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(54) Title of the invention : DISCOURSE MAPPING AND ARGUMENT ANALYSIS DEVICE FOR SOCIAL SCIENCE TEACHING

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(57) Abstract :

The present invention discloses a Discourse Mapping and Argument Analysis Device designed to enhance structured reasoning, analytical discourse, and critical thinking in social science education. The device comprises an input module configured to receive spoken or written discourse from classroom discussions, online learning platforms, debate forums, and uploaded academic documents. In embodiments involving oral discussions, a speech-to-text conversion component translates audio inputs into machine-readable text. The received data is processed by a natural language processing engine that performs linguistic normalization, tokenization, syntactic parsing, semantic interpretation, and contextual analysis. An argument identification module automatically detects and classifies argumentative components, including central claims, supporting premises, counterarguments, rebuttals, assumptions, and evidentiary references. An argument structuring engine organizes the identified components into a logically connected network that distinguishes supportive and opposing relationships while maintaining structural coherence. The system ensures accurate relational mapping between arguments and sub-arguments, preventing inconsistencies or circular dependencies. The device further includes a scoring and evaluation module configured to generate analytical strength indicators based on logical consistency, evidentiary sufficiency, citation presence, relevance, and participation metrics. A visualization module produces an interactive discourse map representing arguments as interconnected nodes linked by weighted directional connectors that reflect argumentative influence and strength. Users may dynamically explore, expand, or modify the mapped structure for collaborative learning purposes. Additionally, a real-time feedback engine provides automated alerts and instructional guidance during live discussions or asynchronous submissions, enabling immediate refinement of reasoning. The device incorporates secure data storage, role-based access control, and longitudinal analytics to track progressive development of argumentation skills. The invention transforms unstructured discourse into structured analytical representations, thereby improving instructional efficiency, assessment objectivity, collaborative engagement, and critical thinking outcomes in social science education.

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