



**Australian Government**

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**Quality Teacher  
Programme**

**AAMT Teaching Standards Assessment  
Evaluation Project  
Evaluation Report October 2004**

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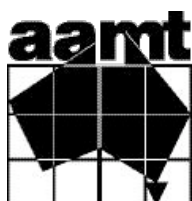
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# 1. Context of the Evaluation Project

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## 1.1 *The Development of Professional Standards*

According to the National Framework for Professional Standards for Teaching (MCEETYA, November 2003, p.2),

professional standards for teaching describe the skills, knowledge and values for effective teaching. They capture key elements of teachers' work, reflecting their growing expertise and professional aspirations and achievements. Standards make explicit the intuitive understandings and knowledge that characterise good teaching practice and enable this to be widely shared within the profession.

The defining of what constitutes quality teaching through the development and adoption of professional standards has been seen as an important vehicle for enhancing the status and quality of the teaching profession, with the ultimate goal of improving the design, management and quality of student learning. In Australia, this has been pursued by employers, registration authorities and Institutes of Teaching in order to produce professional standards applicable to all teachers, and by professional associations such as the Australian Association of Mathematics Teachers (AAMT) with curriculum area-specific standards in mind.

In the USA, the National Council of Teachers of Mathematics (NCTM) developed its Professional Standards for Teaching Mathematics in 1991, and more recently, the National Board of Professional Teaching Standards (NBPTS) developed a process of assessment and certification related to its (teacher developed) standards. While these initiatives differ in detail from what has been developed in Australia, they have provided useful sources of reference for AAMT's actions in developing standards for excellence in teaching mathematics and in seeking ways of assessing teachers against those standards. Similar initiatives have been undertaken by the Australian Science Teachers Association (ASTA) and the Australian Association of Teachers of English (AATE) with the Australian Literacy Educators Association (ALEA).

Seen from the perspective of the National Framework referred to above, AAMT's Standards for Excellence in Teaching Mathematics in Australian Schools are concerned only with the career dimension of 'accomplishment' and with all the categories of professional elements: professional knowledge, professional practice, professional values and professional relationships. That is, AAMT has aimed specifically to describe what constitutes excellent teaching of mathematics through identifying the characteristics of highly accomplished teachers. Thus it has not concerned itself in its work on professional teaching standards with standards related to graduation requirements of beginning teachers, or levels of competence, or with leadership roles.

## **1.2 From Standards to an Assessment Model**

The AAMT Teaching Standards Assessment Model grew out of the work done in the 3-year *Excellence in Teaching Mathematics Professional Standards Project* undertaken by the AAMT in collaboration with staff at Monash University. The *Standards* themselves were adopted by the AAMT Council in January 2002 as *Standards for Excellence in Teaching Mathematics in Australian Schools*. They were made available in print form as well as on-line from the AAMT website, where they are accompanied by materials which elaborate their meaning.

As indicated in their published form, '(t)he AAMT *Standards* explicitly provide a framework for teachers' life-long professional growth. They do not seek to advantage any particular style of or approach to teaching and learning.' Furthermore, '(t)hey do not aim to describe the characteristics and attributes of teachers in general' and 'relate to the specialised professional work of teaching mathematics' (AAMT, 2002).

Besides providing a framework for the professional growth of teachers, the *Standards* establish 'a basis on which the AAMT can implement processes to assess teachers of mathematics as *Highly accomplished* against these *Standards*.' In order to do this, the AAMT Standards Assessment Model (see Appendix B1) was developed by AAMT through the National Professional Standards Committee — Mathematics (NPSCM).

The purpose of the AAMT Teaching Standards Assessment Evaluation Project (TSAEP), funded by the Australian Government through the Commonwealth Department of Education, Science and Technology Quality Teaching Programme, was to further develop, trial, implement and evaluate the Assessment Model, in a way which is consistent with how the Model might be implemented in practice.

The Project began with the running of a Project Preparation Workshop held in Melbourne at the offices of the Mathematical Association of Victoria in Brunswick on 16–17 August 2003, and was completed with the submission of a Final Report to DEST on 21 May 2004.

## 2. AAMT Processes

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### 2.1. Project Infrastructure and Management

Further development of the AAMT Standards Assessment Model (which had been proposed in the earlier *Standards* Project) and the planning of the TSAEP were undertaken by AAMT's National Professional Standards Committee — Mathematics,<sup>1</sup> which effectively launched the Project at the Project Preparation Workshop. A Project Advisory Committee was established by AAMT and convened following the initial Workshop at the MAV offices on 18 August 2003. Its main official task was to provide feedback on the Final Draft Report of the Project in May (by teleconference), but members agreed to be kept in touch with developments via a teleconference in December and by means of e-mails where necessary. Membership of these two committees are included in Appendices A4 and A5.

In order to support the work of the Project, three Working Groups were formed at the Project Preparation Workshop. AAMT members of the NPSCM were nominated to be part of a Working Party, which was to help keep the whole Project moving satisfactorily, an Assessment Group, which was to design and implement the Assessor Training and observe the actual assessment, or a Materials Group, which was to consider the role and nature of 'materials' used within and beyond the Project. Of these groups, the one which had by far the major role was the Assessment Group, members of which not only communicated continuously by e-mail, but also took a leading part in the Assessment Planning Meeting (13–14 December 2003), the Assessor Training Workshop (21–22 February 2004) and the Final Assessment and Review (29 April – 2 May 2004), all of which were held at the AAMT offices in Adelaide.

The day-to-day management of the Project was in the hands of the Project Executive Officer, Will Morony, supported by staff at the AAMT offices in Adelaide. AAMT office staff include a full-time Office Manager, a Design, Publishing and ICT Services Officer and other clerical/secretarial support. The AAMT has a website (managed from this office) which includes material dedicated to the *Standards*, a bulletin board facility and dedicated e-mail networks, all of which facilitated effective electronic communication among Project participants. The role of Project Executive Officer was complex and demanding, requiring a wide range of skills and attention to detail, made more 'interesting' by the changes in intensity of Project activities. His role included submitting a monthly report to the AAMT Executive, which included reporting on the Project. Having an efficient and effective administrative team in the AAMT office was critical to the smooth running of the Project. This was provided.

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<sup>1</sup> Note that underlining in this Report is used to highlight certain words.

## **2.2 Project Plan, Timeline and Conduct of Events**

Elements of the TSAEP plan developed at the initial Workshop and subsequently amended slightly, were incorporated into a Timeline (see Appendix A6), which indicates that the Project activities could be seen as being either tasks to be undertaken or events to be held. Tasks were undertaken by the Project Executive Officer in conjunction with members of various Working Groups (for example, design of forms and Guidelines, recruitment of volunteers and assessors) or by volunteers and candidates (such as submission of Portfolio items). Events consisted of teleconferences of NPSCM or Advisory Committee members or face-to-face meetings and workshops. These latter events, apart from the initial ones in Melbourne in August 2003, were all held in Adelaide in order to minimise travel and accommodation costs. In general, events occurred as planned, while some tasks were not completed by the proposed deadlines, mainly those involving recruitment of volunteers and submission of materials from volunteers and candidates.

The events which were planned and executed for the Project were:

- Project Preparation Workshop — a meeting of the NPSCM 16–17 August 2003

[This took the form of a whole group round-table conference, using an informal collaborative mode of operation and decision by consensus.]

- Further development and clarification of the Assessment Model
- Plans for the recruitment of 20 volunteers to compile trial Portfolio items, 6 candidates to trial the assessment process (including mentors) and at least 4 assessors
- establishment of working groups and overall plan for the Project

- AAMT TSAEP Advisory Committee meeting — 18 August 2003

[This took the form of a standard meeting, although conducted informally.]

- Review of the genesis and history of the Project
- clarification of project requirements and the AAMT Assessment Model
- discussion of the Project plan and its timeline
- discussion about the Evaluation of the Project/Assessment Model

- NPSCM teleconference — 4 September 2003

[This operated through a standard teleconference hook-up.]

- discussion of issues: problem of volunteer recruitment, privacy concerns regarding materials reproduction, candidates' documentary validation, problems about videotaping, information re ACER conference

- NPSCM teleconference — 3 December 2003

- update on numbers of volunteers and candidates
- consideration of report on the Project to AAMT Council, which is required as a consequence of NPSCM being a committee of AAMT
- arrangements for the Assessment group meeting on 13–14 December 2003

- TSAEP Assessment Group Meeting — 13–14 December 2003

[Held at AAMT offices, it took the form of round-table and small group discussions. Decisions were taken by consensus; issues were identified for further discussion and consideration by NPSCM members.]

