

## **Constructing a Two-Tier Test about Source Current to Diagnose Pre-Service Elementary School Teacher' Misconceptions**

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**Abstract :** The purpose of this article is to present the results of two-stage qualitative research. The first involved the identification of the alternative conceptions of 80 elementary pre-service teachers from Quebec in Canada about the operation of simple electrical circuits. To do this, they completed a two-choice questionnaire (true or false) with justification. Data analysis identifies many conceptual difficulties. For example, for their majority, whatever the electrical device that composes an electrical circuit, the current source (power supply), and the generated electrical power is constant. The second step was to develop a double multiple-choice questionnaire based on the identified designs. It allows teachers to quickly diagnose their students' conceptions and take them into account in their teaching.

**Keywords :** development, electrical circuits, two-tier diagnostic test, secondary and high school

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