

Unit 3: What Does it Mean to be a Human Being?

Neuroscience, Artificial Intelligence and the Soul.

Lesson 2: Artificial Intelligence

Time Length: 45-50 min.

INSTRUCTIONAL OUTCOMES

Next Generation Science Standards (NGSS):

LS1: From Molecules to Organisms: Structures and Processes: Relates to understanding human consciousness and AI.

ETS1: Engineering Design: Connects with exploring and understanding AI technology.

- Cause and Effect: Discusses the implications of AI on humanity and consciousness.
- Systems and System Models: Considers AI as a system in comparison to the human system.

Science and Engineering Practices:

- Developing and Using Models: Involves discussions on AI models and human consciousness.
- Obtaining, Evaluating, and Communicating Information: Engages students in analyzing and discussing various AI-related information.

Common Core Standards (CCSS):

Reading Standards for Informational Text:

- Key Ideas and Details: Encourages students to comprehend and engage with informational texts and videos on AI and human consciousness.
- Craft and Structure: Analyzing videos, presentations, and discussions aligns with understanding the structure of multimedia presentations.

Writing Standards:

- Text Types and Purposes: Potential writing activities could align with producing informative/explanatory texts or argumentative essays based on the discussed topics.
- Production and Distribution of Writing: Encourages written expression about AI, consciousness, and theological implications.

Speaking and Listening Standards:

- Comprehension and Collaboration: Engages students in discussions, debates, and reflective activities.
- Presentation of Knowledge and Ideas: Encourages presentations or discussions showcasing understanding and reflections about AI and consciousness.

Content Learning Outcomes:

- Identify how Artificial Intelligence differs from Human Consciousness.
- Define consciousness and discuss how this experience cannot be reduced to physical processes.
- Expand conceptual vocabulary for relevant discussions at the junction of theology and bioscience.

- Demonstrate how the Islamic view of the world and the soul provides a comprehensive worldview that is lacking in scientism/physicalism.

Materials:

- **Presentation Slides** (Slides 23-37)
- **Triple-Entry Vocabulary Journal** (Student Responsibility)
- Meet Sophia Video - **Meet Sophia: The first robot declared a citizen by Saudi Arabia**
- Turing Test Video - **The Turing test: Can a computer pass for a human? - Alex Gendler**
- How ChatGPT works - **So How Does ChatGPT really work? Behind the screen!**
- Website - **OpenAI**
- Artificial Intelligence and Personhood Video - **Artificial Intelligence & Personhood: Crash Course Philosophy #23**

Instruction/Teacher Facilitation:

- ❖ “What does it mean to be human” is a very important question and discussion, especially in today’s society with so many conflicting views on worldviews. But it is not only in terms of people’s views but also with technological advancements. This leads us to robots and artificial intelligence; can robots really replace us as humans? Well, that depends on how “human” they are and how we define humans.
- ❖ As part of this Unit’s discourse, we have already discussed physicalism or neuroscience reductionism and that they believe humans can be reduced to only physical aspects. We saw that the issue remained about consciousness and having a purpose in life. Applying what we have learned in Lesson 1 about what it means to be human and have consciousness, let’s now discuss artificial intelligence and see if it resolves these issues and can be defined as similar to a human (which helps us determine if it can truly replace us as humans or not).

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- ❖ To connect with our previous lessons, we saw:
 - Neuroscience, and we saw through that discussion that we humans have Consciousness but what is the Mechanism is left unanswered.
 - Artificial Intelligence, which we will look at now, we know the mechanism but the question then becomes, does it have Consciousness?

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- ❖ Let’s begin with: What is Artificial Intelligence or AI?
 - Artificial intelligence in very simple terms is the “ability to perform a task.”
 - It is the science of making machines think like humans. AI technology can process large amounts of data in ways, humans can not, hence the “intelligence.” The goal for AI is to be able to do things such as recognize patterns, make decisions, and judge, similar to the way humans do.
 - 2 types of Artificial Intelligence: Weak AI and Strong AI
 - Weak AI
 - Machine Learning - broadly defined as the capability of a machine to imitate intelligent human behavior. Machine learning focuses on the use

of data and algorithms to imitate the way that humans learn, gradually improving its accuracy.