- clarification of what is required from candidates in Portfolio items, how to communicate this, and how to assess them
  - clarification of characteristics and requirements of the items: Case Study, the Assessment Centre (including how many and what kinds of tasks to be set), Validating material (tending to favour the use of direct observation of lessons to overcome problems of video and audio)
  - clarification of protocols to be used by assessors in judging materials
  - planning of the Assessor Training Workshop February 21-22, 2004
  - identification of tasks to be undertaken, including working on material for publication on the Web
- TSAEP Advisory Committee teleconference — 17 December 2003
    - discussion of the draft report to the AAMT Council (including issue of time investment by candidates)
    - discussion of need to interview volunteer candidates by teleconference
  - Assessor Training Workshop — 21–22 February 2004

[Held at AAMT offices. It took the form of participatory training, with the use of practice and simulation, rather than demonstration. Assessors in training had some input into the process, and were able to suggest improvements to the assessment process as a result of discussion and experience. Any issues raised were noted for further consideration and resolution.]

The Workshop was organised as follows:

- the history and genesis of the AAMT *Standards*, and the Project
  - clarification of the Assessment Model
  - Assessment Centre items: working through some examples
  - Portfolio items; familiarity with examples of Case Study, Examples of Teaching and Learning, Professional Journey, Documentation and Validation
  - using an assessment pro-forma
  - taking account of bias in assessing
  - assessing sample items: individually, then comparing notes with another
  - clarification of the interview
  - further discussion and clarification of issues; planning for assessment
  - debriefing of assessors
- Final Assessment and Review — 29 April – 2 May 2004

[This was held at AAMT offices. Candidates and assessors were kept separate until after the final interviews in order not to compromise the assessment process. The first two days involved assessment and evaluation activities while the last two days constituted a meeting of the NPSCM, initially with candidates and assessors in attendance.]

For the candidates, activities included

- undertaking the Assessment Centre tasks; candidates (except for one whose arrival was delayed) worked at separate tables with lap-top computers to record their responses. They were under general supervision, but were free to pace themselves and move about when necessary. Candidates took 2 to 3 hours to complete the tasks.
- undertaking a structured interview (about one hour) with the Evaluator.
- participating in a teleconference interview with assessors, who were in an adjacent building
- individual debriefing with relevant assessors regarding the outcome of their assessment
- attendance at a celebratory evening meal with NPSCM and assessors
- participating in a Reflection Workshop with NPSCM and assessors

For assessors, activities included

- detailed individual assessment of Portfolio items from 2–3 candidates using one or more pro-formas
- sharing of assessment data with other assessor(s) for the same candidates
- assessing of Assessment Centre items following initial examination by the assessor who was the main developer of the tasks.
- intense discussion of individual candidates' responses on all items and framing of interview questions
- conduct of teleconference interview between each candidate and their allocated assessors
- final consideration of recommendation regarding accreditation and the compilation of a written report on candidates
- attendance at a celebratory evening meal with NPSCM and candidates
- participating in a Reflection Workshop with NPSCM and candidates
- undertaking a debriefing group interview with the Evaluator.

The Reflection Workshop on the AAMT Teaching Standards Assessment Evaluation Project was conducted as part of the NPSCM meeting on 1May.

Candidates and assessors were invited to share their views and experiences of various aspects of the Project, including their responses to

- the *Standards* themselves
- the Assessment Model and process as they experienced it
- materials that future participants would find useful
- processes which could be used for renewal and reaccreditation
- how long the credential can be held before renewing.

[Responses to these topics are included in a later section.]



## 2.3 Communication

Communication between Project participants occurred either face-to-face at the meetings or workshops, or by electronic means via telephone (including teleconferences) or by e-mail. Probably the most widely used mode of communication was e-mail, which facilitated both direct interaction and the distribution of attached documents. Since any future assessments of teachers will need to be undertaken electronically in order to minimise costs and to overcome problems of distance, the overall success of electronic communication in this Project is of some significance.

A good case in point was the e-mail network which maintained continuous contact among NPSCM members between 10 September 2003 and 28 April 2004 (not including e-mails between individuals); it involved nearly 200 transmissions. This network kept NPSCM members up-to-date with the progress of the Project, facilitated actions such as the recruitment of volunteers, allowed rapid distribution of documents such as meeting agendas, reports and drafts of candidate guidelines, raised issues for discussion (such as the question of page limits for Portfolio items from candidates and whether students should evaluate candidates' teaching) and allowed issues to be clarified. Clearly, without e-mail, the conduct of the Project would have been much more demanding than it was.

There were some issues regarding the submission of documentary material electronically, but these were readily overcome. For example, for assessors to be able to discuss (at a distance) the same material from a given candidate, they ought to have identical copies of that material; this could be assured by using a pdf format. Alternatively, they could be mailed identical photocopies. Another issue raised was the possible use of videophones or computer-based video via the Internet; this was rejected on the grounds of cost, availability and quality of transmission.

An important adjunct to the Project's operation (and outreach) was the use of the AAMT Website, which provided a location for the publication of exemplary Case Studies with typical assessor feedback, and, on the AAMT Bulletin Board, examples of Assessment Centre items with an opportunity for NPSCM members to react to them. For wider public readership, there is a sub-site which provides explanatory and exemplary material on the *Standards* and their use for professional development as well as for assessment and accreditation. This sub-site includes down-loadable documents in pdf format. Specifically the AAMT *Standards* sub-site contains the following sections:

- Background to the *Standards* (including downloadable document)
- The *Standards* document (downloadable)
- Exploring the *Standards*
  - elaborations of each
  - teacher quotes (explaining meaning of them)
  - teacher stories (vignettes , short case studies)
- Professional Development materials (not yet available)
- Assessment and accreditation — includes draft materials for comment

- the assessment model (downloadable)
  - Portfolio guidelines (downloadable)
  - assessment centre (not yet available)
- Applying to be an assessor
- Other links (not yet available)
- Research base (not ready yet)

There is evidence that candidates, NPSCM members and assessors made use of this Website, although the extent varied considerably. The heaviest users were members of the working groups of NPSCM involved in developing materials to guide and assess candidates. As the material on the Website is expanded and becomes more widely accepted and used by AAMT members, it is likely to become an important resource, both for professional development purposes and for assessment and accreditation of Highly Accomplished Teachers of Mathematics. For the purposes of the project, it was very useful.

## 3. Structures implemented for the Candidates

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### 3.1 *The Candidates*

Given that the Project was to undertake a 'fair' trial of the Assessment Model as it might be expected to be implemented in real terms, it was important to have a representative selection of candidates from across the country. The 6 recruited candidates comprised:

- 4 females and 2 males
- 4 government and 2 non-government
- 4 secondary and 2 primary
- all from different states and territories: WA, SA, Vic., Qld, ACT, Tas.

This is as close to being representative as one might hope in the circumstances, although none was from outside a capital city. All satisfied the entry criteria for assessment: they were all currently teaching mathematics and they held appropriate tertiary qualifications as teachers of mathematics: the primary teachers each held four years of preservice qualifications, while the secondary teachers all held at least four years of qualifications with a major of mathematics and an education or teaching award. They also completed an application form, with the endorsement of their school's principal.

Each candidate was recruited via a member of their relevant state AAMT affiliated (mathematics) professional association and/or the Project Executive Officer using well-established networks within the AAMT membership. During this process an attempt was made to identify potential candidates who would constitute a representative sample and who met all the necessary criteria, as well as being considered teachers who are very able and perhaps 'highly accomplished'.

### 3.2 *Motivations and Expectations*

Although two of the candidates admitted to having been initially reluctant to commit themselves to the Project, largely because of pressure of time and personal or professional circumstances, all expressed positive reasons for accepting the invitation. For three of the candidates, involvement in the Project was 'timely', as the process of assessment was consistent with what they were being required to do within their own setting towards a performance review, reclassification or 'professional pathways' planning. In another case, the 'timeliness' related to the candidate having a great deal of material similar to that required in the assessment Portfolio and which was needing to be consolidated. For the other two, the motivations to participate were concerned with having an opportunity to contribute to improvements in teaching and to be involved at the start of a new (AAMT) venture.

Candidates expected that meeting the strict time constraints on collecting evidence and the relative inflexibility of the assessment process would be

challenging, but looked forward to finding out what is involved in compiling a teaching portfolio. They hoped that there would be some positive outcomes from gaining a clearer perspective of their own teaching and achievements, and from exchanging points of view with others. Most probably underestimated the time and effort involved.

### **3.3 Information and Support**

After they were accepted for the Project, candidates were supplied with a stream of documents (generally sent 'just in time') to assist them with compiling their Portfolio items, and the opportunity for further support through accessing the AAMT website and contacting various people. Among the documents provided, were

- the AAMT Standards for Teaching Excellence in Australian Schools
- Highly Accomplished Teachers of Mathematics: Portfolio Assessment Component: Guidelines for candidates
- the AAMT Standards Assessment Model
- various communications of advice on how to format Portfolio items, how the assessors will work, clarification of requirements, how to show how their evidence linked with the Standards and so on.
- Guidelines for observers of validation activities (lessons), including an observation pro-forma.

These were distributed by e-mail, while other documents, such as elaborations on the *Standards*, could be found on the AAMT website. The website was not widely consulted after the initial stages, according to the candidates.

