



Development of a Two-Tier Static Electricity to Diagnose High School Students' Alternative Conceptions before Teaching

Abdeljalil Métioui¹

Université du Québec à Montréal, Canada¹

Abstract

Research conducted with students who have taken a basic course on the production of electric charges, the law of attraction between charge objects and between a charged object and an electrically neutral object (charge polarization) demonstrate that their conceptions constructed before teaching conflict with scientific knowledge, and they persist despite teaching [1]-[2]. The most erroneous conceptions identified in that research are: "A conductor can be charged by contact with a charged object"; "A negatively charged object in contact with another electrically neutral one transmits its charges"; "An object electrically neutral contains as many negative electrons as positive ones"; and "A positively charged object is attracted by a neutral object, because the charges seek an equilibrium". To explain this phenomenon of persistence, researchers are unanimous, to establish that teachers do not consider or neglect in their teaching their students' misconceptions or are not familiar with the Piagetian techniques to identify them. More, their identifications required time, which is not compatible with that indicated in the curriculum and the number of students who are enrolled in the class. To help teachers to identify the alternative conceptions of their students in order to consider in their class, more and more works develop a two-tier or three-tier test [3] to diagnose them in a short time. Thus, in this communication, we will present the development of a two-tier test on the static electricity that teachers will be able to use at the beginning of their class to identify the erroneous conceptions of students who have taken a course on this topic in secondary school.

Keywords: Qualitative study, alternative conceptions, before teaching, static electricity, high school, development, two-tier test;

References

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