Self Assessment Skills in Males and Females

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This paper examines how males and females apply self assessment (SA) as a learning tool. SA is "the involvement of students in identifying standards and/or criteria to apply to their work and making judgments about the extent to which they met these criteria and standards" (Boud, 1986). The sample of 256 females and 233 males from Barbados, West Indies came from ten high schools. Participants from Form 5 (Grade 11 in American high schools) were formally trained for three terms of an entire academic year. Whilst SA1 measured naturally occurring SA skills used prior to formal training, SA2 measured SA skills after formal training. Participants mastered making informed choices in life; learned and incorporated new ideas; demonstrated self motivation and responsibility; established prior learning and evaluated their own learning. However, whilst males tended to use significant others in the SA process, females appeared to be more autonomous. Females used posits, checklists, self tests and several memory games, quizzes and puzzles. Males thought about their tasks (cognitively and metacognitively) and showed autonomy about their actions and deci-

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*sion making differently from females. Females were more apt to discuss
and arrive at mutually agreeable conclusions than males. These results
have implications for SA training.*

Self assessment has been defined as "the involvement of students in
identifying standards and/or criteria to apply to their work and making
judgments about the extent to which they met these criteria and standards"
(Boud, 1986). Self assessment may be viewed as the act of evaluating or
monitoring one's own level of knowledge, performance and understanding
in a metacognitive framework, taking into account the contexts in which
self assessment occurs. Self assessment formally taught by the classroom
teacher represents the lowest level (receiving) of the affective domain.
However, as time progresses and students internalize self assessment skills,
higher levels of the affective domain would replace lower levels and males
and females would embrace self assessment skills as an integral part of
their daily activities. Van Krayenoord and Paris (1997) reported
developmental trends in self assessment in both males and females. Despite
the fact that children can start to use self assessment to evaluate their
achievements when quite young, older students are more effective at the
process. However, there are differences within older students according to
their levels of ability and the *quality of teaching practices in particular
classrooms*. Metacognitive abilities associated with reading determine the
quality of self assessments. Greater development in males' and females'
metacognitive abilities manifested itself in better ability for self-reflection
and self-regulation of learning.

Effectiveness of self assessment and self-management of learning in
both males and females improves with age, experience, intelligence, aca-
demic achievement and the quality of instruction (Paris & Cunningham,

1996; Van Krayenoord & Paris, 1997). Self assessment assists students to "learn how to learn". As males and females develop, they rely less on the authority of grades and adults' evaluations as sources of feedback on their performance. Rather, self assessment is foundational to the development of intrinsic motivation and autonomous learning.

Further, in judging their own achievements, males and females gradually change from equating achievement with "effort" and see it related more to "ability" as they grow up (Blumenfeld, Pintrich, Meece, & Wessels, 1982; Stipek & MacIver, 1989; Van Krayenoord & Paris, 1997). It is interesting to note that (by comparison with others) males and females of high ability tended to underestimate their own performances while students of lesser ability tend to overestimate their performances. However, when males and females focus their self assessments on clear criteria and standards this tendency was diminished (Van Krayenoord & Paris, 1997). Orsmond, Merry, and Reiling (1997) confirmed that "good" students tended to underestimate their performance while "poor" students tended to overestimate it. In addition, males and females producing good work were more self-critical than they were judgmental, whereas students producing poor work were less critical but more judgmental. Males and females handing in good assignments addressed both strengths and weaknesses of their work while others seemed to focus only on the strengths (Adams & King, 1995).

There are metacognitive issues associated with self assessment that must be addressed in its training and assessment. Self assessment emphasizes high levels of thinking, metacognitive thinking, self-reflective thinking, goal directed learning and preferred learning styles. In a sense, self assessment is a component of metacognition that is applied more spontaneously, more deeply, and more automatically as males and females move through primary school. Self assessment is an integral part of both portfolio and authentic assessment. Self assessment involves reflecting on past achievements, critically evaluating present performance and planning future goals. It thus involves past, present, and future perspectives. Underscoring the perspectives is the importance of personal goal setting

and standards (McAlpine, 2000). Sekula, Buttery, and Guyton (1996) point out that self assessment is premised on realistic knowledge about the self in relation to educational goals. It asks "How am I doing?", "How can I do better?"