Candidates all indicated that they had received and read these documents, and found them both timely and useful, some more than others. The most useful document by far was the *Standards*, which a number of the candidates used in lieu of a checklist. Guidelines for Portfolio items and advice on how to link evidence to the *Standards* were also often consulted. Candidates felt that while the supply of documents was adequate given the developmental nature of the Project, they would have appreciated more, and more explicit, examples of the Portfolio items and how to link evidence from them to the *Standards*.

Candidates were informed that they could seek clarification of requirements from a number of sources (although not from anyone likely to be assessing their material), and were strongly advised to engage a mentor who could assist them with advice and provide timely feedback on their Portfolios, although it was not required to do this. One candidate did not identify a mentor, and two did not use their mentor to any great extent. In two cases, the mentor was a trusted colleague, while in the other three cases, the mentor was an administrative person (head of department or deputy principal). The choice of mentor was based on accessibility to someone with whom the candidate regularly conferred or who had been a 'critical friend' within the school. The mentors were identified by the beginning of March 2004.

In practice, mentors variously provided non-judgemental feedback, read Portfolio material, asked questions, acted as a sounding board and/or

undertook detailed checking and correcting of written material. Candidates reported that the extent to which mentors assisted them was constrained by their accessibility within a very busy time schedule, and limited by the mentor's familiarity with Project requirements. For mentors to be of optimal help, they need to be thoroughly briefed as to how the Assessment process is undertaken and possess a deep knowledge of the *Standards* documents.

### **3.4 Provision for Candidates at the Final Assessment and review**

Candidates were given a deadline for submission of Portfolio items sufficient for the items to be available for assessment on the first day of the Final Assessment Workshop on 29 April. They were required to post hard-copy material to the AAMT office, so that exact photocopies could be dispatched to the assessors. Most candidates met the deadline, and all material was available when required for the final assessment period.

The candidates convened with the Project Executive Officer at the AAMT office on Thursday 29 April for the Assessment Centre activity. As indicated earlier, candidates worked at separate tables using lap-top computers in order to respond to the Assessment Centre questions. Following this, until their Interview with the assessors during the following afternoon (30 April), they were scheduled to be interviewed by the Evaluator.

For their Interview with the assessors, candidates were given prior notice of the questions to be asked. Questions were in general leading, written in positive language and indicative of where there were gaps in evidence needing to be filled or where further evidence might clarify the candidate's position with respect to one or more *Standards*. Finally, they participated in a feedback session on their assessment, a celebratory dinner and a reflection workshop (on 1 May).

All candidates subsequently will receive a letter from the NPSCM advising them of their status regarding their accreditation as Highly Accomplished Teacher of Mathematics. Four teachers were successful in receiving accreditation, while two were advised that they had not yet produced evidence of having achieved all *Standards*, and were advised of what follow-up might occur. All candidates will receive a written report of their assessment, indicating where and what evidence had been provided of their meeting each of the ten *Standards* as well as a general summary of the assessment made of their application, highlighting particular strengths. Successful candidates will be publicly presented with a certificate of achievement (and otherwise acknowledged for their new status) at the biennial conference of AAMT in 2005. All candidates were offered a traveling scholarship to assist their attendance at the conference.

The two candidates who did not present sufficient evidence were advised that they would be given opportunities to 'bank' their accomplishments and provide supplementary evidence towards meeting those *Standards* which they had not yet met.

## 4. Qualities of the Assessment Strategies

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### 4.1 Genesis of the Strategies

Building on experiences in the US, the AAMT Standards Assessment Model was framed during the AAMT's *Excellence in Teaching Mathematics Professional Standards Project* and further refined by the NPSCM. It was originally envisaged as having three broad areas through which teachers could provide evidence of excellence in their teaching: an Assessment Centre, a Portfolio assessment and an Interview. Having three sources of information was considered an ideal way of ensuring broad and perhaps triangulated or overlapping evidence, although there was a feeling that requiring too much detail would be counter-productive. Further, it was felt that the Australian context would tend to support a team approach to assessment, making holistic judgements about teachers' work rather than adopting the more atomised psychometric approach favoured in the US.

In adopting its *Standards*, the AAMT Council also endorsed a number of guiding principles and characteristics for assessing teachers against those *Standards*. It was made clear that the *Standards* were to be national in scope and would apply across all year levels and teaching contexts. The Guiding Principles are stated in the Assessment Model document in the following terms:

The AAMT *Standards* explicitly provide a framework for teachers' career-long professional growth. They do not seek to advantage any particular style of or approach to teaching and learning.

Participation in any assessment process conducted by the AAMT will be strictly voluntary. The assessment process will be:

- rigorous and valid;
- adaptable to and applicable in all teaching contexts;
- fair to all candidates no matter what their teaching situation;
- equally accessible to teachers across the country;
- controlled by the candidate insofar as this is possible; and
- oriented towards contributing to professional growth of the candidate.'

(The AAMT *Standards* Assessment Model, September 2003, p.1)

Following some further development and clarification during the Project Preparation Workshop on 16–17 August 2003, the specifications of the assessment instruments emerged as follows:

- **Assessment Centre:**

a series of questions seeking candidates' responses within a limited time period, in the form of simulated teaching decisions in response to hypothetical situations and 'inbox' questions. Candidates would sit 'at distance' with appropriate security and supervision.

- **Portfolio:**

a package of materials produced by the candidate including:

- a **Professional Journey**  
a personal account of how their career has developed, in the form of a reflective essay of at most 2500 words or similar.
- an example of **Current Teaching and Learning Practices**  
an account of a sequence of lessons that creates a coherent whole (including plans, learning experiences, assessment, examples of student work showing progress towards outcomes).
- a **Case Study**  
of at least two students over two or more months
- **Validation material**  
material that validates the teacher and his/her work, such as a videotape record of one or more lessons, an audiotape, or a colleague's observation record in one or more lessons.
- **Documentation**  
in the form of references, testimonials, certificates, etc., that provide evidence of the candidate's work

Further items could be included by the candidate in evidence.

[It was pointed out that it was essential that the candidate provide clear annotations of the material submitted in order to provide information about the teaching context for the assessors and, most importantly, to link it to the *Standards*.]

- **Interview:**  
undertaken by the candidate with the assessors of the candidate's Assessment Centre responses and Portfolio items, normally by teleconference to provide an opportunity for the candidate to clarify evidence and add further information and evidence.

## **4.2 Modification of the Strategies**

In order to trial aspects of the Portfolios and to generate examples of Portfolio items, a number of volunteer teachers were recruited by members of the NPSCM. From the examples submitted, it was possible to identify areas for modification in the *Guidelines for Candidates for Portfolio Assessment Component* document (see Appendix B4), which outlined what was expected from candidates in each of the items submitted. The examples themselves were used either as submitted or in slightly modified form for the training of assessors, during which more minor modifications were made to provide advice to candidates. Further changes arose from discussions at the Assessment Group Meeting and other discussions among Assessment Group members. None of these changes was major, and mainly served to clarify specifications already in the Assessment Model and the *Guidelines* document. (The volunteers' experiences of compiling individual Portfolio items were also a good indicator

of what candidates might be confronted with in putting together a complete package of Portfolio items. Some of their material, where it was deemed to be exemplary, was posted on the AAMT Website for consultation by the candidates, although not generally available.)

As an indicator of the kinds of modifications and elaborations made to details of the assessment process, the document *Update for Candidates 4 March 2004* sets out some of these for the benefit of candidates preparing to finalise material for assessment. This bulletin was developed as a result of the Assessor Training Workshop and distributed soon after that event. The modifications and elaborations were:

- Assessors would be asked to only look at and evaluate the evidence about the *Standards* cited by the candidate and to overlook 'negative' evidence.
- Candidates were advised that certain ways of formatting would help the assessors to do their job. For example, putting page numbers on documents; using a table linking *Standards* and how they are in evidence; using a 12- or 14-point font with appropriate spacing; and using generic rather than state-specific language.
- Candidates were advised that of the alternative Validation entries, an observation visit would be least time consuming and least difficult to manage. (There were also concerns about privacy and validity in the case of video recordings and to a lesser extent of audio recordings of classrooms.)
- While the Assessment Model specified two students for the Case Study, the *Guidelines* document indicated 'one or more' students. It was pointed out that 'one was enough', although the use of more might provide more opportunities for linking to *Standards*.

This last instance was probably the only major modification to the assessment strategies which emerged throughout the Project.

One important area of elaboration, which occurred largely as a result of discussion at the Assessment Group Meeting in December, was the spelling out of the operation of the Assessment Centre. The rather general description in the Model was replaced by a more specific one. There would be 4 questions, each requiring about 30 minutes to respond to. These questions would be framed specifically to encourage candidates to 'show off' their achievement of a number of key *Standards*. It was suggested that the way candidates responded to these questions would be an effective screening device which could assess whether candidates were ready to proceed with compiling the Portfolio. Specifically, it was proposed that there would be four kinds of questions, each targeting particular aspects of the *Standards*:

1. A student mathematical task
2. A community related task
3. A novice teacher related task
4. A personal attributes task.