- Deep Learning - a type of machine learning that teaches computers to process data in a way that is inspired by the human brain. Deep learning models can recognize complex patterns in pictures, text, sounds, and other data to produce accurate insights and predictions. Essentially, it is a neural network with three or more layers. These neural networks attempt to simulate the behavior of the human brain—albeit far from matching its ability—allowing it to “learn” from large amounts of data.
- Neural Networks - Artificial neural networks are a branch of machine learning that uses interconnected nodes or neurons in a layered structure that resembles the human brain.
- Strong AI & Artificial Generalized Intelligence - Strong AI aims to create intelligent machines that are indistinguishable from the human mind. The AI machine would have to learn through input and experiences, constantly progressing and advancing its abilities over time. Like a robot that thinks and functions like a human.
- Generative AI & Large Language Models (LLMs) - Generative AI models can take inputs such as text, image, audio, video, and code and generate new content into any of the modalities mentioned. For example, it can turn your texts into an image, turn an image into a song, or turn video into text. Large Language Model is a type of GenAI that is focused on generating text, for example, the most well-known LLM is ChatGPT, trained on vast amounts of text data.
- Augmented Intelligence in Health Care - Augmented intelligence is a design pattern for a human-centered partnership model of people and artificial intelligence (AI) working together to enhance cognitive performance, including learning and decision-making.
- NOTE: Augmented intelligence offers suggestions to humans to make decisions, unlike artificial intelligence, which works through data and makes anonymous decisions.

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- What implications does Generative AI have for humanity?
 - Watch Video “Meet Sophia”: **Meet Sophia: The first robot declared a citizen by Saudi Arabia**
 - Post-video discussion - Differentiate between intelligence (ability to do things) and consciousness (ability to experience things).
 - Ask students: Can you attribute consciousness to something that is created with a different type (non-biological) material?

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- The Turing Test - Can a computer talk like a human? The Turing test is a test to determine if a computer program can think of responses that can fool a human into believing it, too, is human.
 - Watch **The Turing test: Can a computer pass for a human? - Alex Gendler**
 - Ask students:

- Do you think Sophia passes the Turing Test?
- Do you think we will ever be able to pass the test? Could we get to a point of making a “human”?

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- Google Engineer AI Discussion -
 - Ask students if this transcript was convincing? Would this pass the Turing Test?

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- Everyone has heard of and used chatGPT by now, but do you know how it works:
 - Ask students: What type of AI is chatGPT? [A: Large Language Models (LLMs) and has now many generative AI features.]
- Watch: **So How Does ChatGPT really work? Behind the screen!**
[The entire video does not have to be viewed, just enough for the students to get an idea of how it works.]
- Let's try it, talk to a computer - [OpenAI](#) - ChatGPT - have students open the website and ask a series of questions.
[Many students have used ChatGPT and other forms of GPT's so they might already be aware of the experience. Therefore, this activity can be used at teacher's discretion as per the students' experience with it.]

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❖ Is Artificial Intelligence Really Human-Like?

- Watch **Artificial Intelligence & Personhood: Crash Course Philosophy #23**

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- Chinese Room Experiment - Ask Students their thoughts on the Chinese Room Experiment and if they really think that the person could pass as strong AI.
 - Compare and contrast the Turing Test to Searle's Chinese Room “test”
 - Searle believes that the computer/AI must have actual understanding in order to pass as strong AI or “human,” which he believes is impossible. Do you agree with his belief?
 - Hank thinks his brother John might be an android, but probably not. Why do you think he thinks his brother is probably not an android or some AI machine?
- Highlight the irony of AI having the physical structure/setup but no ability to explain consciousness, while human beings have consciousness but no ability to explain it structurally.
- Display this through the idea of intentionality as seen through the Chinese Room Experiment (Can answer a question through syntax [structure of language] but not with semantics [meaning of the words]).
 - Knowledge vs. Understanding
- Correlation vs Causation
 - In the Chinese case, I have everything that artificial intelligence can put into me by way of a program, and I understand nothing; in the English case I understand

everything, and there is so far no reason at all to suppose that my understanding has anything to do with computer programs.

