Pre-University Project Work in Singapore: An Alternative Mode of Assessment in Singapore

Karen Bryer (SEAB)

Introduction

Singaporean students have always been strong in subject content knowledge and high achievers in public examinations. However, along with governments around the world[1], the Singapore government became increasingly concerned that this would not be sufficient to ensure continued economic success into the twenty-first century and beyond. In Singapore, there was particular concern over students' lack of ability to generate and solve problems through application of knowledge and skills, weakness in oral communication and lack of exposure to collaborative work. In an open letter to Principals and teachers in December 1997, the then Director General for Education wrote that there would be challenges ahead for Singapore and that it would be the education system that would empower the people of Singapore to meet these challenges. He stated that while the pursuit of educational excellence should not be compromised, the form and substance of education would need to change. In particular, he said that the school curriculum required a major re-think so that improved teaching could be effected in order to prepare students for the knowledge-based economy of the twenty-first century. The Director General added that in revisions to the curriculum, the development of skills for higher order thinking, effective communication and teamwork would be given a high priority[2]. It was against this background that a new subject, Project Work (PW) was introduced into Singapore's pre-university curriculum. In order to underscore its importance, PW was made compulsory for all first year Junior College students and became one of the admission criteria for entry into the local universities.

The Nature of PW and Expected Learning Outcomes

PW is interdisciplinary and requires students to draw knowledge and apply skills from across different subject areas, to reinforce their understanding that these cannot be compartmentalised, or seen in isolation. The introduction to the PW syllabus states that, "*Students need to learn how to engage with issues, and process information that is presented in a manner that is less structured, not subject-specific and open-ended. Students need to learn to work together on tasks that require a repertoire of skills and to apply what they have learned to complete a project in a group*"[3].

PW comprises four domains of learning: Knowledge Application, Communication, Collaboration and Independent Learning, the learning outcomes for which are as follows:

Knowledge Application
Students will acquire the ability to make links across different areas of knowledge and to generate, develop and evaluate ideas and information so as to apply these skills to the project task.

Communication
Students will acquire the skills to communicate effectively and to present ideas clearly and coherently to a specific audience in both the written and oral forms.

---

[1] Global political and economic drive for school reform in literature on educational restructuring (Gopinathan 1995, Caldwell 1996, Murphy 1997)
[2] Development of critical competencies over and above mastery of subject content knowledge (Hargreaves 1994)
[3] Project Work (Revised) Syllabus 2005

Collaboration
Students will acquire collaborative skills through working in a team to achieve common goals.

Independent Learning
Students will be able to learn on their own, reflect on their learning and take appropriate action to improve it.

In the same way that knowledge itself is not compartmentalised, the learning outcomes for PW interweave and impact on each other.

Conduct of PW

Students work in small, teacher-selected groups on the basis that in the working world they will not be able to choose those whom they work with. PW requires students to base their projects on one of two set tasks broad enough to encompass a very wide range of topic choices. They complete their projects during curriculum time so that their Supervising Tutors can provide ongoing guidance in the form of feedback and just-in-time skills teaching as necessary, as well as monitor the work in progress. Ensuring authenticity of student work in coursework assessment has become an important issue for many teachers and it was the issue of authenticity that was one of the driving forces behind designating curriculum time for PW. The other driving force was the belief in the importance of teacher guidance of students engaged in carrying out PW, something which had been largely absent from project directed learning being carried out at the different levels of schooling.

Assessment of PW

Assessment of PW is school-based and is carried out on both a group and individual basis, covering both product and process.

Product Assessment

Product assessment focuses on the group's Written Report and Oral Presentation. In the Written Report, the group's ability to generate, evaluate and analyse ideas is assessed and the mark awarded is a group mark. Oral Presentation assesses the effectiveness of the presentation as a whole, in terms of its organisation and coherence, and the use of audio visual aids. Individual assessment is also carried out of each group member's five-minute section of the presentation. The assessment criteria focus on students' fluency and clarity of speech, their awareness of an audience made up of eight to ten of their peers, and their response to questions during the question and answer session that follows the presentation.