Males and females learn to compare and contrast their work with models and against a set of criteria (Bourke & Poskitt, 1997). In this regard, it is important that students know what they are attempting before they commence the task. Further, the student needs to know the standards of performance, know what he or she is trying to achieve, and be able to compare his or her own performance to that standard. Inherent in this is the notion that students need to have an understanding of competence that can be applied to them. In a study on self-appraisals using work sample interviews based on both portfolio and authentic assessments, Van Krayenoord, and Paris (1997) observed that activities related to portfolio assessment required students to take initiative for assessing their own work. Such initiative could be achieved independently but more often in association with peers and teachers.

Van Krayenoord and Paris (1997) found that self assessment was correlated with gender differences; females provided more sophisticated and elaborate responses than males. Additional empirical data has been found on the influence of sex on self assessment whilst focusing on other phenomena. For example, in testing the hypothesis that task-specific self assessment, with a criterion-referenced interpretation, can have a positive effect on students' metacognitive engagement and learning, Andrade (1999) asked seventh graders ($n = 47$) to invent, apply and explain a classification system for a group of animals. In order to periodically assess their performance, treatment subjects used a written rubric that listed the criteria for each task and gradations of quality for each criterion. Students in the control group were not asked to assess their work. To provide insight into spontaneous self assessment, classification of self assessment and the influence of self assessment on metacognitive engagement and learning, think-aloud protocols were collected and coded. Approximately three-

quarters of the students assessed themselves spontaneously. The rubric appeared to have a positive effect on the criteria that students used in their spontaneous self assessments and students who assessed their own work were remarkably willing to revise it. Females in the experimental group were more metacognitive than males, but no statistically significant differences were found for males in the control groups. Treatment students tended to outperform the control group on posttests.

Goodrich (1997) studied the effects of instructional rubrics and guided self assessment on students' writing and understandings of good writing. 13 seventh- and eighth-grade classes in the same two urban schools formed the sample. Both the experimental and control groups wrote two essays: a historical fiction essay, and a response to literature. All students in both groups in participating classes were given instructional rubrics. The two self assessment lessons focused on a formal process of guided self assessment designed by the researcher in collaboration with the participating teachers. Students used markers to color code the criteria on the rubric and the evidence in their essays that showed that they met the criteria. Only the experimental classes participated in a process of guided self assessment. Control classes received copies of the rubrics but did not formally assess their own work in class. The results of the study indicated that rubric-referenced self assessment can have a positive effect on females' writing but no effect on males' writing. This finding agrees with research on sex differences in the manner in which males and females respond to feedback (Deci & Ryan, 1980; Dweck & Bush, 1976; Dweck, Davidson, Nelson, & Enna, 1978; Hollander & Marcia, 1970). It must be pointed out here that the study did not examine students' cognitive and emotional responses to self assessment which means that the explanation offered for the differences between males and females is speculative.

The researcher found no studies that have examined the differences in self assessment skills used by males and females across courses by different teachers in an entire country. Whilst studies have focused on the use of self assessment in specific subject areas like Mathematics (Fontana & Fernandes

1994; Ninness, Ninness, Sherman, & Schotta, 1998), no studies have been found where teachers and students have been trained in self assessment skills across subject areas and differences in male and female performance examined.

This present paper seeks to fill a gap by reporting on a study undertaken to examine the differences in self assessment skills used by males and females. This paper draws its data from work involving a major innovation in the education system that focused on all curriculum areas in the fifth year of high school in Barbados, West Indies. The researcher trained teachers in self assessment skills and facilitated the introduction of the ideas to other teachers in their own school and to their respective students. The teachers integrated self assessment training in an organized manner into their classes using existing curriculum content as the means for the process. In Barbados, males and females are socialized differently from as early as the cradle. Male and female babies are initially assigned blue and pink colours respectively that are intended to indicate "hardness" and "softness" of personalities. In Barbados, males are recognized for their strength, unwillingness to show emotions and decisiveness whilst females are applauded for their gentleness, submissiveness, meekness, willingness to show emotions and indecisiveness. Accordingly, the socialization and education of the sexes are organized to support and reinforce the above mentioned perceptions. For example, Ormerod (1975) labeled subjects by gender, based on frequency of choice. Technical subjects, Science and Mathematics were termed "male" subjects whilst History and Languages were regarded as "female" subjects. Such polarization of subject choices influenced chances of further education and career development. Despite emerging changing societal roles for males and females, subtle, almost unnoticeable hints and suggestions on a regular and sustained basis over an extended period of time have been known to influence their modus operandi. This paper describes the differences in self assessment practices observed among males and females and discusses the significant conclusions drawn from the study.