- Relationship with the world: is this how the world actually functions? Just piece together information without any true meaning?
- Syntax vs Semantics: Syntax is the structure of language whereas Semantics is the meaning of individual words. (Think of how people use the Thesaurus to just replace words and sometimes it doesn't sound right or make sense in that context.)

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- ❖ What aspects of Humanity does AI replicate?
 - Compare the structure of Machines and AI – electronic circuits, silicone chips – to that of human beings' biological structure, hormones, cells.
 - Behavior and Functionally replicable....but NOT
 - Experiences
 - Comprehensive Knowledge
 - Understanding
 - Spiritual states
 - Intentionality/Purpose

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- ❖ Karamali Worship Experiment - Spiritual Experience (Human experience vs AI)
 - There is a vast richness in our inner-human experience, such that if a module wanted to explain or understand it, it would be incapable of doing so.
 - Is it feasible to expect AI to do something such as repentance of a sin? No, because there is no feeling of regret (or any feelings at all actually), of doing something wrong, so why would it repent.
 - Complexity of what it means to be human - having a holistic worldview makes having a soul not problematic, and actually is definitive of being human.
 - "He has truly succeeded who purifies his soul and mentions the Name of his Lord, and prays. Nay, but you prefer the present life; even though the world to come is better, and more enduring." (Surah Al-A'la 87:14-16) - The Islamic concept of being a human and human existence/purpose is to purify the soul and build on the inner-experience.

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- There is a willful modulation of human states; you cannot merely look at the physical body and identify *why* it is happy or sad. Our purpose in life is to regulate these inner-states: Going from _____ to _____.
 - Arrogance to Humility
 - Self-Admiration to Gratitude
 - Love of This World to Love of God
 - Love of Prestige to Sincerity
 - Rebellion to Repentance

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- Let's assume a computer passes the Turing Test

- Can it really talk?
- Can it come close to God?

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❖ An Islamic Model of the Soul

- This diagram represents an Islamic model of the soul, which is a concept in Islamic psychology. In this model, the 'nafs' or self goes through a process of development and refinement. There are three principal stages of nafs:
 - The inciting nafs (an-nafs al-ammārah) is the lower self that incites people to commit evil and pursue base instincts.
 - The self-accusing nafs (an-nafs al-luwwāmah) is the stage where the self becomes conscious of its wrongdoings and starts to seek forgiveness and betterment.
 - The nafs at peace (an-nafs al-muṭma'innah) is the final stage where the self is at peace with itself and with its Creator, having achieved a state of tranquility and contentment.
- This progression is seen as a journey of spiritual development that moves from a focus on the ego and materialism towards a state of self-awareness and peace.
- Key terms presented here:
 - Fitrah: The natural disposition or innate tendency humans are born with to worship God.
 - Ruh: The spirit or soul, which is breathed into a human being.
 - Qalb: The spiritual heart, not the physical one, considered the seat of the spiritual and emotional life.
 - Nafs: The self or ego, which has different stages of development.
 - Aql: Intellect or reason, which is used to discern truth.
 - Hawaa: Desires or whims, which can lead one astray if not controlled.
 - Munjiyat: Acts that bring salvation.
 - Muhlikat: Destructive, sinful acts.
 - Jihad an Nafs: The spiritual struggle within oneself against sin.
 - Tazkiyat an Nafs: Purification of the self.
 - Tahdhib al Akhlaq: Refinement of character.
- These terms map out a person's journey of spiritual purification and growth, aiming for a state of harmony with the divine will.
- Ask Students: Would AI be able to go through these stages? If not, then how close or distant is it to being human?
- A computer doesn't have many of these elements of the soul, therefore can never actually be human. This answers the question very clearly that a computer does not have the ability to get close to Allah Almighty.
- Furthermore, it is not really talking with an 'aql of its own, it is only mimicking the behavior of talking. There is no emotion that is truly felt and no changing of the states of the heart and the soul.

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- As Allah Almighty says: “He has truly succeeded who purifies his soul and mentions the Name of his Lord, and prays. Nay, but you prefer the present life; even though the world to come is better, and more enduring.— (Surah Al-A’la, 87:14-17)
- Therefore, a computer, any form of AI can never truly be successful.

