability scheme, while human endeavors are local manifestations of the available opportunities. Thus, humans still have room to make choices, although these choices are within the corridor of divine decrees.

The encounter between science and religion is often perceived as a clash between two worlds that cannot come together. However, in the context of the development of modern thought, especially with the emergence of the probabilistic paradigm in quantum physics, there is a new opportunity to build a bridge between divine determinism in Islamic theology and the intrinsic uncertainty in the structure of the universe.

On the other hand, quantum physics brought a new paradigm of reality. The Heisenberg uncertainty principle states that at the subatomic level, we cannot simultaneously know the position and momentum of particles with perfect accuracy. This is not a technological limitation, but an essential feature of the universe itself (Busch et al., 2022).

Werner (2020) explains that quantum mechanics changes the way we understand knowledge and reality. He emphasizes that the uncertainty principle is not only an empirical phenomenon, but also shows that there are inherent limits in the human ability to know everything with certainty.

As such, the universe is not completely deterministic, but rather probabilistic. Every event has a number of possible outcomes, and measurement is simply a way to "choose" one of them.

Can these two paradigms coexist? If we view destiny not as an absolute deterministic system, but rather as a global probability scheme, then the potential for harmonization becomes apparent.

In this framework:

1. Destiny can be understood as a statistical scheme that encompasses the entire possible course of the universe.
2. Human endeavors are local manifestations of the opportunities available in the global scheme of things.
3. Allah, as the Creator and Decider of all, knew all these possibilities from the beginning, but left room for His creatures to choose and act.

As an analogy, think of destiny like a quantum probability field: it includes all possible futures, yet the final outcome depends on local interactions in this case, human choices and efforts. This model does not diminish God's authority as all-knowing and all-powerful, but rather enriches the way we understand the relationship between God's will and human freedom. As Al-Ghazali (2021) says, man has a relative iradah will permitted by God, so he remains responsible for his choices.

The “Quantum of Destiny” Model

In an attempt to build an integrative framework between modern science and Islamic theology, a new concept called "Quantum Destiny" has emerged. This model tries to see destiny not just as an absolute decree (qadar muqaddar), but rather as a global statistical scheme that leaves room for endeavors as local manifestations of available opportunities.

Much of the understanding of destiny in religions, including Islam, is often interpreted in absolute terms. This view causes some believers to feel passive towards fate and less motivated to make efforts. On the other hand, the development of quantum physics shows that the universe is not completely deterministic it has a probabilistic structure.

The Heisenberg uncertainty principle, for example, teaches that at the subatomic level, we cannot know the exact position and momentum of a particle simultaneously (Busch et al., 2022). This paves the way for viewing reality not as a straight, predetermined line, but as a dynamic field of possibilities. In the Quantum Fate model, fate is defined as a global statistical scheme that encompasses the entire possible course of the universe and the events within it. In this context:

Allah SWT, as the Creator and Decider of everything, knows all such possibilities since the beginning of time. However, the final outcome of an event depends on local interactions in this case, human choices and efforts (ikhtiar). Thus, destiny is not a single, predetermined line, but rather a field of opportunities designed by Allah, where humans make their choices.

A good analogy is the probability field in quantum mechanics: each particle has a number of possible locations and momentum, and measurement is just a way of "choosing" one of those possibilities. Similarly, destiny can be seen as a cosmic field of opportunities, while human endeavors are the process of "measuring" or the local manifestation of those opportunities.

In the world of philosophy, science and the study of human freedom, the concepts of destiny (determinism) and free will have long been a topic of debate. Theological traditions such as classical Islam developed various approaches to explain the relationship between God's will and human action. However, in the modern century, with the development of quantum physics and a new understanding of uncertainty in the universe, alternative models have emerged that attempt to understand this reality more holistically.

One interesting model is "Quantum Destiny", a conceptual framework that sees destiny not as an absolute determination, but as a field of opportunities in which human endeavors are local outcomes of the choices available within the field. In other words, destiny is not absolute, but probabilistic; while endeavors are the way humans interact with those opportunities.

Quantum physics states that subatomic particles do not have a specific position or momentum until they are measured. The uncertainty principle (Heisenberg, 1927) and the Copenhagen interpretation imply that the universe is at its fundamental level probabilistic, not deterministic. This is in contrast to the Newtonian view that previously dominated science, which portrayed the universe as a giant machine that works in a definite and predictable manner.

