



Implications of gender differences in motivation among medical students

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To cite this article: Rashmi Kusurkar, Gerda Croiset & Olle ten Cate (2013) Implications of gender differences in motivation among medical students, Medical Teacher, 35:2, 173-174, DOI: [10.3109/0142159X.2012.737056](https://doi.org/10.3109/0142159X.2012.737056)

To link to this article: <https://doi.org/10.3109/0142159X.2012.737056>



Published online: 08 Nov 2012.



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levels. Teachers were viewed as knowledgeable but authoritarian. Learning atmosphere did not adequately support or motivate students. Uncertainty of learning objectives and superfluous, dogmatic teaching was a general problem. Stress, tiredness, apathy and boredom apparently stem from an overburdened system trying to cover 'too much in too little a time' in the background of insufficient interpersonal cohesion amongst an increasingly heterogeneous community of scholars truncated into expatriate and indigenous populations that typify Saudi medical education.

Core-content mapping, collaborative teaching models, counselling, social skills and professional development programs could enhance team work, positive interdependence and mutual accountability, which may eventually contribute towards making better doctors. Considering current Saudi educational trends with federal emphasis on 'women in higher education', diagnostic inventories like DREEM can provide noteworthy findings to ensure quality in learning environments and uniformity in standards for females.

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Clinical skills examination as part of the Taiwan National Medical Licensing Examination

Dear Sir

Boursicot et al. (2011) stated "The current situation in relation to performance assessment and national regulatory standards are that Canada, China and Japan have established national licensing examinations and the USA has national assessment for entry into postgraduate training. Several other countries are exploring the use of national licensing examinations e.g. Korea, Indonesia and Switzerland." Although Taiwan was not mentioned in their article, passing the Clinical Skills Test (CST) will be a prerequisite for taking the Step II Test of the Taiwan

National Medical Licensing Examination (NMLE) starting in 2013.

Since 1968, Taiwanese medical graduates have been required to pass the NMLE in order to obtain a license for independent medical practice. The NMLE assesses extent of knowledge in a written format, leaving, however, the need to assess graduates' clinical competencies unmet. As OSCEs were adopted by every medical school in Taiwan for several years (Huang et al. 2007), a national CST was then judged ready to be proposed. In 2009, the Taiwan Ministry of Examination announced that passing a performance-based national CST before graduation would be one of the requirements for taking the NMLE Step II Test from 2013.

In 2011 and 2012, a national trial for the CST, conducted by the OSCE Committee of the Taiwan Association of Medical Education, was successfully completed in four (2011) and six (2012) days over two consecutive weekends. On both occasions, the CST was composed of eight stations of clinical encounters with standardized patients and four stations of procedural skills. The borderline regression method was adopted for standard setting. The pass rates in 2011 and 2012 were 97.31% and 95.63%, respectively. Feedback from raters, standardized patients and students was collected for quality improvement. We look forward to the successful implementation of this requirement for all Taiwanese medical graduates next year.

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Implications of gender differences in motivation among medical students

Dear Sir

Female medical students have been known to outperform male medical students in their academic GPAs. But their motivation, learning strategies, effort and performance have

not been studied in relation to their perceived autonomy and competence in learning. Self-Determination Theory predicts such relationships (Kusurkar 2012) and led us to investigate these.

Our study sample consisted of 95 students (27 males and 68 females) who responded from a total of 184 students, from a four-year graduate-entry medical course at University Medical Center Utrecht. The average age was 24 years. We measured: autonomous motivation (AM) and controlled motivation (CM) using the Academic Motivation Scale, approach towards study (surface and deep) using the Study Process Questionnaire, exhaustion from study using Maslach Burnout Inventory and perception of autonomy using the Learning Climate Questionnaire and competence in learning using the Perceived Competence Questionnaire and in the content matter. AM measures motivation felt by the student for the medical study because of genuine interest or because of perceived importance, whereas CM measures motivation because of external pressures (guilt, shame and pressure from parents). Deep approach meant studying to find meaning whereas surface approach meant memorizing without understanding to merely pass a test. Perceived autonomy measured to what extent students felt they had choices in their learning and competence measured the extent of feeling of capability of learning.

Cronbach's alpha values of all the scales were above 0.70. We found that males had significantly higher CM ($M=4.14 \pm 1.17$, $F=3.63 \pm 0.99$, $p=0.03$), higher surface approach ($M=2.09 \pm 0.57$, $F=1.75 \pm 0.42$, $p=0.02$) and lower deep approach ($M=3.10 \pm 0.61$, $F=3.38 \pm 0.42$, $p=0.03$) to study, fewer credits obtained ($M=9.45 \pm 5.14$, $F=14.86 \pm 10.02$, $p=0.003$) than females, but their perceived competence in learning was higher ($M=6.20 \pm 0.53$, $F=5.68 \pm 0.89$, $p=0.004$). There were no differences in the other parameters. Higher CM, higher surface approach and lower deep approach found in males were in line with other studies. (Kusurkar et al. 2012) In this study, we also studied

perceived autonomy and competence. We found no difference in perceived autonomy, but males showed higher self-perception of competence than females, even if their performance was lower than or equal to females. It means that either males overestimate or females underestimate their competence. Overestimation of competence in males could be caused by a higher CM, i.e. higher external pressures. If it is important for males to feel better in comparison with others, they may create an image of higher competence than females.

Gender differences in the variables studied are important for teachers to understand before giving study advice or mentoring, as the requirements of males may be different from females. Our findings may just reflect Dutch gender differences, but we would urge other researchers to replicate our approach, to support a general trend that might have implications for education, advice and support for students.

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