

## OWNERSHIP AMONG SCIENCE TEACHERS

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Science education is continuously changing in terms of goals, curricula and teaching methods. Such changes stem from major educational reforms and the development of new theoretical concepts related to science teaching. It has been long emphasised that the implementation of these changes in schools depends on the teachers, who need to identify with and support the innovations which are to be introduced, and to feel that change is necessary. An active involvement of teachers in the process of designing, developing and implementing innovation is one of the indicators of a sense of “ownership”, which in this case can be understood as identifying with the innovation, feeling as if one is its owner. This psychological state can be achieved thanks to teachers’ investment in the innovation, and has the potential to reduce resistance and create a better climate for change. Ownership can have a considerable impact on teachers’ involvement in further changes, if they notice that innovation has a positive influence on the effects of their work. Ownership also has a beneficial impact on their working environment, motivating other teachers to implement the desired change and thus helping spread the change throughout the teacher community. That is why teachers’ ownership is often discussed together with sensemaking and agency, which influence teachers’ attitude towards innovation. The issue of developing a sense of ownership is not limited to teachers, as in today’s world many professions require constant adjustment to change, and personal involvement in introducing innovation is often necessary for being efficient and successful at work.

Ownership can refer to the professional work of science teachers as a whole or to its particular aspects. Although it would be desirable for most – if not all – teachers to assume ownership of their profession during their careers, this seems an unattainable goal. It should be borne in mind that teachers’ ability to take ownership depends on several factors, including what kind of people they are, why they decided to become teachers, how they were prepared for their job and whether or not their conditions of work are conducive to developing a sense ownership. What is particularly important when it comes to working conditions is a good atmosphere at schools, where teachers should collaborate with each other, school authorities should support and monitor teachers’ professional development, and students and parents should be interested in schools providing a high level of education. Such an atmosphere should increase teachers’ satisfaction with their work and encourage them to further develop their professional skills. Another key factor which impacts teachers’ ownership of their work is the requirements regarding professional development in a given country.

Ownership should not be seen as something that can be given; certain conditions must be met if it is to be developed. A particularly important role is played by institutions which support the professional development of teachers. Thanks to actively involving teachers in the process of introducing a reform, these institutions can help them realise that making changes can improve the quality of education and encourage them to participate in this process. When planning actions that would involve teachers in the reform, one has to bear in mind that developing ownership is a long-term process, in which certain organisational and financial requirements need to be met.

Activities which indicate that teachers have developed a sense of ownership include: actively participating in the decision-making process regarding the innovation to be introduced, experiencing positive feelings towards it, undertaking action research related to the effects of the innovation, and disseminating information concerning the outcomes achieved among other teachers as well as getting



them involved in the process of introducing changes. Ownership often motivates teachers to perform further actions, which are not directly related to the situation that first stimulated its development. These actions consist in seeking other factors which contribute to improving the quality of education, and, as a result, to developing new curricula, more effective methods of work and original teaching solutions.

The term “ownership” can easily be understood intuitively, based on its psychological meaning. When the term ownership first appeared, it was used without providing a definition, as if there was general consensus about its meaning, which frequently depended on the context it was used in. Based on how it has been used, we know that ownership is considered important for large-scale reform as well as for individual teacher change. However, research concerning ownership is difficult to conduct, since defining it in a way which would make it possible to empirically validate its potential contribution to supporting teacher change is quite challenging. In a definition of ownership, observable or measurable characteristics need to be identified and refined to operationalise the construct for research and create an appropriate survey instrument. The results of available research show that teachers would be more effective professionals, if they were involved in creating the changes that they would then enact in their schools, expressing ownership in their learning experiences with this innovation.

The concept of ownership is more interesting to study and understand if we accept that teaching is personal and that making lasting change in classroom practices requires attention to the beliefs and epistemology of individual teachers. Such an approach should serve as a basis for research concerning teachers which focuses on factors related to the psychological, motivational and emotional aspects of their work. The results of other, more rigorous studies concerning ownership among science teachers will without doubt be of importance, and they will enable educational researchers, professional development experts and teachers to collaborate with each other in order to develop more effective initiatives for educational change.

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