Process Assessment

Process assessment focuses on the Group Project File in which the individual group members each submit three documents relating to the processes involved in carrying out the project. These are: the generation and evaluation of their own preliminary ideas for a project, their analysis and evaluation of some of the information they have contributed, including its reliability and usefulness to the project undertaken by the group and finally, their reflections on the project. These encompass their ideas on the different approaches that might have been adopted, as well as their evaluation of the strengths and weaknesses of the project and themselves in carrying it out.

Quality Assurance of Assessment

Due to the fact that PW is a pre-requisite for students wishing to enter the local universities, the assessment system that has been developed has had to be robust enough to stand up to public scrutiny. Quality assurance of PW assessment is provided for in a number of ways. At school level, all assessors' work is sampled in all components of the assessment, and, if necessary, moderated, by a school-appointed internal moderation panel. All internal moderators have undergone training by the same examiners from Cambridge Assessment who have been involved with PW since its inception. All schools have also been provided with a good deal of exemplar material for all three components to illustrate expected marking standards. In addition, there is rigorous external moderation of all components undertaken by a team of trained external moderators led by a Chief External Moderator and examiners from Cambridge.

The Initial Years

The Original Assessment Framework

The assessment framework outlined above is a revised framework from that originally conceived at the outset of PW[4]. While the assessment of product has remained largely the same, the approach to the assessment of process has changed considerably. Under the original framework, process assessment focused on two elements. The first element was Collaboration and there were 3 assessment criteria:
- Consideration for the views of others (individual mark)
- Contribution to group cohesion (individual mark)
- Effectiveness of teamwork (group mark)

The second element was the Group Project File. In its original form, this file was produced by the group and charted the group's progress in the various processes involved in carrying out their project. The group documented information such as key decisions taken and the rationale (often captured in notes of meetings the group had held), tabulation and analysis of survey data and drafts showing improvements made to the group's final product and processes. In addition to these, individuals in the group also filed information they had gathered and subsequently annotated with evaluation of its reliability and usefulness to the project. There were four assessment criteria for the original Group Project File:
- Individual contribution (individual mark)
- Selection of information sources (group mark)
- Processing of information (group mark)
- Evaluation of work towards improvement (group mark)

Response to PW

Before considering teacher and student response to the implementation of PW in the initial years, it must be remembered that in the Singaporean context, this initiative was highly innovative at the time of its introduction to schools and required the changing of mindsets among teachers, students and parents. The teaching profession as a whole tends to be cautious about change[5], particularly change in assessment, which can understandably cause a good deal of anxiety. Given the nature of this particular change, at the critical level of pre-university education, it is likely that the difficulties faced and the reservations expressed would have found an echo in any other country undertaking a similar kind of initiative.

---

[4] PW Syllabus 2002
[5] Change management in education (Barber and Sebba,1999)

Teacher Response

In the years leading up to the first year of the PW examination in 2003, there were two trial years for the subject, leading to a dry-run year in 2002, which mirrored what could be expected in the first year of live examination. The purpose of having such an extensive lead-in time was to give both teachers and students sufficient time to adjust to this mode of assessment. It must be borne in mind that this mode of assessment, and indeed, teaching, was something very unfamiliar to many teachers, who were used to a largely didactic approach in their teaching and uncomfortable with the notion of student-directed learning. They were largely unfamiliar with Coursework and the need for ongoing guidance and supervision over an extended period of time. Research carried out by the Research and Development (R&D) branch of MOE during the lead-in time to implementation of the examination, found that the majority of teachers could see the value of PW with its emphasis on development of research skills critical to subsequent university study. However, the research also found that many teachers felt ill equipped to teach generic skills such as information gathering and evaluation, team building and teamwork and oral presentation skills.

Teachers also expressed great concern over the subjective nature of school-based assessment, as compared with the traditional paper and pen examinations they were used to. Traditional examinations required that they, as teachers, impart a fixed body of knowledge to their students to help them score as many A grades as possible in their examinations, the marking of which was out of their control and carried out overseas. Suddenly, teachers were expected to know at which point to take off their collective teacher/mentor/adviser's hat and don their assessor's hat. The issue of where to draw the boundaries, in terms of the nature and extent of teacher guidance, is another that causes a good deal of concern to teachers everywhere who are engaged in Coursework supervision and assessment [6]. PW's status as a criterion for university entrance and the highly competitive relationship between the schools increased their fears. Causing particular concern was the assessment of Collaboration, because of the ephemeral nature of evidence and its reliance on teacher observation and documentation of evidence of individuals at work within the group setting. Some teachers expressed the view that such observation was too staged and led to 'play acting' on the part of students. Many also felt that the documentation of evidence was too great a burden on top of all the other new roles they were expected to play as PW Supervising Tutors. That said, the overwhelming majority of teachers involved in PW showed their ability to adapt to change, demonstrating impressive commitment to grappling with this new mode of assessment and the changes to their role in the PW classroom, as compared to their traditional role as subject teachers. Coupled with extensive teacher training in both pedagogy and assessment for PW, most teachers were well prepared for the first year of the examination in 2003.

