

Training & Test Session Paragraphs

Below are the four pairs of paragraphs used in the training session. As discussed in the Methods section of the main paper, the two paragraphs in each pair target the extremes of one dimension of the Felder-Silverman learning style model. These paragraphs were derived from the same source text (not shown) obtained from Wikipedia to ensure they include the same educational material. Links to the versions of the Wikipedia page from which the source texts were taken are available as footnotes.

Pairs 1 to 4 correspond to the paragraphs used during the training session.

Generic 1 and Generic 2 correspond to the test session. Recall for the test session that the personalized text option was different for each participant. Therefore, only the generic text option is given here.

Pair 1 – Sequential-Global Dimension¹

Paragraph 1: The water cycle describes the process by which water circulates between the Earth's oceans, atmosphere, and land. This cycle involves the movement of water as it evaporates from surfaces, transpires from plants, condenses to form clouds, precipitates as rain or snow, and flows across the land into rivers and oceans. The stages of the cycle are evaporation, transpiration, condensation, precipitation, infiltration, surface runoff, and subsurface flow. During this cycle, water may change states among liquid, solid (ice), and gas (vapor).

Paragraph 2: The water cycle is a vast, interconnected system where water travels around our planet in various forms, from liquid in rivers and oceans to ice in glaciers and vapor in the air. It's a dynamic flow that connects all water sources, powered by processes like evaporation that lifts water into the atmosphere, precipitation that brings it down to Earth, and runoff that channels it back into the sea. This cycle is essential for life, as it distributes water and regulates climate, with the oceans as the primary engine driving the movement of water through evaporation.

Pair 2 – Sensing-Intuitive Dimension²

Paragraph 1: Climate change is leading to observable effects such as larger deserts, frequent heat waves, and increased wildfires. The Arctic is heating up faster, resulting in thawing permafrost and shrinking glaciers. Warmer weather is causing stronger storms and prolonged droughts. Changes in the environment, especially in mountains, coral reefs, and the Arctic, are pushing species to move or face extinction. Even with efforts to reduce warming, long-lasting impacts like warmer oceans, more acidic seawater, and rising sea levels will persist.

Paragraph 2: Climate change is reshaping our planet, with ecosystems like deserts growing, ice regions in the Arctic melting, and biodiversity at risk as habitats transform. These shifts are leading to more frequent and intense weather phenomena such as

¹ Link to Wikipedia article: https://en.wikipedia.org/w/index.php?title=Water_cycle&oldid=1187367664

² Link to Wikipedia article: https://en.wikipedia.org/w/index.php?title=Climate_change&oldid=1194624061

heatwaves, wildfires, and storms, reflecting an interconnected web of environmental disruptions. While proactive measures may alter the trajectory, some consequences, including changes to ocean temperature, acidity, and sea levels, are set to leave a lasting imprint, potentially redefining Earth's climate and landscapes for future generations.

*Pair 3 – Imagery-No Imagery Dimension*³

Paragraph 1: In the dance of nature, leaves soak up sunlight, using it as an energy source to craft sugars out of water and carbon dioxide, much like chefs creating a feast from simple ingredients. This process, known as photosynthesis, doesn't just feed the plants; it also releases oxygen, a breath of life for other creatures. Through this delicate ballet, plants act as both the kitchen and the lungs of the Earth, serving up energy-rich food while refreshing the planet's atmosphere, fueling life's intricate dance across the globe.

Paragraph 2: Photosynthesis is a process where organisms such as plants and algae convert light energy into chemical energy, which is then stored in sugars and other organic compounds. These compounds can later be used to produce energy through cellular respiration. The process also generates oxygen as a byproduct. The energy captured and stored by photosynthesis is essential for the growth and maintenance of these organisms and contributes significantly to the oxygen level in Earth's atmosphere, supporting various forms of complex life.

*Pair 4 – Active-Reflective Dimension*⁴

Paragraph 1: To grasp the differences between states of matter, take an ice cube as an example. As a solid, the ice cube retains its shape and volume—its molecules are tightly packed and locked in position. If you let the ice cube melt, it becomes water, a liquid that keeps a constant volume but flows to assume the shape of its container, with molecules that are close yet mobile. Should you boil the water, it turns to steam, a gas where the molecules are spread out, free to move, and fill any available space.

Paragraph 2: Consider an ice cube: a model for the solid state where its molecules are tightly packed and orderly, maintaining definite shape and volume. As heat induces melting, it transitions to a liquid—water—exhibiting a fixed volume like a solid but with adaptable shape, as its molecules move more freely. Further heating converts water to steam, a gas where molecules are dispersed and energetic, filling the volume of the container with no fixed shape.

³ Link to Wikipedia article: <https://en.wikipedia.org/w/index.php?title=Photosynthesis&oldid=1194516511>

⁴ Link to Wikipedia article: https://en.wikipedia.org/w/index.php?title=State_of_matter&oldid=1193099954

*Generic 1*⁵

Paragraph Text: The Earth's lithosphere, composed of the crust and part of the mantle, is segmented into seven or eight principal plates and numerous smaller ones. These plates intersect at boundaries where their movement relative to each other characterizes the boundary type: convergent, divergent, or transform. Boundaries where plates interact are often sites of geological activity, such as earthquakes, volcanism, the creation of mountains, and the development of oceanic trenches.

*Generic 2*⁶

Paragraph Text: The movement of electric charge is known as an electric current, the intensity of which is usually measured in amperes. Electric current can flow through some things, electrical conductors, but will not flow through an electrical insulator. By historical convention, a positive current is defined as having the same direction of flow as any positive charge it contains, or to flow from the most positive part of a circuit to the most negative part. Current defined in this manner is called conventional current.

⁵ Link to Wikipedia article: https://en.wikipedia.org/w/index.php?title=Plate_tectonics&oldid=1191104944

⁶ Link to Wikipedia article: <https://en.wikipedia.org/w/index.php?title=Electricity&oldid=119110291>