

Unseen Barriers for Disabled Science Learners:

Misconceptions about Nature of Science

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The difficulties which disabled students face when they study science has been discussed many times in terms of educational materials and professional support given. However, one dimension which is usually ignored is scientists' misconceptions about the nature of science, which is an important issue for the performance and knowledge of all students, including disabled students, are evaluated by scientists and lecturers according to their own perceptions of science. When there is a communication problem between a student with a disability and an lecturer, which affects the student's motivation and thus performance negatively, this can be traced back to a misconception that leads the lecturer to the misconception that all students, irregardless of their physical abilities or individual differences, should handle all the procedures of solving a problem or carrying out an experiment by themselves without making mistakes. As a result of this misconception, lecturers have unrealistic expectations from their disabled students, contradicting the nature of science. In order to help disabled students to learn about science and able to contribute to scientific developments in the future, an alternative approach seems to be necessary to be adapted. For instance, in a laboratory, rather than requiring each student to directly manipulate data (which may be difficult for blind students), we should expect each student to be able to decide how to manipulate the values. This presentation will focus on the effects of misconceptions related with the nature of science on achievement of students with disabilities, as experienced by a number of students. One assumption is that scientists must know everything in their discipline, which is flawed as it ignores the roles of collaboration and information resources. Another one is that there is only one scientific method and all scientists must use it which ignores the significance observations. An importance of third assumption is that science produces absolute truth, what is wrong with this assumption is that if we accept this, we ignore the scientists' mistakes. A lecturer who has these misconceptions may not believe that a disabled student can be a scientist because according to them such students can not follow the scientific method, learn all the information in the discipline or carry out experiments. This century's famous scientist, Stephen Hawking, smiles at these misconceptions while sitting in a wheelchair. In fact his theories disprove “the absolute truth”.



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