Student Response

In contrast to teacher response, the research carried out by R&D indicated that a number of students could not see the value of PW and felt that their time would be more usefully spent on their A-Level examination courses. Interestingly, while a number of students felt that PW was a waste of time, there were others who expressed the view that they lacked the skills to carry out PW effectively because they had not been exposed to these skills in their earlier years in school.

In fact, this issue should have been addressed by the fact that when PW was introduced, it was introduced at all levels of schooling, not just at the pre-university level. Mastery of skills was seen in terms of spiral progression, increasing in scope and complexity from primary

---

[6] *Mapping the Boundaries of Teacher Involvement* (Griffith, 2005)

school up to the pre-university level. However, the subject was only made examinable at the pre-university level as it was believed that it was at this level that there was greatest need and urgency. In fact, it was stressed that at the primary and secondary levels, the subject should be viewed primarily as a 'learning experience' and schools were actively discouraged from focusing on assessment by awarding marks and grades for students' work. Instead, teachers were asked to focus on the importance of giving qualitative, formative feedback to students, in order to help them understand where their weaknesses lay and to develop and improve their skills in the assessed components[7]. This showed a serious attempt to change teachers' mindsets about the all-importance of marks and grades for a subject like PW in an education culture where, up to that time, marks and grades were the sole measure of success. In subsequent years, the education landscape has shown a marked change in this direction, with the introduction of a number of other indicators of success, and more significantly, the cessation of the publication of school ranking based on academic performance. However, at the time of introduction of PW to all schools, anecdotal evidence suggested that the lack of emphasis on achievement in primary and secondary schools led to many teachers and students not giving their commitment to the subject because the assessment 'didn't matter'. Some schools simply returned to the kind of project work that they had always done and which, in some cases, was the antithesis of PW as it had been conceptualised i.e students carrying out several subject specific projects over the course of a year, with little or no guidance from their teachers as to how to go about doing project work effectively, and almost no monitoring of the work during curriculum time so that the result was often the work of parents or friends. This has also meant that earlier hopes of students coming through the school system and developing the skills needed to carry out PW effectively at the pre-university level as a result of exposure to it at the primary and secondary level have not been as well fulfilled as they might have been. Anecdotal evidence from discussion with teachers seems to suggest that some students arrive at the pre-university level with a poor grasp of the skills they need.

Quality of Performance (2002 dry-run examination)

As might be expected, student performance in the year of the dry run was not particularly good. Knowing that it was simply a practice for the 'real thing' the following year meant that students did not take it very seriously and this manifested itself in a large number of projects (though not all) which lacked any real depth or sophistication, with processing and analysis of information that could best be described as very superficial. The Oral Presentation, in particular, showed a lack of preparedness, with students reading from sheaves of notes, often the contents of their entire Written Report, rather than highlights or sections of it. In the main, students were ill at ease presenting their work and showed little or no awareness of their audience of peers, or in other cases, little sense of the formal setting and tone required.

There were, however, benefits that emerged from the dry run year. A sufficient range of work was produced to allow teachers to be given exemplar material to illustrate the marking standards for each component of the assessment during a final round of training just before the start of the PW cycle in the examination year. In addition, it allowed the use of fairly mediocre student work (Written Reports, Group Project Files, videotapes of Oral Presentations), to show teachers where big improvements could be made before the start of the 'real' examination cycle. To address the issue of concerns over the subjectivity of the assessment, much time was devoted during training to the assessment and discussion of the exemplar material and, in the main, there was close agreement among teachers participating on the levels of achievement exemplified in the work. For the domain of Collaboration, which had been causing most concern, a videotape was made containing several excerpts showing groups at work and in discussion and this was used in training to identify indicators of collaborative behaviour. Discussion of the evidence observed and the

---

[7] *Teachers' Roles in Assessment and Testing*, (Black 1998)

level of achievement that the student had reached allowed for some measure of standardisation among teachers. Together, these measures helped to boost confidence in the assessment and overcome some of the concerns about subjectivity.