After successful trialing at the Assessor Training workshop, and further consideration by the Assessment Group, the questions actually asked at the Final Assessment focused on the teacher's

1. establishment of the learning environment
2. community responsibility
3. novice teacher development
4. personal attributes. [See Appendix C2]

Some of the Assessment Centre questions trialled at the Training workshop were provided as examples to candidates prior to the Final Assessment.

As the Interview could not be trialled before the Final Assessment, it was not possible to modify or elaborate the questions to be put to each candidate. They had to be constructed by the assessors in the light of evidence actually tendered by the candidates in their Assessment Centre responses and Portfolio items. It was clear that the questions would need to be cast in sensitive, open and positive language, and encourage candidates to respond in a positive way.

The culminating activity of providing appropriate feedback to the candidates and the writing of a written report could not be trialled before the Final Assessment, and had to be undertaken as it happened. The Assessment Model specifies that '(a)ll candidates will receive feedback, firstly on their performance in the Assessment Centre, after assessment of their Portfolio and finally after their Interview'. Because of the intensity of the activities during the Final Assessment, it was not possible to follow this sequence exactly.

In modifying the assessment strategies and elaborating on the conditions under which evidence could be submitted and assessed, those conducting the Project have managed to remain close to the original specifications and consistent with the guiding principles. Their concern has been to permit options, where possible, for candidates and to minimise standardisation in the presentation of evidence, thereby allowing candidates to feel that they are able to be fairly portrayed. The aim has been for the material to be presented for assessment to be representative of what good teachers already do in their professional life, enough to be able to demonstrate that *Standards* have been met, yet not so much that the compilation of evidence is so time-consuming that it unnecessarily impacts on the regular demands of teaching.

### **4.3 The Response of Volunteers to the Writing of Portfolio Items**

Teachers of mathematics who were recruited on a voluntary basis to trial elements of the Assessment Model were contracted to submit Portfolio items for evaluation and endorsement as exemplary material. Some of the twelve items (mainly Case Studies, Professional Journeys and Teaching and Learning packages) received by early February 2004 were used in the Assessor Training Workshop; others received later helped to refine aspects of the *Guidelines* to candidates and to develop a pro-forma for lesson observation. Volunteers were invited to explain why they participated, what time they expended in

compiling or undertaking their item, and to reflect on the outcome of their work. Only a few managed to respond, due to competing priorities in their work lives. However, the responses are revealing.

Reasons for participating varied from the altruistic, such as 'providing a voice for the practising teacher', 'helping other teachers' and 'opportunity to reflect on one's own teaching', to the pragmatic, for example, 'to be ahead of the game on accreditation', 'to produce useful materials and strategies' and 'to earn \$500' (this was probably stated tongue in cheek).

All volunteers who responded found the task challenging but professionally worthwhile. There was concern about the time taken to collect evidence among competing demands for their professional attention (particularly where it took time away from students and their families), but it was the writing up of the items which required the most attention. While the total time taken was not very different from those reported by candidates in the trial, it was rather the incidental time devoted to the task which was intrusive. As one teacher put it: 'I found myself thinking about it at all times, e.g., in the shower, doing the dishes, and driving my own children to sport.' A number suggested that having a clear time-frame for completion was helpful as a way of organising activities. Those who had direct contact with NPSCM members appreciated their help in clarifying the requirements of the item they were developing.

## **4.4 The Response of Assessors**

### **4.4.1 Response to the Training Workshop**

The five assessors (two secondary and three primary teachers) who took part in the Assessment Training Workshop on 21–22 February 2004 were all experienced teachers with expertise in professional development programs, and all confidently expected to emerge as competent to assess candidates. They found the collegial and informal approach to training very conducive to developing the required assessment skills. They particularly appreciated that the workshop

- built on and respected their existing skills;
- maintained a good balance between theory and practice;
- gave them an opportunity to contribute, question, clarify and fine-tune the assessment process;
- encouraged open discussion and was not narrowly agenda-driven;
- acknowledged the history of the Project; and
- was collaborative in style.

Their main concern was not having enough example Portfolio items to work through, although it was not so much the lack of numbers as the lack of variety, since the specifications for items allowed a certain amount of variation in presentation which needed to be taken account of during assessment.

They felt quite confident to fulfil the role of Assessor as a result of the Workshop (since their simulated assessment exercises had proven to be

effective and reliable), but they felt that in the future there would be some advantage in being trained by other assessors trained in applying this Assessment Model. (This suggests a future role for these assessors.) Having complete Portfolios to assess as part of training would help, as would being able to simulate Interviews. They felt that it would also be helpful if they could learn to provide feedback to candidates, how to interview, and how to record (using different pro-formas) and highlight evidence. Having more time to read training material prior to a training workshop would also be an advantage.

#### 4.4.2 Response to the Final Assessment Process

Teams of two or three assessors were assigned to each candidate for the final assessment. In a couple of instances, a secondary candidate was assessed by two secondary assessors and a primary assessor. This was done to provide some balance in each assessment team, to explore the effect of having 'mixed' teams and to ensure that assessors were not placed in a position of assessing someone they knew.

The experience of assessing candidates during the last few days of the Project was highly positive for the assessors. When asked about the assessment process, they used words such as 'revelatory', 'delighted', 'overwhelmed', 'amazed', 'impressed', 'inspiring', 'uplifting', 'humbling' and 'valuable' to describe their main reaction. They were clearly impressed with the ability of the process to reveal the very high quality of the candidates' work as teachers, and were grateful for the opportunity to learn about talented colleagues in an 'interesting' way. They felt that assessing the candidates was a good learning process, as it forced them to reflect on their own professional status in relation to the *Standards*. Thus the assessment process proved to be an excellent professional development experience for them.

The assessors felt confident to undertake the tasks of assessing, and were clear in their own minds that they were able to make valid and reliable judgements about the candidates with respect to the *Standards*. Importantly, they were highly consistent in all their assessments, indicating a high inter-assessor reliability. Any minor discrepancies were quickly sorted out in discussion, and usually involved differences in perception. They felt that there was no overt bias in their judgements, and were confident that they had been as objective as was possible in keeping to the assessment protocols.

#### 4.4.3 Response to assessing the assessment instruments

##### Assessment Centre

Assessors formed an overall impression that the Assessment Centre answers from the candidates were good predictors of the quality of evidence in their Portfolio Items. The main discriminator among their responses was the candidate's level of justification and their ability to provide reasons for actions proposed. Thus the Assessment Centre should prove to be useful as a screening device for applicants to the assessment process. The answers to the four Assessment Centre questions provided by each candidate took about 30-40 minutes to assess in the first instance, with a few more minutes required for confirming the judgements made. The task of assessment was made relatively

straightforward because of the structure of the questions, which had specific foci and were written with particular *Standards* in mind. Difficulties in assessing occurred mainly when candidates proposed courses of action without supporting their answers with background statements and justifications.

### **Portfolio Items**

The assessors found that candidates generally followed the suggested *Guidelines* for submission of items, although there were variations. Where an item was not submitted in a recommended or preferred format, it was harder than expected to locate specific evidence of linking evidence to the *Standards*. While this slowed down the process, it was still quite straightforward to do the required assessment. Each package of Portfolio Items took from 5 to 10 hours of fairly concentrated effort to assess during a period of intense time pressure, which proved to be rather exhausting for the assessors. While they felt that this pressure did not invalidate the assessments made during the trial, the assessors suggested that Portfolios could be better assessed over a period of perhaps 9 - 10 days so as to allow time for more critical and considered reflection of the material.

There were no instances of 'negative evidence'<sup>2</sup> which had been foreshadowed (at the Assessor Training Workshop) as possibly occurring, and not a great deal of redundancy of evidence in the submissions. What redundancy existed was confirming of certain *Standards* being met. Assessors felt that the process of assessing Portfolio items would be made easier if submissions were in a more standard format, but declined to recommend standardisation of format, as there were strengths in allowing options for candidates. As long as there were clear indicators of links to *Standards*, assessors were happy to accept a range of presentations.

The table of suggested links between Portfolio Items and *Standards* included in the *Guidelines* document was considered to be generally valid, and a useful guide for candidates to use. However, assessors found that evidence presented across the Items went beyond the suggested links, which was helpful in confirming and reconfirming that *Standards* had been met. The hardest of the *Standards* to find evidence for were **3.4 Assessment** and **2.3 Community Responsibility**, and assessors suggested that this should be taken into account when updating the *Guidelines* document.

Most assessors began assessing a Portfolio with the Professional Journey, as it was felt to provide an overall initial picture of the candidate which would be fleshed out as other items were assessed. The Documentation was generally the last of the items to be assessed; this tended to give a final summative picture of the candidate.