Method

Participants

To obtain participants for the study the researcher sampled ten high schools representing the top, middle and bottom levels of academic achievement according to the following carefully selected criteria:

1. Performance at the Caribbean Examinations Council examination results for three consecutive years (1998, 1999 and 2000)
2. Parental choice of high school based on the results of the Barbados Secondary Schools Entrance Examination for entry into those high schools
3. Qualitative data from educational officials at the Ministry of Education

The age cohort (15 to 17 years) was obtained from Form 5 classes, equivalent to Grade 11 in American high schools. Two Form 5 classes from each of the 10 selected high schools were used. The two teachers from each of the 10 high schools selected the classes in their respective schools to participate in the exercise. The selection was done to conform to a number of stipulated criteria that included having all students in the same class being taught the same subject by the same teacher at the same time. Selection criteria included each class having the maximum possible class size available at the specific school (usually 30 to 40 students).

The principal of the school was advised to select the teacher who would head the groups using specific criteria communicated by the researcher. Such criteria included communication skills, professional qualifications, work experience, willingness to remain at the job for the entire academic year, willingness to participate in the exercise, innovativeness, enthusiasm, availability and the ability to get along well with students. Five hundred and fifteen students participated in the exercise, representing approximately a quarter (25.2%) of the high school leaving population in Barbados, West Indies. There were 233 male participants and 256 female participants. The research was done over a three-year period with data collection spanning

three terms of an academic year that commenced in September and termi-
nated in July.

Self Assessment Skills Training

The researcher designed twelve modules for the formal training in self as-
sessment skills. Self assessment was defined as "the involvement of students
in identifying standards and/or criteria to apply to their work and making
judgments about the extent to which they met these criteria and standards"
(Boud, 1986). The training modules summarized in Appendix A, are avail-
able upon request from the author. Conceptually, the modules focused on
constructing, validating, applying and evaluating criteria to apply to stu-
dents' work. The use of several different item types (completion, short
answer, true/false, matching, multiple choice and essay) as the vehicle for
teaching self assessment skills was deliberately done to prevent teachers
and students from believing that they were involved in "extra" work in addi-
tion to their already full schedules.

In breakout groups participants were encouraged to practise naming
assessment features and giving reasons for assessing the worth of their work.
Participants were taught by their classroom teachers to make reasoned
choices, to assess responses to questions by applying given criteria, to evalu-
ate their work and make use of self assessment skills on their own.
Throughout the training program, participants were encouraged to do team
work by discussing the self assessment exercises with their peers and arriv-
ing at mutually agreeable conclusions.

Before participants were trained, the researcher oriented teachers
as an interactive group and trained them in the use of the self assess-
ment modules through workshops that offered simulations of expected
classroom situations. Feedback and continuous interaction among the
participating teachers continued throughout the duration of the program.
The teachers were motivated to participate in the program because of
the personal benefits it offered. The self assessment training program

was designed to assist teachers with the existing curriculum. Teachers were encouraged to use their current teaching materials and to realize that the examples referred to in the modules were not laid in stone but were to serve for reference purposes. All efforts were made to ensure that the program was not seen as an additional burden to their existing heavy workloads.

The researcher visited schools, talked to administrators, parents and teachers, provided further detailed assistance in understanding and appreciating the program, took several classes and monitored the progress of the program. Continuing encouragement, monitoring, detailed assistance, school visits, lesson preparation and participation, team teaching, formative and summative evaluations are likely to have contributed to the success of the program.