Following the dry run, the first two years of the live examination (2003 and 2004) saw a great improvement in the quality of student work in all components.

The Written Report

Generally, students worked hard to make sure their Written Reports were well presented and easy to follow. There was some outstanding work at the top end of the achievement level and progressive improvement in the work of groups in the middle of the range. Students also improved at substantiating their ideas with flow charts, diagrams and photographs. Relating closely to the issue of authentication of student work, in-text citation and referencing in students' work became the norm and there was much less evidence of 'cutting and pasting' large tracts of information from the Internet, which had been common in the past. However, it was still the case that in a good deal of student work, evaluation of the group's ideas lacked critical consideration. Less successful Written Reports were usually of poor quality because the groups had simply reshuffled existing ideas and patched them together with little modification, while good reports moved away from mere description and engaged more in discussion of ideas and reflection.

The Oral Presentation

The standard of most Oral Presentations in the first two years of the examination was good, both in terms of content and delivery. Presentations became progressively more polished and there were far fewer instances of students reading from sheaves of notes; far more common was the unobtrusive use of cue cards. Many student groups no longer relied on PowerPoint slides alone, but used a variety of visual aids to engage their audience's attention. It became increasingly clear that some, though not all, teachers were devoting a good deal of time to coaching their students for the Oral Presentation. However, the formal question and answer session at the end of each presentation posed a challenge to some assessors. Some asked questions that were probing and required a considered response on the part of students, whereas others asked rather superficial questions that required a simple positive or negative response, or that could yield little in the way of elaboration. This resulted in some clearly able students being unable to do justice to their ability in this session due to the questioning skills of the assessor.

The Group Project File

While most student groups drew on a wide range of information sources for their projects, evaluation of those sources (in terms of reliability, currency etc) remained generally weak, with many students simply providing a summary or synopsis of the information. Evidence of the processing of information was generally good, with much of it surfacing in the notes of the group meetings that the students had documented in their files. This was particularly true of those notes in which students had not simply recorded what they did, but also recorded key decisions that had been made and, more importantly, the rationale behind those decisions. While surveys and interviews were by far the most popular method of collecting primary data, an increasing number of student groups conducted fieldwork, experiments and observations to substantiate their ideas. In their analysis of interview/survey questions, an increasing number of groups gave the rationale for their approach and questions and some groups stratified their sample to represent population in terms of age and gender. An increasing number of groups also conducted field tests and pilot studies for validation and refinement of interview/survey questions. However, their efforts were often less successful due to a lack of knowledge or guidance on pilot studies.

More meaningful validation and follow-up could have been carried out if students had been given greater guidance in this area by their supervising tutors.

Collaboration

Collaboration remained the weakest element of the assessment scheme. Its very nature made it very difficult to ensure quality control, both in terms of standardising the assessment and carrying out any meaningful moderation. However, despite their reservations about the assessment of this component, teachers tried their best and generally, the comments they made on the Assessment Instruments supporting their award of marks for individuals and the group were both detailed and showed a good deal of thought.

Emerging Issues (initial years)

Although the quality of much of the work produced was generally impressive compared with the dry run year, the first two years of the PW examination also saw a large number of complaints by both teachers and students alike, regarding what was perceived to be an excessive amount of documentary evidence required for assessment purposes and continued concerns about the unreliable nature of the assessment of Collaboration.

Issue 1 – Excessive documentation

Essentially, teachers and students felt that there was too much documentation and that assessment of PW was too complex and restrictive. However, although teachers and students expressed the view that there was too much documentation, it became apparent that many of the forms that students were filling in were in fact teacher-generated and were not required by the examination board for assessment purposes. Rather, they were templates produced by teachers for students to provide the evidence for assessment in a way that was explicit, but often in isolation from the actual process of carrying out the project. In some cases, the templates produced were flawed in themselves and rather than helping students surface the appropriate evidence for assessment, they pointed them in the wrong direction. It became clear that where students had been overwhelmed with templates, the result was that they simply repeated the same points time after time, showing little evidence of critical judgement. However, given the fact that some teachers felt that their students needed the kind of scaffolding provided by templates and the immense pressure on teachers to deliver results in the summative assessment of the national examination system[8], it is perhaps not surprising that there was such extensive use of them.

