



Recognising Our True Selves: Gender Differences in Self-Assessment

In a forthcoming article with my colleague, Harry Hubball, I examine the gender implications of the introduction of innovative methods of assessment in higher education. What I found in the psychological and pedagogical (teaching) literature, in terms of gender differences in self- and peer-assessment, is something that some of you might relate to, and serves as a "note-to-self" for us all!

It is a challenging time for student assessment in higher education. Increasing pressures due to larger numbers of students, the need for greater accountability^{2,3} and a desire to improve the quality of student learning, have led teachers to seek innovative methods of student assessment beyond that of the traditional lecture and final exam formats. Traditional exam methods of assessment tend to encourage surface learning and factual memorization, rather than deeper levels of learning⁴. In contrast, innovative assessment methods tend to emphasise feedback on performance during the teaching and learning process. This facilitates on-going learning and motivation by empowering students to take more responsibility for their own learning⁵. A variety of assessment methods are used in these innovative "learning-centred" environments. Often self-, peer- and instructor-led assessments form an integral part of the learning process. There has been little research about possible gender-related implications of these changes in higher education. Hence, the aim of our article is to highlight potential gender biases in the outcome of self- and peer-assessments.

A substantial body of literature⁶⁻⁹ suggests that **male students tend to overestimate their performance, whilst female students tend to underestimate their performance, despite female students actually being equal or outperforming male students**. Across disciplines and regardless of performance, women tend to have greater belief in their abilities in humanitarian subjects and interpersonal skills, whereas men tend to have greater belief in their abilities in science^{10,11}.

For example, in medical schools, female students tend to rate their own skills lower than those of their peers, whereas male students tend to rate themselves at the same level, or higher, than their peers¹². In particular, male students rate themselves more highly in skills related to biomedical/technical investigation, information handling, leadership and autonomy^{13,14}. Female students rate themselves more highly in interpersonal attributes and teamwork. Rees (2003)⁸ provides an interesting comparison of student versus tutor/mentor grades in the context of personal and professional portfolios in a medical school. Approximately equal numbers of students over and under assessed their portfolios compared to their mentor's grade. However, 75% of the cases in which the mentor

assessed the portfolio more highly than the student, involved female students. Conversely, the majority of students (72.7%) who assessed their portfolios more highly than their mentor were male.

In general it seems that female students are less confident in rating their skills and possibly perceive that a higher level of competence must be demonstrated in order to reach a particular standard of competence¹⁵. These more stringent criteria may also be applied to their peer assessments¹⁵. The University of Cambridge Faculty of History's Gender Working Party¹⁶ suggested that female students have a strong personal investment in "getting it right" and tend to make a cautious and detailed examination of the subject matter, examining different points of view; whereas males more easily adopt a particular point of view, dismiss others and take risks. This approach might also explain higher levels of anxiety found in female students¹⁷⁻²⁰.

In general cognitive testing, males, especially younger men, are consistently found to be more confident than females in the accuracy of their responses although there tends to be a greater mis-calibration between accuracy and confidence in males²¹. Thus, the greater confidence shown by males in their self-assessments is not necessarily due to greater levels of accuracy.

It is not clear why gender differences in perception occur during self-assessment, despite generally equal and better student learning outcome performances by female students^{18,22}. Why should academically successful females be more reluctant than their male counterparts to award themselves higher ratings of competence? One study¹⁸ suggests that self-imposed perfectionism leads to a reduction in sense of incompetence in male students, but not in female students leading possibly to an increase in conscientiousness and anxiety in females in higher education. Women typically demonstrate lower levels of self-confidence than men and, amongst high academic achievers, females are more prone than males to the "impostor phenomenon", which is an intense feeling of intellectual inauthenticity experienced by many high-achieving individuals²³⁻²⁵. I suspect that many readers will be able to identify this phenomenon at some point in their careers. I have a friend who has successfully delivered many high technology aeronautics projects, being promoted along the way, but in parallel has experienced feelings of inadequacy and being an "impostor" in her (male-dominated) work environment.