Participants were encouraged to initially apply the skills used in formal self assessment training in everyday decision making, e.g., making choices of their academic subjects (History, Spanish, Physics, Chemistry, Biology, Principles of Business, etc.); making choices of their sports (football, netball, swimming, table tennis, volleyball, basketball, etc.) and making choices of their methods of transportation for their journey to and from school (walk, travel by bus, taxi, cycle, etc.). Semi-structured interviews and conversations with participants, parents and other stakeholders further provided motivation for formal self assessment training. All other subject teachers interfacing with the participants at the same high school facilitated the process by incorporating and integrating self assessment skills in their individual subject disciplines. A variety of methods like one-on-one contact, viewing student's worksheets, discussions and monitoring student comments allowed the researcher to keep abreast with the day-to-day progress of the program. The researcher used a variety of subject areas and exemplified the use of self assessment techniques by both males and females to ensure that self assessment was neither seen as subject-specific nor gender biased but that it affected the whole person.

Self Assessment Instrument

At the end of the formal training program the self assessment instrument, SA2 (available upon request from the researcher) was administered. The contents of the self assessment instrument or profile (SA2) included:

1. Biographical data — name, present age (in years and months), form or class, date of birth (in day, month and year as a further means of validating present age), sex, school, name of subject teacher, name of subject and expected CXC candidate examination number.
2. Dichotomous statements of the self assessment instrument or profile.

The researcher placed all headings in the font style Ariel Bold upper case, with font size 36 compared with font size 12 for other parts of the document so as to attract the immediate attention of the participants and facilitate rapid reading and comprehension. The researcher provided clear and concise instructions. The researcher also used bold print and block letters in other areas of the instrument for deliberate emphasis. The top caption, "This is not a test!", was deliberately placed at the top of the first page to allay the fears of those participants who tended to associate completing questionnaires with taking traditional tests. Further statements given in bold type like, "There are no right or wrong answers" assisted in setting the participants at ease. To minimize the perceived amount of work to be done by participants in completing the self assessment instrument, participants were asked to tick (() either Yes or No. All items or statements and pages were carefully numbered for ease of reference.

The self assessment items were taken from four of 22 scales of The Jackson Personality Research Form (PRF)-Form E with permission. The four scales were achievement, autonomy, endurance and understanding. These scales were meticulously selected by a panel of measurement and evaluation experts using a number of validity and reliability instruments. The Jackson's PRF-Form E has been successfully tested over an extended period of time on a variety of different population groups, for example, male students, female students, juvenile offenders and adults, psychiatric

patients, college students and personnel from the military. The researcher felt that it was best to use this universally accepted instrument. The universality of the Jackson's PRF-Form E would offer better external validity especially because readers may wish to generalize the results to their own contexts.

Whilst Jackson did not construct the scales as criteria but as measures for norm-oriented measurement of certain needs as personality traits, the researcher perceived the scales as a close enough representation of the essential attributes of self assessment as defined by Boud (1986). The point must be clearly made here that self assessment is a state of "being" and not a personality trait but trait-like scales from a personality inventory are utilized to gauge or quantify or evaluate the key attributes of the construct self assessment. For example, the scale achievement in the context of self assessment refers to whether or not participants are able to identify appropriate standards. However, achievement in the Jackson's PRF measures whether or not a participant is willing to meet certain standards. Whilst the intention to meet standards and the ability to identify standards are not equivalent, the researcher recognizes that generally (given approximately equivalent mental abilities and controlling for other variables like preknowledge, attitude, etc.) participants with a higher intention to meet standards are better able to identify standards than those with lower intentions.

Similarly, autonomy in the Jackson's PRF indicates an "unmanageable, free, self-reliant, independent, autonomous, rebellious, unconstrained, individualistic, ungovernable, self-determined, non-conforming, uncompliant, undominated, resistant, lone-wolf person". The present study assumes that these characteristics would better enable a person to identify appropriate standards and/or criteria and apply those standards and/or criteria to making judgments about work done. Recognizing that a manageable, not free, not self-reliant, dependent, nonautonomous, not rebellious, constrained, nonindividualistic, governable, not self-determined, conforming, compliant, dominated, nonresistant, gregarious person could well have the capacity to identify appropriate standards and/or criteria and apply those

standards and/or criteria to making judgments about work done, the present study takes the position that the comparison of capacities is under scrutiny rather than the absolute capacities. The degree to which this enablement is possible is considered as a necessary limitation of the present study. A similar discussion applies to the scales understanding and endurance.

