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*Educational Research for Resilience:
Embracing Change and Navigating Challenges*

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Constructive Data Collection Tools for Research on the Impact of Electronic Devices on Students' Achievement in Social Science Subjects

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Abstract

This study focuses exclusively on the construction, validation, and reliability of data collection tools designed for research on the impact of electronic devices on students' achievement in the social science subjects of History, Geography, and Civics. The research problem examines how electronic devices affect the achievement of senior secondary students in social science subjects, addressing both their learning benefits and potential distractions. It fills a research gap by exploring trends, challenges, and effective usage strategies. The study was conducted across 16 schools within the South Division of the Puttalam Zone. The study population comprised 206 teachers and 664 students. Using a simple random sampling method, 135 teachers and 244 senior secondary students were selected as the research sample. Two key instruments were constructed: a teacher questionnaire and a student questionnaire. The teacher questionnaire consisted of two sections: a demographic section with 13 questions (3 open-ended and 10 closed-ended) and an objective section with 46 items (3 open-ended, 27 closed-ended, and 16 Likert-scale). The student questionnaire included a demographic section comprising 6 questions (2 open-ended and 4 closed-ended) and an objective section with 35 items (3 open-ended, 22 closed-ended, and 10 Likert-scale items). The variables incorporated into these tools were identified and derived from an extensive literature review, ensuring theoretical grounding and construct validity. The DELFI technique will be applied in the next phase to validate and refine the instruments with input from experts in language, research methodology, technology, and social sciences. These instruments were systematically structured around major variables. The dependent variables were the three social science subjects—Geography, History, and Civics—while the independent variables included types of electronic devices used, time and duration of usage, types of internet browsers, virtual platforms (Zoom, MS Teams), social media tools, and learning sources such as Google Maps, Google Earth, historical cartoons, virtual tours, eBooks, MS Encarta, and Wikipedia. Data will be analyzed using thematic, descriptive, and inferential methods through SPSS. Collectively, these tools establish a reliable framework for understanding the relationship between electronic device use and academic achievement in social science education.

Keywords: Data Collection Tools, Instrument Development, DELFI Technique, Construction, Validation