In this context, the term "quantum" is used as a philosophical metaphor: human life and social reality can be seen as a not entirely predictable system, where each decision opens or closes other possibilities, similar to the superposition principle in quantum. In the "Quantum of Destiny" model, destiny is seen as a field of opportunities, not a straight line written from the beginning, but a complex network of realizable possibilities. Each individual is born into certain conditions (environmental, genetic, cultural), which determine the initial limits of the opportunities available to him. (Zohar, 1990). However, within these limits, humans have the space to make choices, namely endeavors. These choices are not only the result of free will, but also a response to information, experience and the existing opportunity structure. Thus, the endeavor is not a completely autonomous action, but is the result of the interaction between the individual's consciousness and the opportunity environment he faces.

For example, someone born in a remote area may have limited educational opportunities compared to those living in the city center. However, if he has access to the internet or assistance from social organizations, then these opportunities can be expanded. He then makes efforts based on these new opportunities.

This model also (Polkinghorne, 2020) offers a synthesis between scientific and spiritual perspectives. From a spiritual perspective, especially in the Islamic tradition, the belief that everything has been written by Allah (qada' and qadar) should not be understood as fatalism. Rather, it can be understood that Allah knows all possibilities, including the choices that humans will make, without limiting their freedom.

This view is in line with the theory of compatibilism in philosophy, namely that human freedom can exist in the context of divine destiny. (Nursi, 2007) In the context of the quantum model, destiny can be seen as Divine knowledge of the field of opportunities, while ikhtiar is a manifestation of human activity in using the gifts of reason and heart to choose their own path. Imagine destiny as a potential energy field or possibility space, where each individual has a set of possible life paths to realize. This visualization is similar to the concept of wave functions in quantum physics, where particles do not have a specific position until they are observed (Faye, 2020).

In the human context, observations can be likened to conscious actions or decisions made based on information, experience and internal values. Each decision will "collapse" one of many possibilities into reality, while other opportunities remain as unselected alternatives. As a visual representation, we can imagine this model as a dynamic decision tree:

1. The roots of the tree represent the genetic background, social environment, culture, and economic structure that the individual comes from.
2. The trunk and branches represent the available life opportunities.
3. The leaves represent the specific choices that can be made at each point in time.
4. Wind and sunshine represent external factors such as unexpected encounters, access to information, and spiritual and moral encouragement.

Whenever a person makes a decision, one of the branches will become the main path, while the other branches remain as unrealized potential. This reflects the principle that destiny is not static, but always moving according to the interaction between objective conditions and people's subjective activities.

Islamic epistemology, the study of how humans acquire knowledge within the framework of Islamic teachings, strongly emphasizes the combination of revelation (revealed knowledge), reason (rational thought), and experience (empiricism). In this regard, the Quantum of Destiny model can be a relevant interpretative framework, as it not only explains the relationship between destiny and endeavor, but also makes room for knowledge formation as an active process.

In the Sufistic tradition, for example, it is said that Allah knows everything before it happens (al-'Ilm al-Laduni), but humans still act based on their own awareness. This is in line with the principle that human knowledge is local and contextual, while divine knowledge is global and absolute (Saeed, 2014).

This model is also relevant to the thinking of scholars such as Al-Ghazali and Ibn Arabi, who emphasized the importance of spiritual intuition (ma'rifah) in understanding reality. If we analogize,

then ma'rifah can be seen as the ability to "see" the field of opportunities more broadly, thus enabling humans to make wiser choices.

Moreover, in Islamic epistemology, endeavors are not only seen as material, but also spiritual. (Noble, 2015) Prayer, dhikr and taqwa are considered as ways to expand life opportunities and get closer to God. This can be interpreted as a way to increase one's capacity to navigate the field of opportunities provided by destiny.

Cosmological and Ethical Implication

The "Quantum of Destiny" model is based on the principle that reality is probabilistic, not deterministic. This is in line with the Copenhagen interpretation in quantum mechanics, where particles do not have a definitive state until they are observed (Faye, 2020). Borrowing this analogy for the macroscopic scale, we can understand destiny as a space of possibilities available to humans, where each individual has a set of life paths that he or she can choose based on local conditions and personal awareness.

It rejects extreme fatalism, the belief that all events are fixed and unchangeable. Instead, it opens up space for humans to actively interact with the world, make conscious choices, and responsibly shape their own destiny. From a cosmological perspective, this model suggests that the universe is not a static machine, but a dynamic system that allows for creativity, adaptation, and moral responsibility. (Creswell, 2018)

If destiny is not a single line, but a field of opportunities, then humans have room to choose. This is the basis of moral responsibility. In this framework, endeavor is not just the result of internal or external impulses, but a process of conscious evaluation of the opportunities available, as well as their consequences both for oneself and others (Hodsgon, 2012).