Assessors felt that assessing Portfolio Items was 'easier than marking assignments', and that using one or two pro-formas for recording their findings was very helpful in allowing them to keep track of where candidates were achieving *Standards*. They felt that using detailed checklists would have detracted from their need to form a holistic picture of the candidate, but felt

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<sup>2</sup> For example, the presence of an inadvertent mathematical error in a worksheet not referred to in the evidence presented.

that candidates may well find checklists useful in compiling and checking their Portfolio Items against the *Standards*.

Assessors felt that all Portfolio Items were necessary to be submitted; it would not be helpful for candidates to submit Items one at a time until they demonstrated that they had met all *Standards*. Not only would this reinforce a fragmentary view of the candidate (and detract from a holistic one), but there were advantages in submitting all Items for triangulating evidence and building a broad general picture of the candidate's teaching. That said, there might be some value in having candidates receive feedback on individual Items submitted over a period of time, although this in turn would fragment the process of assessment and would make both the task of assessors more difficult and the work of management far more complex. One of the advantages of having a concentrated period of assessment is that assessors can quickly build a coherent picture of each candidate, which allows an overall judgement of a candidate to be made more readily.

### **Interview**

This component was the most challenging for the assessors, as it was not possible to trial this aspect earlier in the Project. The assessors felt that the key to being successful in the interviews was to have carefully framed questions which would provide opportunities for candidates to fill gaps in evidence, and to clarify and provide confirming evidence. It was also important to keep the questions open and positively framed, with clear links to what candidates had submitted earlier. In their opinion, their framing of questions and conduct of Interviews worked well. They were particularly impressed that candidates' enthusiasm was able to be readily communicated via the medium of a teleconference, and that this enabled Interviews to be more effectively conducted.

They felt that having the assessors together physically was advantageous as this allowed rapid (particularly non-verbal) communication between them, and made possible a more effective conduct of the Interview. They also felt that each assessment team ought to contain at least one primary and secondary teacher, so as to provide further perspectives on the judgements being made. This view is really a general one that could equally be made of the assessment teams over the whole range of components. It would mean that secondary candidates should have a primary teacher among those who assess them, and vice versa. This would be a change to the Model, in which assessors are expected to have experience and expertise at the level(s) of schooling at which the candidate is teaching.

#### **4.4.4 Response to the Whole Process**

Assessors were of the opinion that the process could be improved in a number of ways:

- allowing more time between the receipt of Portfolios and their final assessment in order to allow more time for considered reflection of the material

- encouraging candidates to pursue different curriculum topics across their Portfolio Items, so as to avoid a narrowing of focus
- improving the preparation of mentors so that candidates get sound advice
- providing clear guidelines and exemplars of Items to candidates in a single source.

## **4.5 The Response of Candidates**

### **4.5.1 Response to the *Standards* document**

Candidates found that the *Standards* document was clear, friendly and accessible, of a reasonable size and a good source of descriptors. They were happy with its format, and would not have preferred it in the form of a checklist, although it could be used in a somewhat similar way. The Elaborations to the *Standards* given on the AAMT Website were referred to by several candidates, and were found to be good organisers for interpretation of the *Standards*, although one candidate found them too detailed. The *Standards* document was judged to be an excellent resource for ongoing professional development for the candidates and their colleagues, particularly new teachers, in order to provide a vision of a future professional journey, to identify the scope of the role of a teacher and to provide a basis for the development of a teaching portfolio. *Standards* also provided a clear link to various forms of teacher performance review processes and ‘professional pathways’ programs. Most significantly, all candidates saw it as a key document in the preparation of their case for assessment.

In the process of compiling their Portfolio, candidates felt that the table of links between Items and *Standards* given in the *Guidelines* document was helpful and valid, but was only indicative of links. They discovered other links for themselves which went beyond the table. Of all the *Standards*, the one they felt hardest to find evidence for was **3.4 Assessment**, as well as those which they felt were slightly removed from their day-to-day experience, which varied among candidates.

### **4.5.2 Response to the Assessment Centre**

In spite of some initial apprehension, all candidates found the Assessment Centre ‘fine’, ‘good’ or ‘enjoyable’ as an opportunity to demonstrate their professional knowledge and experience. They appreciated the fact that they could undertake answering the questions without too much stress in a relaxed setting where they could use their lap-top computers to record their answers. They all had a similar preparation in being given some examples of the questions several days prior to the assessment session, and felt that this was adequate to forewarn them of what kind of questions to expect.

They felt that the questions presented to them were appropriate, engaging, realistic, manageable, open and searching but fair. None felt that the questions moved outside of their experience as teachers, yet they were challenging enough that they needed to draw on their personal/professional resources. Candidates took between two and three hours to complete the four questions

posed to them. This they felt was an adequate amount of time to expect completion of the questions, although a few suggested that more 'thinking time' might be helpful in order to allow them to provide more considered examples. When explicitly asked, the Candidates did not express any dissatisfaction with the term 'Assessment Centre' as describing the activity of responding to simulations of teaching/professional decisions.

### 4.5.3 Response to the Portfolio Items

While most candidates were recruited in 2003, most admitted to beginning to compile their Portfolios from the start of the school year in 2004, which meant that the compilation was undertaken over a period of three months. Despite the severe time limit imposed by this, most candidates admitted to feeling pleased with their Portfolio package. They found the process of compiling it time-consuming, challenging, worthwhile and/or enjoyable. For most, its completion created a sense of achievement, although one candidate confessed to getting a 'bit sick of it' by the time it was submitted in April.

Of all the Items, the most time-consuming and most significant in terms of demonstrating the overall quality of their teaching tended to be the Example of Current Teaching and Learning Practices, according to the candidates, although this was also seen the easiest since it was most closely related to everyday teaching. The most challenging to compile for the majority of the candidates was the Case Study, while the most revealing was the Professional Journey. As might be expected in a trial process, the factors which they felt most hindered them in preparing their Portfolios were uncertainty of what was expected of them in writing and presenting the Items, and the pressure of time constraints. The lack of examples of Items early in the year caused some anxiety which was alleviated by candidates talking to mentors and referring to material which was sent to them as it became available via e-mail or on the AAMT Website.

All candidates undertook a Validation exercise in the form of an observation of a lesson by an independent observer, each of whom was experienced in using observation schedules. Two of the observers were teacher educators. One candidate also provided a video record of some teaching episodes. Generally, candidates were satisfied with the outcomes of the observations. They felt that having an observer (including pre- and post-interviews) was a positive professional development experience in its own right, especially since they were able to have some control over what was being observed. Observers could also identify material and aspects of lessons which candidates may have not be aware of or may be self-critical of. This could not be readily achieved by means of video, which has other limitations, such as overlooking details and highlighting irrelevant activity.

Candidates felt that successful compilation of a Portfolio required

- a thorough familiarity with the *Standards*
- a flexible time period in which to undertake it, yet with clear deadlines so that work could be paced and balanced against other professional demands on them

- a clear plan of action which could account for the complexity of life as a teacher, and allow changes of pace according to the varying demands on their time
- a long enough period of time so that there are no unreasonable detractors from their role as a teacher and family member, but short enough for momentum and focus to be maintained
- more, and more comprehensive, examples of Portfolio Items with a range of options for presentation and methods of showing links to *Standards*

They expressed some preference for Portfolio building to commence after a successful application and Assessment Centre, with some negotiation of deadlines to suit individuals where possible.

#### 4.5.4 Response to the Interview

This activity was considered worthwhile by all candidates. They felt that it acted as a safety net by highlighting gaps in their evidence and provided opportunities to allow expansion of their views and the chance to submit supplementary evidence. They felt a minor reservation in having a teleconference format for the interview because this did not permit visual cues between interviewers and the interviewee.

#### 4.5.5 Response to the whole Assessment Process

In preparing for the assessment, candidates acknowledged the important role of the mentors and of material sent to them for guidance in compiling their Portfolios. They felt that mentors needed to be well-versed in the content and interpretation of the *Standards* and that more than one mentor might help to cater for the variety of aspects addressed in the Portfolio. They felt that an e-mail network of mentors would also be useful; in the future, those who had already been candidates or assessors could prove ideal in this role. For this Project, candidates were generally satisfied with the quality of support provided to them through mentoring and the provision of written guidance and advice, although it was not always there when first needed.

Overall, candidates felt positively about the assessment process, despite at times feeling frustrated or anxious, with reservations about the time available and the hard work required. Several stated that they felt the process helped to affirm their status as a good teacher and that it was valuable and confidence boosting. Indeed, in collecting documentation in the form of references, some candidates were genuinely and pleasantly surprised at how highly thought of they were in some quarters. They universally felt that the assessment process had helped to provide them with informed feedback about their teaching and an opportunity to document an accurate picture of their teaching. In other words the experience of undertaking the assessment was valuable in its own right although they were pleased that there might be a further 'pay-off'.