Further, Aronson, Steel and colleagues²⁶⁻²⁸ have demonstrated that "*stereotype threat*" can influence student performance, such that extra pressure is felt by members of stereotyped groups not to behave in ways that confirm the perceived lack of ability in their group. This adversely affects assessment outcomes for females in disciplines such as mathematics, science and technology²⁹. The negative effect cannot be mitigated simply by students trying to suppress negative thoughts but can be overcome by using an alternative positive stereotype message³⁰. Hence, priming students with positive messages about their group identity may be the most effective way of alleviating the stereotype threat.

And what about assessing peers? Somewhat shockingly, there is converging evidence that there are significant differences in subjective assessment of cognitive ability level dependent on the sex of the person being rated. Males and females consistently rate male family members as more intelligent than female family members³¹⁻³³. A particularly worrying message from this research on perceived intelligence is that parents tend to rate their sons as more intelligent than their daughters!³⁴ Thus, despite recent generations growing up in a more gender equal society, the evidence suggests the persistence of a **stereotypical notion that men will perform better than women on intellectual tasks**. This could be fundamental to women's self-evaluation and esteem in the workplace. In a pedagogical context, it means that peer-assessment practices might not provide the ideal complementary learning strategy to rectify gender inequality found in self-assessment practices, unless proactive pedagogical steps are taken.

In summary, there is growing evidence to suggest the existence of significant gender differences in self-evaluation. With the exception of interpersonal attributes, female students typically rate their abilities lower than their male colleagues rate their own, despite at least equal performance. Females often underrate their performance compared to tutor marks and tend to expect a higher level of performance to be demonstrated for any particular competence level compared to tutors and male students. In contrast, males are more confident that they have exceeded the required skill level, are generally more willing to give themselves (and others) higher marks compared to teacher assessment.

In our paper we suggest some pedagogical steps to proactively facilitate inclusivity in the university and college classroom. Strategies to mitigate gender and other biases could include metacognitive activities and training in self-and peer-evaluations. Such activities would encourage students to reflect upon their belief systems with the aim of counteracting biases in relation to assessing themselves and fellow students.

The implications of these differences in self- and peer-evaluation extend beyond higher education into the workplace. Self-belief will get you a long way up a corporate ladder. In many companies, annual staff assessments increasingly comprise a self-evaluation component (and sometimes peer-evaluations) in addition to, or replacing, the traditional manager-led evaluation. The results of these processes usually determine pay reviews. Given the fact that women typically earn less than men (see, for example, Statistics Canada 2006 census at www.statcan.ca, or the related article on the news pages of the SCWIST web site: <http://www.scwist.ca/index.php/main/news/>), it is particularly vital for women to assess themselves in an equitable manner in the workplace. Let's encourage our female colleagues to negotiate for what they really deserve, which might be more than they think they deserve!

The challenge of working whilst bringing up a family means that many women (and men) face a potentially stressful "juggling" situation which places additional pressures on accurate self-evaluation in the workplace³⁵⁻³⁷. Despite the challenges involved, most working mothers manage to successfully combine these two roles and research³⁸ suggests that employment has a positive effect on both mother and family.

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Gender differences in self-evaluation may be innate as proposed by some theories³⁹, or due to early socialization. The latter factor should lessen over time as children's upbringings place less emphasis on stereotypical gender roles and values, and more role models are available. Acknowledging our tendency to undervalue our skills and abilities may be the first step towards redressing gender imbalances in self-evaluation and seeking our own personal strategies for recognising our worth. So, come on ladies, give yourselves a pat on the back and value your abilities and achievements! Give your female colleagues some self-esteem boosting recognition for the work they do. By being involved in SCWIST you are well on the way to doing that.