For example, if a person faces a situation where they can choose between being honest or lying, both options are part of the chance field of destiny. However, the choice made will shape a new reality, both in terms of personal experience and social impact. Therefore, humans are still responsible for their choices, because despite the limits of fate, they still have the capacity to evaluate and choose.

In the Sufistic tradition and Sufism thought, it is said that humans have two types of knowledge: external knowledge (external knowledge) and internal knowledge (intuitive or spiritual knowledge). Inner knowledge is often associated with the ability to "see" life's opportunities more broadly, thus assisting in making wiser choices (Saeed, 2014). This can be interpreted as a way to increase one's capacity to navigate the opportunity field of destiny.

In addition, prayer, dhikr and taqwa are regarded as means to expand life opportunities and strengthen moral capabilities. In other words, these spiritual practices not only aim to draw closer to God, but also increase awareness and sensitivity to better choices.

From a social perspective, the Quantum of Destiny model implies that the distribution of opportunities in society must be fair. Structural injustices that limit individuals' access to education, employment or legal justice will narrow the space for their endeavors. Therefore, society has a moral responsibility to create an environment that supports the development of the potential of each of its members (Appiah, 2018) . This is relevant to the principle of maslahah in Islamic fiqh, which places the public interest as the primary consideration in formulating laws and policies. If we understand that destiny includes collective opportunities, then maintaining social justice becomes part of our collective moral responsibility.

In the past two decades, developments in contemporary science, especially in the fields of quantum physics, neuroscience and complexity theory, have changed the way we understand reality. The Newtonian deterministic view that once dominated Western thought is beginning to be replaced by probabilistic frameworks and dynamic systems. It is in this context that alternative models such as "Quantum Fate" have emerged, an approach that is not only scientifically relevant, but also has profound implications in the understanding of moral responsibility and the structure of the cosmos.

Traditional understandings of destiny are often influenced by a mechanistic view of the universe where everything is governed by definite laws that can be predicted if all the prior information is known. However, the scientific revolution of the 20th century brought a new paradigm. Quantum mechanics showed that at its fundamental level, the universe is probabilistic; subatomic particles do not have a specific position or momentum until they are measured (Faye, 2020).

Copenhagen's interpretation implies that reality is not fully determined prior to observation. This opens up space for the idea that humans, as conscious agents, are not simply products of initial conditions, but actors who also shape reality through their choices. With this analogy, destiny can

be viewed as a field of opportunities rather than an absolute straight line and endeavor becomes a process of interaction between human consciousness and these opportunities.

In addition to quantum physics, developments in neuroscience have also provided new perspectives on free will. Recent studies have shown that although brain activity can be predicted seconds before a conscious action occurs, humans still have the ability to reflect on options and adjust their responses (Haggard, 2020).

This supports the compatibilist view in philosophy, namely that determinism and freedom can exist simultaneously as long as individuals have the capacity for reflection and control over their actions. The Quantum Model of Destiny is in line with this view: man acts within the limits of available opportunities, but he still has room to make responsible conscious choices.

In modern scientific epistemology, humans are no longer seen as passive observers of the universe, but as active participants. Einstein's theory of relativity suggests that observation itself affects objective reality, while the participatory universe interpretation proposed by Wheeler and Zeilinger states that observation is part of the creation of reality (Zeilinger, 2021).

If we apply this principle in a philosophical-spiritual context, then human beings are not just creatures of fate, but agents who shape the course of history. This gives a new dimension to the understanding of moral responsibility: that every choice not only affects oneself, but also remodels the structure of opportunities in social and cosmic reality.

CONCLUSION

The Heisenberg Uncertainty Principle shows that at the subatomic level, position and momentum cannot be simultaneously determined with certainty, making the universe probabilistic rather than deterministic, while the Copenhagen interpretation highlights the observer's role in collapsing quantum possibilities into reality. In Islam, destiny (qada' and qadar) is determined by Allah SWT but does not negate human responsibility, as humans are encouraged to strive, pray, and use reason in making choices. The "Quantum Destiny" analogy connects these ideas, portraying destiny as a field of divine opportunities where human free will (ikhtiar) collapses potential paths into lived reality, similar to quantum superposition. This model emphasizes that uncertainty is not chaos but part of divine design, affirming both God's absolute knowledge and human moral responsibility, while also encouraging ethical action, spiritual practice, and social justice. Ultimately, it offers a dialogue between science, faith, and philosophy by integrating quantum principles with Islamic teachings on freedom and responsibility.

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