In addition to the proliferation of templates, the second problem was the excessive amount of documentation that students filed in their Group Project Files, resulting in files that were unmanageably bulky, both for students and assessors. This seemed to stem largely from the fact that students were not discriminating in selecting the evidence to document. Instead, they filed everything and produced verbatim notes of project meetings which often ran into many pages for each session. Various factors could have contributed to this problem. It could have been representative of a lack of skills development in terms of the ability to select key pieces of information for documentary purposes and note taking. Alternatively, it could have reflected the fact that students themselves felt under pressure to ensure that they provided sufficient evidence to achieve a good result in this component and therefore, wanting to leave nothing to chance, they filed everything in the hope that the assessor would identify critical information during the assessment process.

---

[8] *Teachers Roles in Assessment and Testing: Two Roles in Tension?* (Black 1998)

Issue 2 – "Unexpected" performance

Singapore is a small country which has always placed great emphasis on strong academic performance and achievement of results. In the past, students have achieved a plethora of top A-Level grades in traditional pen and paper examinations and although public ranking of schools on academic performance is now a thing of the past, it remains difficult to change mindsets in this area. This is especially true in the academic environment of pre-university schools where competition is fierce. Schools themselves expect that there will be a certain 'pecking order' when it comes to student performance in national examinations. However, PW is far from a traditional examination subject and the unexpected can and perhaps should happen. PW results in the first year of examination in 2003 raised few eyebrows because there were no comparisons to make in this new examination. However release of results in 2004 saw controversy when, on comparison amongst themselves, schools realised that while all schools had performed significantly better that they had in 2003, some had performed "unexpectedly", even "inexplicably" better. This led to suggestions that some schools were over-zealous in guiding their students through various means, including:

- the provision of templates and school-dictated structured approaches, which some teachers felt amounted to doing the work for students
- detailed correction of several drafts of student work

The concerns about performance seemed to arise from two, interlinking issues:

- uncertainty over how far teachers should go in guiding their students in a subject where guidance is essential and has always been strongly encouraged
- lack of understanding of the guiding principles behind PW and its assessment

Addressing the Issues

Issue 1

Following the accumulation of negative feedback about excessive documentation and the unreliability of Collaboration assessment, changes were made to the original PW syllabus, in particular to the assessment scheme and the nature of evidence for assessment, which culminated in the speedy implementation of the current (revised) syllabus in 2005, one year early. The revised syllabus aimed to address teachers' and students' complaints and concerns.

Issue 2

In respect of the second issue, a number of steps were taken to try and allay fears that were essentially related to authenticity of students' work and quality assurance of school-based assessment.

Firstly, in preparation for the implementation of the revised syllabus, the PW Handbook[9], which had been developed to guide teachers largely in the conduct of the assessment of PW, was revised in line with the changes to the syllabus and further included a substantial section on teacher supervision and guidance of students carrying out PW. This section now gives more detailed guidance on what teachers should and should not do, in terms of giving guidance and assistance to students.

Secondly, sharing sessions were held with the key PW personnel of all schools, as well as school Principals to discuss and clarify the nature and intent of PW as a mode of school-based assessment and to discuss best practice. A key message in these sessions was that in a non-traditional subject like PW, less academically-inclined students can and sometimes

---

[9] PW Handbook 2005

do outshine their more academically able peers because PW is a different, non-traditional mode of assessment. Principals and key personnel were advised that providing students with templates that essentially did their thinking for them and requiring students to produce several drafts of exploratory, 'process' documents such as the Preliminary Ideas was inappropriate and often counterproductive. Essentially, teachers are expected to help students develop the skills necessary to carry out their projects effectively, as well as provide ongoing guidance and supervision. The intent of this is to signpost the path for students, but not to hand-hold them along it.