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❖ In Summary:

- Going back to comparing “what does it mean to be human? And “what is the purpose of life?” We can see that only Islam provides us a purpose of this life, and that is connected to the soul and is a comprehensive worldview.
- Neuroscience is limited to only telling us information about our physical body and physical existence.
- And AI is only mimicking human behavior... and we see that:
 - AI is a functional algorithmic activity, whereas human activity is vast and has different intentionalities.
 - A human has a spiritual experience (for example, crying in tarawih); can the spiritual experience be functionally replicated? (A: No)
 - AI creates functional correlations between physically observable phenomena and never crosses into the unobservable soul, which we know through introspection and revelation.

Conclusion and Summary of Unit:

- Review the Islamic concept of what the soul is.
- Review the Islamic concept of what human nature is.
- Compare where science is successful and where it is facing challenges in understanding and explaining consciousness.
- Explain the limitations that come with AI and its bridging towards humanity/human consciousness.
- Determine the real experience of humanity far outweighs and outstrips that of AI.
- Review the Islamic worldview of metaphysics.
- Conclude that having a holistic worldview makes having a soul not problematic.

Biology Connections:

- Artificial intelligence (AI) and machine learning tools are revolutionizing life science research and biomedical applications.
- The Biology curriculum does not explicitly include a discussion of human consciousness. However, related concepts, such as the biology of the brain and nervous system, are part of Unit 4: Cell Communication and Cell Cycle, specifically in the context of cell communication. This unit addresses how cells interact through signaling pathways, which can be tied to the functioning of the nervous system.
- Where Human Consciousness could fit:
 1. Unit 4: Cell Communication and Cell Cycle
 - Neural signaling: Discussions about how neurons communicate via synaptic transmission and how these processes contribute to complex behaviors, including

- cognition and awareness. Discuss the biology of brain regions like the cerebral cortex, which are associated with higher-order functions.
 - Neurotransmitters and receptors: Explore how chemical signals in the brain play a role in thought processes and behaviors.
- 2. Unit 6: Gene Expression and Regulation
 - Neurogenetics: Highlight how gene expression in neural cells influences brain development and function, potentially linking to aspects of consciousness.
- 3. Unit 7: Natural Selection
 - Evolution of the brain: Discuss the evolutionary development of the human brain and its connection to higher-order functions like consciousness.
- Suggested Integration: teachers can introduce it as an extension topic. Connect to Islamic studies, psychology, philosophy, or AI to explore the science and theories of consciousness.

Islamic Studies Connections:

- As part of the post-video discussion on artificial intelligence and personhood, ensoulment can also be examined due to its mention in the video. Although it was presented as only a possibility, we know as Muslims, through revelation (qatti') that ensoulment is a necessary factor in being human.
 - On the authority of Abdullah bin Masud (R): Verily the creation of each one of you is brought together in his mother's belly for forty days in the form of (nutfa) [Gamete up to embryo]. Then he is a (alaqa) for a like period [embryo to fetus]. Then a (mudgha) for a like period [fetus to human]. Then there is sent to him the angel who blows the breath of life into him [En soulment = Personhood] (Related by Bukhari and Muslim)
 - According to the majority of scholars, the soul is blown into the fetus at 120 days (4 months) from conception. This is based on a Qur'anic verse and a Prophetic tradition: "And verily we did create man from a quintessence (of clay). Then we placed him (as a drop of sperm) in a place of rest, firmly fixed. Then we made the sperm into a clot of congealed blood. Then of that clot, we made a (fetus) lump. Then we made out of that lump bones and clothed the bones with flesh. Then we developed out of it another creature (by breathing life into it). So blessed be Allah, the Best of Creator." (Surah al-Mu'minun: 12-14)
- "...then He fashioned them and had a spirit of His Own breathed into them. And He gave you hearing, sight, and intellect. 'Yet' you hardly give any thanks." (Surah As-Sajdah: 9)
- The exact moment of Nafkh ar-Ruh (Blowing of the Soul/En soulment) can not be determined, but from revelation, we know that it is somewhere between 40-120 days.
- NOTE: a beating heart is not proof of ensoulment; this is a physical function.