It is also recognized that whilst the attributes espoused in the definitions of the scales may be necessary conditions for successful self assessment they need not be sufficient conditions. Taken together, whilst there may be no absolute need for a person to assess one's own appropriate standards (or criteria) correctly so that one can be a high achiever or an autonomous, enduring and understanding person; to be so disposed to do so (i.e., self-assess correctly) would certainly enhance one to be such a person. The interrelatedness of the selected scales together is assumed to describe self assessment as defined. The non-linearity of the scales is also recognized and treated as an assumption and necessary limitation of the present study. A further assumption is that high scores on a given scale indicates better ability to identify appropriate standards and/or criteria and apply those standards and/or criteria to making judgments about work done whilst this may not necessarily be so in the purest sense.

Analysis of Data and Results

From independent samples t tests using overall scores of males and females on the four self assessment scales (SA2) there appeared to be no significant difference in their performance on any of the scales (Table1).

Table 1   Comparison of Means for Males and Females in Self Assessment Instrument (SA2)

	Males	(n = 233)	Females	(n = 282)		
	M	SD	M	SD	t	p
Ac	23.34	3.43	23.25	2.90	.33	.12
Au	21.78	3.07	21.34	2.81	1.71	.97
En	22.67	2.77	22.42	2.71	1.02	.15
Un	22.91	2.77	22.85	2.51	.24	.09

Note. Ac = Achievement scale; Au =Autonomy scale;
     En = Endurance scale; Un = Understanding scale.

In addition, when any naturally occurring self assessment skills (SA1) were removed, there appeared to be no significant difference between male and female performance (see Table 2).

Table 2 ANCOVA Results for Self Assessment Instrument (SA2) Using Self Assessment Skills Previously Known/Used (SA1) as Covariate

		Univariate *F* tests			
Source	Type III Sum of Squares	*df*	*MS*	*F*	*p*
Corr. Model	208.195	2	104.098	1.26	.284
SA1	118.628	1	118.628	1.44	.231
Sex	58.260	1	58.260	.706	.401
Error	42233.948	512	82.488		
Corrected Total	42442.144	514			

Dependent variable: Total SA2 score, R^2 = .005 (Adjusted R^2 = .001)

Note. SA1 is the self assessment instrument used to determine naturally occurring self assessment skills used prior to formal training.
SA2 is the self assessment instrument used to determine self assessment skills after formal training.

Because of the very nature of self assessment and the manner in which the skills are taught, the above results obtained from a pencil-and-paper test were not surprising. However, when the actual self assessment practices used by males and females (as indicated by responses to the individual statements on the self assessment instrument) were closely analyzed, there were several significant ways in which males differed from females. For example, males tended to use significant others in the learning process more than their female counterparts, item 2: "I find that I can think better when I have the advice of others"(Males: 68.7%, Females: 30.5.8%); item 26: "I usually try to share my problems with someone who can help me"(Males: 76.9%, Females: 22.9%) ; item 48: "I would feel lost and lonely roaming around the world alone" (Males: 65.4%, Females: 32.0%) and item 64: "I don't want to be away from my family too much" (Males: 53.0%, Females: 44. 5%). Males appeared to crave more independence than females, item 8: "I am quite independent of the opinion of others" (Males: 57.3%, Females: 38.4%); item 20: "My greatest desire is to be independent and free" (Males: 86.4%, Females: 13.0%); item 38: "I would like to be alone and be my own

boss" (Males: 51.1%, Females: 45.4%); item 50: "People who try to regulate my conduct with rules are a bother" (Males: 48.3%, Females: 47.2%); item 59: "I would like to have a job in which I didn't have to answer to anyone" (Males: 54.0%, Females: 43.18%). Females appeared to enjoy more solitude than males; item 45: "I delight in feeling unattached"(Males: 33.6%, Females: 61.9%) ; item 52: "I could live alone and enjoy it"(Males: 44.3%, Females: 52.4%) ; item 55; "I would not mind living in a lonely place" (Males: 43.5%, Females: 52.8%). Females used posits, checklists, self tests and a series of memory games, quizzes and puzzles in the process.