The Revised PW Syllabus

Students are now assessed in two of the four domains of learning: Knowledge Application and Communication. Collaboration is no longer explicitly assessed and the overwhelming majority of teachers are relieved that this is the case, for all the reasons stated earlier. However, although it is not formally assessed, collaborative skills are still required because students must still work as a team to complete their projects. Teachers are also encouraged to facilitate teamwork and to give feedback to their students on their collaborative skills.

Coupled with the removal of Collaboration from the assessment scheme, the disappearance of the Group Project File in its original form caused some to suggest that the 'Process' element of PW had been almost entirely removed. However, this is not the case. Essentially, the new, streamlined version of the Group Project File, rather than providing a long-running and often tedious video-recording of the whole process with indiscriminate filing of anything and everything to do with the project, now captures 'snapshots' of the process taken at key stages of the project with the submission of selective documents that have become very focused in nature.

Both these changes have resulted in an assessment framework that is more focused and manageable for teachers.

The individual nature of the three Group Project File submissions has also had other benefits. In any group work, there is always the danger of 'passengers' in the group, those who contribute little or nothing, but benefit from the efforts of the others in the group. A flaw in the Group Project File as it used to be was that such students were able to achieve a reasonable mark in PW, without putting in a great deal of effort themselves. Under the revised syllabus, each group member must submit his or her Preliminary Ideas document, before meeting with the rest of the group members to discuss the merits of each one before deciding whether or not to adopt or modify one of them to form the basis of the group's project proposal. The gathering of a range of information from various sources to generate and substantiate ideas remains a requirement, but it is now the case that each individual must carefully select, from the body of information gathered, analysed and evaluated, one piece of work to be assessed and this has encouraged students to be much more discriminating in their selection of material for analysis and evaluation. Finally, there is the final one of the three submissions, the "Insights and Reflections" document, in which each group member considers the strengths and limitations of both the group's and their own individual ideas, as well as alternative ideas and approaches that could have been adopted.

Quality of Performance (2005 Examination)

Having recently completed the PW examination cycle in the first year of the revised syllabus (2005), it is possible to comment on the quality of performance in light of the changes that have been made.

The Written Report

Last year saw some of the liveliest and most creative work in PW yet. Some very interesting and ingenious ideas were presented in reports, the standard of which was generally very competent and often excellent. Whereas in the past, most students opted for the fairly safe route of conducting surveys or interviews to substantiate their ideas, this year, many more groups chose to carry out experiments to substantiate their ideas and this approach proved to be highly successful in many cases. There was also much more widespread use of diagrams and blueprints for designs, which was very welcome. However, detailed development of ideas and critical analysis and evaluation of their own ideas remained areas of weakness in many groups' work. Weaker reports also tended to show a lack of consideration devoted to what information should be included in the report with a number of groups clearly launching into the writing of the report without planning out the content and structure in advance.

The Oral Presentation

Like the Written Report, the standard of Oral Presentations continued to improve steadily. The vast majority of presentations were well executed, with some very polished and professional performances at the top end of the range. In the question and answer sessions, there was also an encouraging trend among assessors to abandon generic, process-based questions in favour of more solid content-based questions that arose naturally out of what had been presented. Such questions generally allowed students to better demonstrate their knowledge and understanding of the project and the processes they had been engaged in.

The Group Project File

Since it was this component of the assessment that had undergone so much change, student performance in the submissions for the Group Project File was awaited with a good deal of interest. Highly successful work showed that the students had made determined efforts to maximise the assessment opportunities presented by all three documents, but a disappointing number of students did not.

In the Preliminary Ideas document, most students showed they were able to generate many good ideas although some were unable to go a step further and evaluate those ideas in any great depth. For most students, the evaluation of material tended to be the most effective and showed a significant improvement in quality over the kind of evaluation of source that had been done by the group on information gathered and submitted in the old Group Project File. Stronger work showed students triangulating the information under evaluation against their own research, or other sources of information to confirm its reliability and accuracy, or otherwise. In the Insights and Reflections document, there were some students who produced excellent work containing in-depth analysis and thoughtful evaluation both of ideas, as well as processes.

The revised Group Project File is a very different animal from the old version and it requires students to be very selective and focused in terms of the evidence they produce for assessment. It is likely to take them a little time to fully get to grips with the demands of and assessment opportunities presented by the new Group Project File, but on past experience, they will do so, and do so quickly and effectively.