## 4.6 Effectiveness and Attributes of the Strategies

Evidence collected from Project participants gives support to the following:

- Overall, the various components of the assessment process can reveal a clear, consistent and holistic picture of each candidate in relation to the *Standards* by which a judgement can be made with some confidence that a candidate has attained all *Standards*.
- All components appear important to provide that picture. Although requiring all components may lead to some redundancy of information about how a candidate meets the *Standards*, there are other benefits such as increased internal reliability of data.
- The Assessment Centre, as conducted in the trial, is feasible to manage, and provides tasks which facilitate candidate responses that reveal links to a range of *Standards*. The tasks are searching but fair, and candidates responses may be predictive of their ability to meet an array of *Standards*, suggesting a screening role for the Centre. The Centre should be able to be located in any appropriate setting.
- The Portfolio can provide valid and sufficient evidence for a candidates' knowledge, capability and commitment as a teacher of mathematics. It is relatively straightforward if time-consuming to assess, but a reliable assessment is possible. While the Portfolio is time-consuming in itself to compile, it tends to reflect the broad range of *Standards* required of an accomplished teacher, and reducing its scope would probably lessen its effectiveness as a source of evidence.
- The Interview is an important part of the assessment process, with benefits both for those who achieve accreditation and those who do not provide convincing evidence that they meet all *Standards*. Conducting it by teleconference is feasible and effective.

## 5. Professional and other impacts on participants

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### 5.1 Impacts on Volunteers

The volunteers who trialled the writing of Portfolio Items came from a variety of schools large and small, rural and metropolitan, public and independent, primary and secondary. Irrespective of what schools they worked in, it was clear from their responses that they were all busy people. Not surprisingly, the major impact on them was reportedly the time required to carry out the activity (Case Study, Teaching and Learning package, Professional Journey) and to write it up into an acceptable format. For example, volunteers reported between 13 and 48 hours to complete a Case Study, and 10 to 22 hours to complete a Professional Journey statement. Unfortunately it is not clear how much of this time was spent observing, thinking and so on, and how much was spent on the actual writing. But the figures suggest that the compilation of a Portfolio Item can represent a significant amount of time taken away from other professional duties and/or private time.

The other area of impact on volunteers was professional. All respondents stated that there were positive pay-offs in terms of professional learning, such as taking time to find out more about individual students, gaining benefits from reflection on one's teaching, developing useful units of work and learning more about one's own development as a teacher. This suggests that being involved in compiling Portfolio Items as specified in the Assessment Model can have professional benefits to teachers, and presumably can assist teachers in moving towards the attainment of the *Standards*.

### 5.2 Impacts on Assessors

Perhaps the first impact on assessors concerned the arrangements which they had to make to attend the weekend Assessment Training Workshop in Adelaide in February. Particularly for those attending from interstate, this involved some arrangements to cover separation from families whose normal routines were interrupted. Given that teachers normally find that weekends are the only time for more than cursory contact with other members of their families, this was a significant impact for most. For the record, those attending the Assessor Training Workshop came from Perth (2), Hobart (2), Melbourne (2), NSW (1), Adelaide (4). Those who act as assessors in the future can expect some disruption from family life and/or their usual routines, because they will need to be trained and to take time to undertake the assessment process.

On the positive side, there were important professional gains from the Workshop. Assessors reported feeling empowered as a result of the Workshop, so that they felt confident to be able to assess candidates at a later date, having become more conversant with the *Standards* and able to undertake assessments of both Assessment Centre answers and Portfolio Items. They all stated that they gained useful professional insights and skills as a result of participating,

because they had taken part in activities which simulated most of the actual assessment processes to be used in the final assessment.

The Final Assessment sessions in this Project took place over a concentrated two-day period. The intensity of the assessment period required assessors to spend longer than usual periods of time working through candidates' Portfolio material well into the night. It is not necessarily unusual for teachers to be working long and late, but in this case it was an added 'bonus'. As recorded earlier, the impact was not all negative. Assessors reported being rather exhilarated by the assessment task, because of the material they were dealing with, which they found had positive 'spin-offs' for them in terms of professional awareness and the opportunity for interaction with other assessors. In future assessments, assessors should be able to have more time in which to undertake their assessment tasks, and one might expect the impact on their time to be less intense and disruptive.

### **5.3 Impacts on Candidates**

While candidates expected that the compilation of Portfolio Items would have an impact on their time, they were not entirely prepared for the extent of that impact. The Items needed to be completed within a limited time period, which for most teachers began in February after the school year had begun and ended with the final submission of material in April, around three months of intensive effort. Most of the material was related to their normal lives as teachers, but they had to meet specific requirements of content and format in the presentation of their Items.

In most cases the candidates had to assemble or develop material from scratch. Some did have substantial holdings of material relating to the Current Teaching and Learning and Documentation items, but even then they needed to organise it to fit the Assessment Model specifications, and attach reflective pieces which showed how the material linked with *Standards*.

The times which candidates reported they spent on individual Portfolio Items are conservative, in that they probably do not account for those times spent thinking or reflecting on the material in between times of active engagement. Nor do they account for incidental time used, such as conferring with a mentor or colleague, travelling or searching for materials. Specific times quoted were as follows (in increasing order of hours within each category):

Case Study:	4	12	12	15	15	20
Teaching and Learning Unit:	3	7	10	12	18	20
Professional Journey:	6	8	10	10	12	20
Documentation:	3	4	5	6	12	16
Validation:	3	3	3	3	5	7

Typically candidates reported spending 50–60 hours compiling their Portfolios, which averages out to about 4–5 hours per week within this Project. Further time was used in printing, photocopying, binding and dispatching the material. Such figures of course do not take into account the pattern of time expended. In several cases, candidates stated that they spent whole weekends or several consecutive days during holiday breaks on Portfolio tasks. It is important, too,

to account for the fact that most candidates had significant coordination or administration roles in their schools, as well as teaching duties and professional development roles. All candidates reported that the impact on their time was considerable.

The low figures quoted above (except in the case of the Validation) usually were an indication that the candidates already had material in their possession, which was suitable for inclusion in their submission but required only reworking to comply with the particular requirements of the *Guidelines*. Compared with the times quoted by the volunteers to compile Items, the times spent by candidates do not seem excessive, but they needed to be managed within very busy schedules. Candidates mentioned setting priorities as an important strategy to prevent matters developing which would negatively impact on their students' learning and their personal and professional lives.

While there was clearly an impact on the candidates' time, it was not considered by them to be necessarily negative. When asked about the impact of the Project activities on their professional lives, they used words such as 'it caused reflection', 'valuable', 'affirming', 'timely consideration', 'sense of achievement', 'recognition' and 'opportunity to think more about my practice'. Thus while it was acknowledged to be hard work, there were considerable professional rewards.

Project activities had the not unexpected impact of taking the candidates away from friends and family, with some irritation and stress evident. It wasn't just the time taken doing things, but also thinking and reflecting about them, and the intangible effects of being under some pressure. Being involved had some impact on candidates' colleagues as well: this varied from 'caused some resentment' (perhaps due to professional jealousy), to 'curiosity' and 'inspiration', depending on the school context. One candidate was concerned that there would be a negative reaction from fellow staff members, and did not inform them about participating lest they be seen as a 'tall poppy'. In the majority of cases, however, candidates felt that colleagues supported them in their application for assessment.

#### **5.4 Mentors and Observers**

No formal feedback was obtained from mentors and observers taking part in the Project, but informal communications, including second-hand reports from candidates, suggest that they appreciated being involved.

## 6. Resource Costs

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### 6.1 Costs to the Project for each Assessment

In estimating costs for assessing candidates in this Project, it has not been possible to differentiate clearly between direct assessment costs and the related costs of running the Project. It should also be borne in mind that bringing both the assessors and candidates to a central location would not be a normal part of undertaking an assessment using the AAMT Assessment Model, which specifies assessment 'at a distance'. Nor would there normally be any payment for mentors. Therefore the costs listed here are well above what might be expected. Nevertheless they are useful in providing a basis for estimating the order of costs.

The major components of assessment were the Assessor Training Workshop, Mentoring, Final Assessment and Management/Administration. According to the Project Budget, these components involved the following sorts of costs:

Assessor Training Workshop	Preparation of training materials	\$4000
	Travel (airfares/taxis)	\$3900
	Accommodation/meals	\$3600
	Venue Hire	\$200
Mentoring	Day release of mentors	\$3000
Final Assessment (Assessment Centre, 'marking', interview, debriefing)		
	Travel	\$5200
	Accommodation/meals	\$2700
	Teacher release	\$5000
Management & Administration		\$2000
	subtotal	\$30 200
	(plus GST)	3020
		<u>\$33 220</u>

Given that six candidates were assessed, this means that around \$5500 was spent on each assessment.