Bearing in mind the role of self assessment, as described earlier, major differences in the ways in which males and females can now be understood. Some of these differences are the ways in which males and females think about their tasks cognitively and metacognitively; show autonomy about their actions and decision making; discuss and arrive at mutually agreeable conclusions; make choices in life; learn and incorporate new ideas; demonstrate self motivation and responsibility; establish prior learning and evaluate learning. Such understanding could be channeled into catering for the differences between the sexes, thereby facilitating both groups in attaining excellence, especially at the present time when males appear to be marginalized in several academic arenas such as teaching, nursing, food preparation and garment making. Self assessment serves to explain some of the major differences between males and females and this could have implications for the kinds of instruction and experiences to which they are exposed throughout life.

Qualitative data also supported the findings above. At semi-structured interviews, both parents and teachers reported observing methodological differences in self assessment skills used by both sexes, despite embracing the same fundamental concept of establishing criteria or standards for their work and using those criteria or standards for making judgments about their work. For example, whilst females would meticulously write out their criteria in stepwise detail, males would skip writing the details and arrive at their judgment rapidly. However, when asked about the procedure at arriv-

ing at the final judgment, while the males were able to focus on key points, the females were able to articulate the process slowly and clearly. Siblings of opposite sex in the same class shared that they practised different self assessment techniques, despite using the identical model of establishing criteria or standards for their work and using those criteria or standards for making judgments about their work.

Discussion

Self assessment encourages metacognitive abilities and critical evaluation of the learner's educational goals; promotes student autonomy and decision making; acknowledges choices and preferences in student learning styles; is particularly relevant for open-ended learning activities; encourages intrinsic motivation and self-sustained learning; encourages success and life long learning; develops the students' responsibility for their own and encourages a collaborative student-teacher relationship in learning and assessment (McAlpine, 2000). Further, self assessment may be used to determine existing competencies. It is a useful and individualized way of enabling males and females to establish if their prior learning is relevant for their next learning activity. This can help students avoid wasting time studying material they have already covered. This is particularly relevant for students with special abilities. Self assessment is also relevant as a means of evaluating whether major learning goals have been met in learning contracts which are often used in the education of students with special abilities (McAlpine, 2000).

The present study indicates that self assessment practices used by males and females differed in several ways. Whilst 80% males tended to use significant others in the process, like having a friend or parent check their work, only 30 % females indicated their use of significant others based on the responses from the self assessment instrument. Whilst 95% of females showed autonomy in their work, only 48% of males did so. Additionally, 86% females used posits, checklists, self tests and a series of memory games,

quizzes and puzzles in the process of self assessment compared with 52% of males.

A large number of teachers, both males and females within a national education system were offered training and support to introduce the innovation. It is difficult to tell if a matching investment in another forms of human resource development intervention would have had a similar impact on student performance. Nevertheless, the study serves as a catalyst for further studies of the differences in self assessment skills used by males and females. Whilst it is possible that there are several other factors that might have contributed to the success of the program intervention, it is impossible to identify the specific part played by each of the factors. It must be noted that the researcher had the advantage of appearing as an authority figure from the only regional examination board, responsible for examining the participants involved in the program. In this way, the exercise may have assumed more importance by school officials and teachers compared to a situation where the researcher were operating in another role.

The differences observed between males and females in their self assessment skills provide further information about how both sexes learn. The methodology of identifying criteria for tasks, discussing and arriving at mutually agreeable conclusions, could serve as a pivotal point for encouraging more homogenous relationships between the sexes throughout life. Additional research on the extent to which self assessment training has an impact on human relations, especially in higher education is needed. Despite attempts to minimize any Hawthorne effect, or the tendency for the experimental group to behave differently from normal, the females selected may have been more committed and motivated than their male counterparts having been drawn from a wider pool of available participants.

Finally, student performance on the self assessment instrument may not necessarily be an accurate reflection of the treatment (formal self assessment training). Despite all precautions taken to preserve the integrity of the experiment, several intervening variables over which the researcher had little control came into play, for example, students' understanding and

internalization of the self assessment concepts, students' ability and willingness to use the skills taught, students' belief in the usefulness of the procedure, students' attitude towards innovative projects, students' lack of attentiveness or interest, students' disruptive behaviour, teacher delivery of the material, etc.

Conclusion

Whilst there was no significant difference recorded between the performance of males and females on the self assessment instrument, significant differences in methodological details were recorded. The results suggest that self assessment skills are best measured by authentic assessment and observation methods rather than by paper-and-pencil tests.