For more information, the article "Gender Considerations and Innovative Learning-centred Assessment Practices" by Linda Lanyon and Harry Hubball appears in the August 2008 issue of Transformative Dialogues: Teaching and Learning Journal, volume 2, issue 1:
<http://www.kwantlen.ca/academicgrowth/TD/index.html>

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References & Notes

- [1] The picture shows the **Rubin Face/Vase illusion**. The viewer has the mental choice of two interpretations of the image – either an **empty vase** or a (woman's) **face**. Often, the viewer sees only one of them, or only realizes the second after some time or prompting. It is difficult to perceive both objects at the same time – one occludes the other.
- [2] Frye, R. (1999). *Assessment, Accountability & Student Learning Outcomes*. Office of Institutional Assessment and Testing, Western Washington University. Retrieved October, 2007, from <http://www.ac.wvu.edu/~dialogue>
- [3] Shavelson, R.J., & Huang, L. (2003). Responding responsibly to the frenzy to assess learning in higher education, *Change*, 35(1), 10-19.
- [4] Angelo, T.A., & Cross, K.P. (1993). *Classroom assessment techniques: A handbook for college teachers*. San Francisco, CA: Jossey-Bass, 58-59
- [5] Mowl, G. (1996). Innovative Student Assessment. *Deliberations*, London Metropolitan University. Retrieved January 2008 from <http://www.londonmet.ac.uk/deliberations/assessment/mowl.cfm>
- [6] Bryan, R.E., Krych, A.J., Carmichael, S.W., Viggiano, T.R., & Pawlina, W. (2005). Assessing professionalism in early medical education: experience with peer evaluation and self-evaluation in the gross anatomy course. *Annals of the Academy of Medicine Singapore*, 34(8), 486-91.

- [7] Lind, D.S., Rekkas, S., Bui, V., Lam, T., Beierle, E., & Copeland, E.M. (2002). Competency-based student self-assessment on a surgery rotation. *Journal of Surgical Research*, 105, 31–4.
- [8] Rees, C. (2003). Self-assessment scores and gender. *Medical Education*, 37, 571-573.
- [9] Rees, C., & Shepherd, M. (2005). Students' and assessors' attitudes towards students' self-assessment of their personal and professional behaviours. *Medical Education*, 39, 30–39.
- [10] Marsh, H.W. (1990). A multidimensional, hierarchical model of self-concept: Theoretical and empirical justification. *Educational Psychology Review*, 2, 77-172.
- [11] Marsh, H.W., & Yeaug, A.S. (1998). Longitudinal structural equation models of academic self-concept and achievement: Gender differences in development of math and English constructs. *American Educational Research Journal*, 35, 705-38.
- [12] Lurie, S.J., Meldrum, S., Nofziger, A.C., Sillin, L.F. 3rd, Mooney, C.J., & Epstein, R.M. (2007). Changes in self-perceived abilities among male and female medical students after the first year of clinical training. *Medical Teacher*, 29(9), 921-6.
- [13] Clack, G.B. & Head, J.O. (1999). Gender differences in medical graduates' assessment of their personal attributes. *Medical Education*, 33(2), 101-5.
- [14] Whittle, S.R., & Murdoch Eaton, D.G. (2001). Attitudes towards transferable skills in medical undergraduates. *Medical Education*, 35, 148-53.
- [15] Fitzpatrick, C. (1999). Students as evaluator in practicum: Examining peer-self assessment and self-efficacy. *ACES Conference*. New Orleans.
- [16] Gender Working Party (1994). *Mens' and women's performance in Tripos examinations 1980-1993*. Unpublished paper, Faculty of History, Cambridge University: see Murphy, P. & Elwood, J. (1998). Gendered learning outside and inside school: influences on achievement. In Epstein, D., Elwood, J., Hey, V. & Maw, J. (eds), *Failing Boys? Issues in Gender Achievement* (pp. 162–181). Buckingham, Philadelphia: Open University Press.
- [17] Abouserie, R. (1994). Sources and levels of stress in relation to locus of control and self-esteem in university students. *Educational Psychology*, 14, 323-30.
- [18] Masson, A.M., Hoyois, P., Cadot, M., Nahama, V., Petit, F., & Anseau, M. (2004). Girls are more successful than boys at the university. Gender group differences in models integrating motivational and aggressive components correlated with Test-Anxiety. *Encephale*, 30(1), 1-15.
- [19] McKean, M., & Misra, R. (2000). College students' academic stress and its relation to their anxiety, time management, and leisure satisfaction. *American Journal of Health Studies*, Winter 2000. Retrieved January 1st, 2008, from http://findarticles.com/p/articles/mi_m0CTG/is_1_16/ai_65640245
- [20] Pierceall, E.A., & Keim, M.C. (2007). Stress and Coping Strategies among Community College Students. *Community College Journal of Research and Practice*, 31(9), 703-712.
- [21] Pallier, G. (2003). Gender differences in the self-assessment of accuracy on cognitive tasks. *Sex Roles*, 48(5-6), 265-76.
- [22] Richardson, J.T.E., & Woodley, A. (2003). Another Look at the Role of Age, Gender and Subject as Predictors of Academic Attainment in Higher Education. *Studies in Higher Education*, 28(4), 475-93.
- [23] Dix, L.S. (1987). Women: Their under-representation and career differentials in science and engineering. *Proceedings of a workshop at the National Academy of Sciences*. Washington DC: National Academy Press.
- [24] Gance, P.R., & O'Toole, M.A. (1988). The impostor phenomenon: an internal barrier to empowerment and achievement. *Women & Therapy*, 6(3), 51-64.
- [25] King, J.E., & Cooley, E.L. (1995). Achievement orientation and the impostor phenomenon among college students. *Contemporary Educational Psychology*, 20(3), 304-12.
- [26] Aronson, J., Lustina, M.J., Good, C., Keough, K., Steele, C.M., & Brown, J. (1999). When White men can't do math: Necessary and sufficient factors in stereotype threat. *Journal of Experimental Social Psychology*, 35, 29-46.
- [27] Steele, C.M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist*, 52, 613-29.
- [28] Steele, C.M. (1998). Stereotyping and its threat are real. *American Psychologist*, 53(6), 680-1.
- [29] Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, 35, 4–26.
- [30] McGlone, M.S., & Aronson, J. (2007). Forewarning and Forearming Stereotype-Threatened Students. *Communication Education*, 56(2), 119-133.