### 6.2 Costs to Candidates during the Project

It is difficult to produce a typical figure to represent the cost to each candidate for the assessment preparation because of the great variation in circumstances among candidates. Some candidates were employed in schools where many of the costs (such as communication and stationery) were borne by the school as part of the teacher's professional role in the school. Where compilation of Portfolio Items was kept separate from the candidate's other school activities and undertaken at home, candidates reported modest amounts of money spent.

Items which could be costed included:

- Communication with mentors, Project staff and others: telephone, e-mail and other internet charges, postage, fax, printing
- Travel to: meet for discussion or consultation, collect documentation, post Portfolio material, shop for stationery
- Stationery: photocopying, paper, printer ink, binders & binding, staples etc. [video/ audio tapes], CDs
- Incidental office expenses: use of electricity for computer, light, cooling etc.

When asked to estimate their expenses, most suggested a 'ball park' figure of \$40-50. To spend this amount, they felt, was not an unreasonable expectation of a candidate.

### **6.3 Costs of an Assessment in the Future**

The AAMT Assessment Model assumes that a cycle of assessment and accreditation occurs each six months. Costs to be accrued by AAMT over this cycle might include the following:

#### **Enrolments**

- Preparation, printing and distribution of
  - brochures inviting enrolment
  - information re Model and application forms
  - receipts and further instructions

[These costs could take account of hard-copy and electronic means for promotion and enrolment.]

- Other administrative costs of enrolments

#### **Assessor Training**

- Preparation, printing and distribution of
  - brochures inviting application to be an assessor
  - information and application forms
- Costs of considering and replying to applications
- Training of assessors workshop

[Assume 6 new assessors for two-day weekend workshop in three states or territories conducted by existing trained assessors or Assessment Group members]

- preparation of assessment training materials
  - distribution of same to assessors-in-training
  - organise venue, refreshments etc.
  - travel to workshop venue; per diem costs
- Other administrative costs of assessor training

#### **Assessment Centre:**

- Engagement of person(s) to set questions
- Engagement of supervisor

- Printing and dispatch of questions to candidates' supervisor and return of answers to assessors
- Fee for assessment of Assessment Centre answers

**Assessment Preparation:**

- Preparation, publishing and distribution of Portfolio Guidelines and Advice to candidates, including
  - posting of example material on website
  - observation pro-formas for Validation activity
  - advice to mentors and observers
- Ongoing communication with candidates
  - updates of advice
  - clarification of queries
  - reminder of deadlines for Portfolio submission

**Assessment of Portfolios:**

- Reproduction and dispatch of Portfolios to assessors
- Preparation, publishing and distribution of marking pro-formas
- Fee to assessors to cover cost of
  - marking
  - conferring with fellow assessors
  - preparing written reports and feedback to candidates
  - preparing interview questions
- Dispatch of written feedback to candidates

**Interview:**

- Organisation and set-up of teleconference and assessor venue for interview
- Cost of teleconference
- Fee to assessors to cover cost of travel to assessor venue and writing of feedback to candidate

**Results:**

- Cost of considering recommendations of assessors at a tele-conference meeting with the NPSCM
- Preparation and despatch of written report and letter to candidate
- Cost of accreditation certificate or similar
- Postal return of Portfolio material
- Cost of assessor reports to AAMT re conduct of assessment

Many of the costs of the above might well be absorbed by AAMT in the usual running costs of the organisation. These include, for example, items such as office expenses, publication and distribution of material via the Web and e-mail and so on, especially if AAMT chooses to use primarily electronic means of communication. This is an assumption for the purpose of this exercise. In fact, to obtain a reasonable estimate of costs in the future operation of an assessment

and accreditation scheme, it is necessary to make a whole range of assumptions, since actual costs will depend on such factors as how many assessors would need to be trained each year, how they would be trained and how many candidates would come forward for assessment.

An extremely conservative estimate of the cost of assessing each candidate in the future might well be as follows:

Contribution to assessor training (includes costs such as travel to training venue, meals, overnight accommodation where needed, costs of preparing training materials and so on)	\$500
Cost of assessing (includes fees to two assessors; say 10 hours @ \$30 per hour each)	\$600
Administration	\$100
Total	<u>\$1200</u>

As noted above, this would not necessarily cover incidental costs incurred by AAMT in overall administration of the HAToM scheme.

A more detailed estimate could be made once AAMT makes some decisions on how the scheme is to be operated and sustained in the future. For example, training costs per candidate each year could be modified by employing assessors who have already been trained in a previous cycle of training and assessment.

#### **6.4 Costs to Candidates in the Future**

As in the case of candidates for the Project, the actual costs expended by a candidate in the future will depend on individual circumstances. Where, for example, a candidate has strong support from a school to cover communication and stationery costs, has a mentor and observer on the staff of the school and undertakes to compile material on school premises, it could be expected that preparation and submission costs would be minimal. In a worst case scenario, costs would probably be in the order of \$50 or more.

The major cost to candidates would be any fee set by AAMT to cover the cost of assessment of the candidate, where the candidate actually has to pay it. The level of the fee would have to be set periodically to cover AAMT's actual costs of preparing and employing assessors and managing a cycle of assessment and accreditation, together with some contribution to ongoing infrastructure costs. As a start, the estimate made above for assessing each candidate might be used as a basis for setting the initial fee for assessment. After the first year or two of operation of the HAToM scheme, a clearer level of fee for assessment would probably emerge.

When candidates were asked to speculate on whether they would be prepared to pay a fee of \$1000 to cover the costs of an assessment, they all answered with an emphatic 'No'. Two candidates felt that perhaps \$500 might have been reasonable provided that they had a high likelihood of gaining accreditation,



because they were involved in performance reviews for which accreditation would have been advantageous. They also felt that if the fee were set against a pay-off such as promotion, reclassification, a salary increment or some other emolument, they might reconsider their answer.

## 7. Usefulness of Findings to Others

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A useful framework for evaluating the AAMT Assessment Model is given in the National Statement from the Teaching Profession on Teacher Standards, Quality and Professionalism, May, 2003 which asserts that

any process for the formal assessment of performance for professional certification of advanced standards should:

- be voluntary
- be authentic
- be based on and measured against professional teaching standards
- have peer involvement in its development and execution
- reflect the core business of teaching
- be positively oriented
- use a range of methods and evidence
- incorporate appeal processes.'

*(Report of a National Forum on Teacher Standards, Quality & Professionalism, Canberra 26 May 2003, p. 6)*

From the experience of this Project, it is possible to argue that all these criteria have been met by the AAMT Standards Assessment Model, although the appeal processes, which are mentioned explicitly in the Model, have not yet been formulated in detail nor trialled in practice.

Further criteria for evaluating the Model may be found in the Guiding Principles of the Model itself described earlier in Section 4.1 of this report. It can be argued that these criteria have also been effectively met, except perhaps the criterion of equal accessibility to teachers across the country which has not been actually tested, since trial candidates all came from metropolitan schools.

### 7.1 Strengths of the Assessment Model

- The greatest strength of the AAMT Teaching Standards Assessment Model is that it works. 'The proof of the pudding,' as one NPSCM member put it, 'is in the eating.' Through the conduct of the Project, the evidence supports the view that candidates can be both validly and reliably identified as 'Highly Accomplished Teachers of Mathematics'. Assessors were able to reach a ready consensus that four of the candidates met all ten of the *Standards for Excellence in Teaching Mathematics in Australian Schools* using the process defined by the Assessment Model. Upon the recommendation of the assessors, these candidates were awarded accreditation by AAMT through its National Professional Standards Committee — Mathematics.
- A complementary strength is that the application of the assessment process was able to discriminate among teachers. Two candidates did not present sufficient, convincing evidence that they met all *Standards*. These candidates were subsequently advised specifically in what areas there was insufficient evidence, and a process put in place to give them further opportunities to pursue the accreditation.

- Another strength of the Model is that the experience of assembling a Teaching Portfolio is considered by candidates as a worthwhile professional development experience in its own right. It provides an opportunity to compile a broad picture of one's teaching and to reflect on this towards one's further development as a teacher. By specifying a range of methods and evidence, the Model becomes a powerful professional development tool to allow teachers to assess themselves against the *Standards*.
- The Model itself and the *Guidelines* provided to candidates are both transparent (in that nothing in the assessment process is hidden from the candidates) and flexible in allowing teachers to exercise some control over the form of their submissions. Candidates are given ample opportunity to present evidence which can be linked directly with the *Standards*. Being able to seek clarification of requirements and mentor support at any time is an important plus for candidates.

## **7.2 Weaknesses of the Model**

- The major weaknesses of the Model are undoubtedly the time and effort required by teachers to compile a case for accreditation, and the impact that these can have on their personal and professional lives. Although an attempt has been made to identify assessment tasks which would reflect what teachers actually do, the experience of this Project is that the development of a Portfolio is a major undertaking for a teacher. In order to attract teachers to the assessment process, there need to be some assurances given that their investment of time and effort is worthwhile and rewarding.

While the process of compiling a case was time- and labour-intensive for candidates, the actual process of assessment was also labour-intensive for the assessors. Together these factors suggest that assessment using this Model cannot be a mass phenomenon, and will only apply to a small number of teachers.

