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Age Related Differences in Episodic Memory Recollections: Applying Latent Dirichlet Allocation to Free-Writings on Driving Incidents by Older and Young Drivers

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Abstract: Reporting driving incidents depends on episodic memories formed at a certain time point in the past, and its retrieval with subjective feelings. This study examined aging effects on episodic memory recollections by analyzing free writing reports by older and young drivers. Unstructured hand-writing samples from 199 older ($M_{age} = 69.2$) long-experienced ($M_{driving} = 43.0$ years), and 299 young ($M_{age} = 21.5$) novice ($M_{driving} = 2.2$ years) drivers were analyzed by Latent Dirichlet Allocation. This identified a 6-topic model labeled: (1) operational failures, (2) control aspects, (3) other vehicles, (4) jump-outs, (5) traffic lights, and (6) attention. Posterior distribution analysis revealed that older drivers reported less in topics concerning own driving operations. In addition, older drivers less attributed these topics to self than environment relative to young drivers. The age differences of episodic memory retrieval for free reports and applicability of natural language processing to psychology are discussed.