years of education may more infrequently present the concept of time in the clock drawing command condition. This study highlights the importance of considering education level in interpreting dCDT scores and features.

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49 Educational Differences in Digital Clock Drawing for the Copy Condition: A Bayesian Network Analysis

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Objective: Research shows that highly educated individuals have at least 20 graphomotor features associated with clock drawing with hands set for '10 after 11' (Davoudi et al., 2021). Research has yet to understand clock drawing features in individuals with fewer years of education. In the current study, we compared older adults with ≤ 8 years of education to those with ≥ 9 years of education on number and pattern of graphomotor feature relationships in the clock drawing copy condition.
Participants and Methods: Participants age 65+ from the University of Florida (UF) and UF Health (*N*= 10,491) completed command and copy digital Clock Drawing Tests (dCDT) as a part of a federally-funded investigation. Participants were categorized into two groups: ≤ 8 years of education (*n*= 304) and ≥ 9 years of education (*n*= 10,187). Propensity score matching was used to match participants from each subgroup (*n*= 266 for each subgroup) on the following: age, sex, race, and ethnicity (*n*= 532, age= 74.99±6.21, education= 10.41±4.45, female= 42.7%, non-white= 32.0%). Network models were derived using Bayesian Structure Learning (BSL) with the hill-climbing algorithm to obtain optimal directed acyclic graphs (DAGs) from all possible solutions in each subgroup for the dCDT copy condition.
Results: The ≤ 8 years of education group (education= 6.65±1.74, ASA= 3.08±0.35), retained 12 of 91 possible edges (13.19%, BIC= -7775.50). The network retained 2 clock face (CF), 5 digit, and 5 hour hand (HH) and minute hand (MH) independent, or "parent," features connected to the retained edges. In contrast, the ≥ 9 years of education group (education= 14.17±2.88, ASA= 2.90±0.46) network retained 15 of 91 possible edges (16.48%, BIC= -8261.484). The network retained 2 CF, 6 digit, 4 HH and MH, and an additional 3 total stroke parent features. Both groups showed that greater distance from the HH to the clock center also had greater distance from the MH to the clock center ($ß_z$= 0.73, both). Groups were similar in digit width size relative to digit height [$ß_z$(≤ 8 years)= 0.72, $ß_z$(≥ 9 years)= 0.74]. Digit height size related to CF area [$ß_z$(≤ 8 years)= 0.44, ßz(≥ 9 years)= 0.62] and CF area related to the digit distance to the CF across groups [$ß_z$(≤ 8 years)= 0.39, $ß_z$(≥ 9 years)= 0.46]. Greater distance from the MH to the clock center was associated with smaller MH angle [$ß_z$(≤ 8 years)= -0.35, $ß_z$(≥ 9 years)= -0.31], whereas greater digit misplacement was associated with larger MH angle across groups [$ß_z$(≤ 8 years)= 0.14, $ß_z$(≥ 9 years)= 0.29].
Conclusions: Education groups differed in the ratio of dCDT parent feature types. Specifically, copy clock production in older adults with ≤ 8 years of education relied more evenly across CF, digit, and MH and HH parent features. In contrast, those with ≥ 9 years of education differed in the additional reliance on total stroke parent features. Individuals with ≤ 8 years of education may more heavily rely upon visual referencing when copying a clock. This study highlights the importance of considering education level in interpreting dCDT scores and features.

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