

Girls opt out of studying physics post 16 more than boys . Through adolescence, for young women the challenges which all learners of the subject encounter through the school curriculum intertwine with the need to construct a feminine identity, which is in conflict with the male dominated discipline. The lack of co-ordinated career guidance from schools and colleges is compounded by the lack of guidance and encouragement from family members which prevents this cycle from being broken.

Recommendations

Establishing positive working relationships between female learners and the teacher is paramount.

The relevance of subject matter for society should repeatedly reinforced.

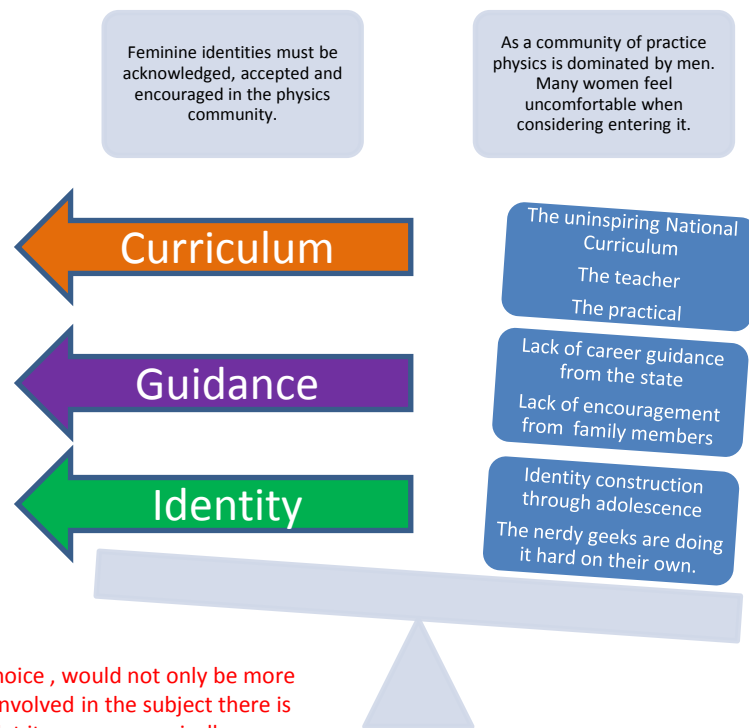
Girl only practical groups may avoid boys dominating tasks and allow girls to get more involved.

Teachers should be given the time to promote the careers their subject can lead to and pro-actively encourage their students to consider them, particularly the females with regards to physics.

Parents should talk with their daughters about their career plans and challenge gender stereotyping emphasising e.g. that it is O.K. to be a feminine physicist.

Physicists should challenge the negative image of the subject and promote a more gender inclusive one that thrives on wonder and the benefits of academic enquiry.

Having surveyed seventeen adults on the 'Access to Medicine' course at a College of Further Education in England I shed light on why students, who have come back to physics study, were turned away from it earlier on in life.



Feminine identities must be acknowledged, accepted and encouraged in the physics community.

As a community of practice physics is dominated by men. Many women feel uncomfortable when considering entering it.

The uninspiring National Curriculum
The teacher
The practical

Lack of career guidance from the state
Lack of encouragement from family members

Identity construction through adolescence
The nerdy geeks are doing it hard on their own.

Findings

Both sexes on the whole recognise the benefit of learning through practical; though some females are presented with identity conflict whilst simultaneously doing physics (practical) and doing gender. They may need convincing that it is not just toys for the boys!

Teachers should be aware that female learners are influenced towards and away from a subject by the teacher more than male learners.

Non- specialist teachers may struggle with making the teaching of physics inspiring.

The educational system is not giving adequate provision for career guidance. The inexperienced youth are left alone to get lost in a maze of career pathways.

Identity construction through adolescence occurs simultaneously with subject and career choices, and arguably the former is of higher priority for the youngster than the latter. As they try to define themselves in terms of gender females are presented with identity conflict (that males aren't) in an attempt to become feminine physicists.

Being a hard subject with a reputation for being impersonal, physics is unattractive to the majority and conversely may be attractive to a minority who like working on problems alone. The image of the nerdy geeks doing it hard on their own, is a turn off for most.

Gender balance in physics, through informed choice , would not only be more morally just, with a greater number of people involved in the subject there is the potential to transform society socially and let it grow economically. Anything else would be an awful waste of talent.

References: Danielsson, A. T., 2011. Exploring woman university physics students 'doing gender' and 'doing physics'. *Gender and Education*, (iFirst Article), pp.1–15.
 Danielsson, A. T. & Linder, C., 2009. Learning in physics by doing laboratory work: towards a new conceptual framework. *Gender and Education*, Vol. 21(No. 2), pp.129–144.
 Schacht, S. P., 2000. Using A Feminist Pedagogy As A Male Teacher: The Possibilities Of A Partial And Situated Perspective. *Radical Pedagogy*. Available at: http://radicalpedagogy.icaap.org/content/issue2_2/schacht.html.
 Brandell, G. & Staberg, E., 2008. Mathematics: a female, male or gender-neutral domain? A study of attitudes among students at secondary level. *Gender and Education*, Vol. 20(No. 5), pp.495–509.
 Staberg, E., 1994. Gender and Science in the Swedish Compulsory School. *Gender and Education*, Vol. 6(No. 1), pp.35 – 45.
 Murphy, P. & Whitelegg, E., 2006. *Girls in the Physics Classroom: A Review of the Research on the Participation of Girls in Physics.*, Institute of Physics Report. The Open University.
 Marsh, C. J., 2009. *Key Concepts for Understanding Curriculum* Fourth ed., Routledge.