Bearing in mind the role of self assessment, as described earlier, major differences in the ways in which males and females operate can now be understood. For example, there are differences in the ways in which males and females think about their tasks, cognitively and metacognitively; show autonomy about their actions and decision making; discuss and arrive at mutually agreeable conclusions; make choices in life; learn and incorporate new ideas; demonstrate self motivation and responsibility; establish prior learning and evaluate learning. Understanding of these differences could be channeled into catering for the differences between the sexes, thereby facilitating both groups in attaining excellence. Self assessment serves to explain some of the major differences between males and females, and this could have implications for the kinds of instruction and experiences to which they are exposed throughout life.

References

Adams, C., & King, K. (1995). Towards a framework for student self-assessment. *Innovations in Education and Training International, 32*(4), 336–343.

Blumenfeld, P. C., Pintrich, P., Meece, J., & Wessels, K. (1982). The formation and role of self perceptions of ability in elementary classrooms. *Elementary School Journal, 82*, 401–420.

Boud, D. (1986). *Implementing student self assessment*. Sydney: HERDSA.

Bourke, R., & Poskitt, J. (1997). *Self assessment in the New Zealand classroom* (booklet). Wellington: Ministry of Education.

Deci, E., & Ryan, R. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology*. New York: Academic Press.

Dweck, C., & Bush, E. (1976). Sex differences in learned helplessness: 1. Differential debilitation with peer and adult evaluators. *Developmental Psychology, 12*, 147–156.

Dweck, C., Davidson, W., Nelson, S., & Enna, B. (1978). Sex differences in learned helplessness: 2. Contingencies of evaluative feedback in the classroom and 3. An experimental analysis. *Developmental Psychology, 14*(3), 268–276.

Fontana, D., & Fernandes, M. (1994). Improvements in mathematics performance as a consequence of self assessment in Portuguese primary-school pupils. *British Journal of Educational Psychology, 64*, 407–417.

Goodrich, H. (1997). Thinking-centered assessment. In S. Veenema, L. Hetland & K. Chalfen (Eds.), *The project zero classroom: New approaches to thinking and Understanding* (p. 2). Cambridge, MA: Project Zero, Harvard Graduate School of Education.

Hollander, E., & Marcia, J. (1970). Parental determinants of peer orientation and self-orientation among preadolescents. *Developmental Psychology, 2*, 292–302.

McAlpine, D. (2000). Assessment and the gifted. *Tall Poppies, 25(1)*, 3. Retrieved August 3, 2002, from http://www.tki.org.nz/r/gifted/pedagogy/tallpoppies_e.php

Ninness, H. A. C., Ninness, S. K., Sherman, S., & Schotta, C. (1998). Augmenting computer-interactive self assessment with and without feedback. *Psychological Record, 48*(4), 601–616.

Ormerod, M. B. (1975). Subject preference and choice in co-educational and single sex secondary schools. *British Journal of Education Psychology, 45*, 257–267.

Orsmond, P., Merry, S., & Reiling, K. (1997). The use of student derived marking criteria in peer and self-assessment. *Assessment and evaluation in higher education, 25*(1), 23–38.

Paris, S. G., & Cunningham, A. (1996). Children becoming students. In D. Berliner & R. Calfee (Eds.), *Handbook of educational psychology* (pp. 17–147). New York: Macmillan.

Sekula, J., Buttery, T., & Guyton, E. (1996). Authentic assessment. In *Handbook of research on teacher education* (pp. 5–15). New York: Prentice Hall.

Stipek, D. J., & MacIver, D. (1989). Developmental changes in children's assessment of intellectual competence. *Child Development, 60*, 521–538.

Van Krayenoord, C. E., & Paris, S. G. (1997). Australian students' self-appraisal of their work samples and academic progress. *Elementary School Journal, 97*(5), 523–537.

Appendix

Summary of twelve self assessment modules:

1. Constructing criteria for assessing a question
2. Validating criteria for assessing a question
3. Applying criteria for assessing a question
4. Writing Completion and Short Answer questions
5. Writing True/False questions
6. Writing Matching questions
7. Writing Multiple Choice questions
8. Writing Essay questions
9. Reviewing question types
10. Allocating marks to questions
11. Guidelines for making Evaluations
12. Making a Self Assessment Schedule