Currently Emerging Issues

A number of emerging issues continue to be linked to teacher guidance. In some schools, students seemed to have adopted a common approach to the structuring of the Written Report, with all groups' reports following a standard format. This proved to be a double-

edged sword. While some commonly-adopted formats tended to aid the flow of ideas and consequently the overall coherence of the report, allowing students do well for the criterion "Organisation of ideas", others tended not to do so and this sometimes had a negative impact on students' performance.

In the case of the Oral Presentation, there was evidence that some students had been over-rehearsed. This became apparent in the question and answer session when the questions asked were often generic, process-based and had been drawn from a bank of pre-prepared questions. Students responding to such questions tended to produce immediate, stock answers which did not reach the descriptor for the Exceeding Expectation range of marks i.e. with answers that are "well thought out and elaborated on".

With regard to the Group Project File, it seems that some students felt compelled to produce draft after draft of their Preliminary Ideas for their teachers to comment on. This is likely to be a reflection of the pressure students feel under to perform well and their belief that there is a 'perfect' version of this document that they will eventually arrive at if they produce enough drafts. Students need to be helped to understand the nature of the three individual submissions: that they are not meant to be seen as mini products in their own right, but developmental elements of the process of carrying out the project. This is why assessment of the three documents is holistic and made at the end of the cycle, with the two assessment criteria: generation of ideas and analysis and evaluation of ideas applied to the three documents as a whole after the entire process has been gone through.

Conclusion

The introduction of PW in its original form was an ambitious venture for Singapore. Three years' of experience has seen revisions which have made the project tasks themselves less restrictive and therefore better able to accommodate the wide diversity of student interests, as well as revisions that have led to greater reliability and manageability of the assessment of PW. We have seen progressive improvement in all schools compared with the standard of work that was produced at the outset. In particular, there has been marked improvement in the standard of work produced by schools whose students have tended to be less academically able. The quality of work produced by these students seems to indicate that teachers have understood the importance of teaching students the skills needed to carry out their projects effectively and to communicate their ideas clearly. Most teachers have now realised that they cannot simply assume that because their students are academically able, they will possess the skills to do themselves justice in a non-traditional subject like PW. However, in order to enhance students' experience of learning through PW, there must be an ongoing effort to help teachers better understand the nature and intent of school-based assessment and to help them find balance in terms of the extent of the scaffolding and guidance they provide and their subsequent assessment of student performance.

Unfortunately, due to the difficulties encountered during implementation and in the early years, PW has yet to be fully recognised in terms of its ability to deliver higher order thinking, effective communication and teamwork skills. Given the quality of student performance in all three components in 2005, it may be time to celebrate some of PW's achievements more publicly in Singapore.

References

1. Barber, M. & Sebba, J. 1999, **Reflections on Progress towards a World Class Education System**, Cambridge Journal of Education, Vol.29, 2.

2. Black, P. J. 1998, **Testing: Friend or Foe? Theory and Practice of Assessment and Testing**, Falmer Press, U.K.

3. Caldwell, B. 1996, **Reengineering the Secondary School: Leadership, Culture and Change for the Third Millenium.** Paper presented as invited address at the annual conference of Western Australian Secondary School Principals in Perth, March 21st 1996.

4. Gopinathan, S. 1995, **Globalisation, the State and Education Policy in Singapore**, Asia Pacific Journal: Vol. 16, 1.

5. Griffith, Stafford A. 2005, **Assuring Fairness in School Based Assessment: Mapping the Boundaries of Teacher Involvement.** Paper presented at the 31st annual conference of the International Association for Educational Assessment (IAEA).

6. Hargreaves, A. 1994, **Restructuring restructuring: Postmodernity and the Prospects for Educational Change**, Journal of Education Policy: Vol. 9, 1.

7. MOE & SEAB, 2002, **Project Work Syllabus**.

8. MOE & SEAB, 2005, **Project Work Syllabus**.

9. SEAB, 2005, **Project Work Handbook**.

10. Murphy, J. 1997, **Restructuring Through School-Based Management**, in Townsend, T. (Ed.), Restructuring and Quality: Issues for Tomorrow's Schools, London: Routledge.