- [31] Rammstedt, B., & Rammsayer, T.H. (2000). Sex differences in self-estimates of different aspects of intelligence. *Personality and Individual Differences*, 29(5), 869-80.
- [32] Furnham, A., & Chamorro-Premuzic, T. (2005). Estimating one's own and one's relatives' multiple intelligence: a study from Argentina. *Spanish Journal of Psychology*, 8(1), 12-20
- [33] Furnham, A. & Valgeirsson, H. (2007). Parents' estimations of their own intelligence and that of their children: A comparison between English and Icelandic parents. *Scandinavian Journal of Psychology*, 48, 289-298.
- [34] ****Highly recommended**** Newsweek interview with Adrian Furnham about gender differences in estimation of IQ at <http://www.newsweek.com/id/101079>
- [35] Luecken, L.J., Suarez, E.C., Kuhn, C., Barefoot, J.C., Blumenthal, J.A., Siegler, I.C. & Williams, R.B. (1997) Stress in employed Women: impact of marital status and children at home on neurohormone output and home strain. *Psychosomatic Medicine*, 59: 352-359
- [36] Nichols, M.R., & Roux, G.M. (2004) Maternal perspectives on postpartum return to the workplace. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 33(4): 463-471
- [37] Walker, L.O., & Best, M.A. (1991) Well-being of mothers with infant children: a preliminary comparison of employed women and homemakers. *Women & Health*, 17(1): 71-89
- [38] Rosenfeld, J.A. (1992) Maternal work outside the home and its effect on women and their families. *Journal of the American Medical Women's Association*, 47(2): 47-53
- [39] Myers, I.B., & McCaulley, M.H. (1985). *A guide to the development and use of the Myers-Briggs type indicator*, Consulting Psychologists Press, Palo Alto, CA