- A related weakness is the actual and potential cost of the assessment itself. Teachers will not be attracted to an assessment and accreditation process unless the outcomes and rewards are sufficient to offset the upfront cost of the assessment. If teachers have to pay, as in the USA, they would want any fees paid to be covered by a subsequent salary increment through promotion or reclassification, or be matched in some other way (such as by having the accreditation accepted as status for a subject within a postgraduate qualification, for example, an M.Ed. or a professional doctorate.)
- Because of the constraints and conditions imposed on the conduct of this Project, there are still a few unanswered questions regarding whether it was a fair model of what might occur when the assessment process is applied more widely. For example, is there a problem of access and equity for teachers in non-urban areas because of the problem of gaining access to a mentor and to quality support etc.? Are some teachers advantaged

because they teach in a setting where performance reviews are required, where teaching portfolios are expected to be kept and collecting documentation encouraged? If a fee is charged, are some teachers going to be disadvantaged?

- One further issue was raised above: what form might appeal processes take, and how effectively might they work? Although mentioned in the AAMT Teaching Standards Assessment Model, appeal processes were not trialled during the Project, and their efficacy is as yet untested.

### **7.3 Relationship with other Standards Frameworks**

In order to estimate the potential of the AAMT *Standards* Assessment Model for other organisations, it is important to consider the limitations of what the Project was able to accomplish and why it achieved what it did.

At the meeting of the National Professional Standards Committee — Mathematics on May 1, 2004, during an evaluation discussion, it was generally felt that some of the characteristics of the Project which had led to its being successful were that it was small enough to be manageable, proceedings were transparent (with due regard for privacy where relevant), and there was evidence of a great deal of goodwill, commitment, effective management and, at times, moderate stress (which can be good for motivation). When arrangements became 'messy' and deadlines were not being met, there was always enough flexibility and room for manoeuvre to overcome any problems. It could be argued that the success with which the Model was able to work depended to some extent on the way in which it was implemented, and was not solely due to following the specifications of the Assessment Model.

By its very nature an Evaluation Project such as this one cannot provide generalisable data. In this case, the Model being trialled applied a specific trio of assessment strategies to teachers addressing a set of *Standards* specific to one curriculum area, namely, Mathematics. There was a small number of participating volunteers who constituted a very limited sample of teachers, and there were some initial difficulties in recruiting sufficient numbers of high calibre people who were able to participate. The extent to which they can be considered representative is significant when trying to extrapolate outcomes of the Project. Thus the Assessment Model, which worked in this case, should not be considered a proven template which can be applied either to other curriculum areas or in generic situations without further adaptation and trialling.

There are similarities between the domains and components of the Mathematics *Standards* and those which are found in the National Framework (MCEETYA, 2003). This is perhaps not surprising given the genesis of that framework. There are also commonalities shared between the Mathematics *Standards* and other initiatives listed in the National Framework document such as those of the curriculum-specific STELLA and ASTA frameworks and the generic frameworks of NSWIT and VIT. This does not allow automatic application of any assessment approach which works for one of those frameworks to other similar frameworks. In the case of curriculum area-specific frameworks, there

are significant differences in the detail of standards. Teaching science for example involves knowledge, skills and values which are quite different from those required for teaching Mathematics or English. Each curriculum area has aspects which are unique.

What is asserted above does not preclude the possibility that an assessment model involving similar elements to the one trialled, namely, an Assessment Centre, a Portfolio and an Interview, would not work in the case of other standards frameworks. Similar schemes operate in the USA, but there are other issues to consider, such as:

- Are there ways of compiling evidence which are equally effective in defining excellence in teaching but which are much more refined, on a smaller scale, more easily managed by teachers and easier to assess?
- Do the costs involved in assessing and the workload on candidates permit a sustainable assessment and credentialling system which can be managed by professional associations for their members?
- What motivations and/or incentives will need to be instituted in order to attract enough teachers to participate in such a system?
- Are such bodies as State Boards, Colleges and Institutes of Teaching in a better position to implement assessment and credentialling schemes? Could they do it more cheaply than professional associations because of economies of scale?
- What industrial and legal issues might emerge with respect to Freedom of Information, appeals, privacy issues and so on?

Whether or not the AAMT Teaching Standards Assessment Model is considered for use in other contexts, the AAMT has a number of important issues to come to terms with if the Model is to be used on a regular basis for identifying Highly Accomplished Teachers of Mathematics. It must for example confront the issue of cost if it is to attract sufficient teachers to sustain a pool of teachers who can act as mentors and assessors for the ongoing maintenance of the accreditation. As a prior move, it needs to consider how to institutionalise the *Standards* and make them an integral part of the professional life of mathematics teachers. This is the real challenge.

# Appendices

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The Appendices to this Report include documents that were prepared 'along the way'. They serve to provide detailed information about the Project and how it was conducted. Some of the Appendices are directly referred to in the text.

The Appendices have been grouped in the following way:

- Appendices A1–A6 relate to the conduct of the project itself
- Appendices B1–B7 relate to the processes that can be seen to be related to the general process of assessing teachers against the AAMT *Standards* and contain guidelines, advice etc.
- Appendices C1–C3 relate to the Assessors and the actual assessing of these Candidates.

## **List of Appendices**

- Appendix A1 Summary of sample Portfolio entries received
- Appendix A2 Assessment Pilot 29–30 April 2004: Information to Assessors and Candidates
- Appendix A3 TSAEP Review Workshop
- Appendix A4 Membership of NPSCM
- Appendix A5 TSAEP Advisory Committee Members
- Appendix A6 Project Timeline
- Appendix A7 Summary comparison of processes used in TSAEP with Assessment Model
- Appendix B1 The AAMT *Standards* Assessment Model
- Appendix B2 Application Form
- Appendix B3 Outline of the Assessment Centre
- Appendix B4 Guidelines for Candidates for Portfolio Assessment Component
- Appendix B5 Highly Accomplished Teacher of Mathematics: Interview Information
- Appendix B6 Validation Entry for Candidate's Portfolio: Observation Guidelines
- Appendix B7 Validation Entry for Candidate's Portfolio: Observation Report
- Appendix C1 Assessor Information and Application Pack
- Appendix C2 Assessment Centre Papers
- Appendix C3 Assessors' proformas

## Appendix A1: Summary of sample Portfolio entries received

Type	Secondary	Primary	States/Territories
Case Study	6	2	NSW, Vic., Tas.
Professional Journey	2	1	NT, Tas., WA
Teaching and Learning	3	1	WA, ACT, Tas., NSW
Validation			
Video	2	-	WA
Audio	-	1	Tas.
Observation	1	1	Tas., Qld
<b>Totals</b>	<b>14</b>	<b>6</b>	

### ***Comment***

The collection of these was intended to inform the further development of the guidelines and for training Assessors. All were useful for the former purpose; only a few were suitable for the latter and therefore eligible to become part of the set of resources supporting the AAMT's work.

## Appendix A2: Assessment Pilot 29–30 April 2004: Information to Assessors and Candidates<sup>3</sup>

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Note: These plans are subject to change if things are not working.

### ***Introduction***

These two days are the culmination of the whole process of piloting the assessment. We need to achieve the following:

- Candidates 'sit' the Assessment Centre tasks
- Assessors assess Portfolios and responses to Assessment Centre tasks (each assessor will, in the main, assess two candidates)
- Assessors will identify foci for the Interview and convey these to the Candidates to allow them some time to prepare
- Assessors will agree their final assessments, prepare their recommendations for the NPSCM (the committee of the AAMT that will make the final decision) and the written feedback for the Candidates
- Candidates and Assessors will be interviewed and otherwise 'debriefed' by Peter Brinkworth (Evaluator)

The workload and commitments for the Candidates is modest and should provide them with some time to talk to each other, share their experiences etc. After the intense work they will have put in beforehand, this is likely to be a welcome change of pace. And much deserved.

On the other hand, it appears that the Assessors will be under extreme pressure. This is unavoidable — it is just hoped that they will be able to do their work to a level with which they are comfortable in the time that is allowed.

You will notice that we will be using two locations: the AAMT Offices (address is rear of 80 Payneham Rd, Stepney — we are in the red brick building behind the Church) and the Franklin Central Apartments (36 Franklin St Adelaide). This is necessary as we need to continue to keep the Candidates and Assessors separate as much as possible. This, and other aspects of the process that may look curious, is designed to simulate what we imagine to be the way this process will pan out in future — individuals working alone at their home bases and not having contact.

It is a measure of the optimism associated with the project (based on the quality and capacities of those involved) that the work will have gone smoothly to the extent that TSAEP Celebration Dinner will be held on the evening of 30 April. Candidates, Assessors and available NPSCM members and their partners (if they happen to be in Adelaide and available) are invited to attend.

Candidates, Assessors and NPSCM members will participate in a 'Reflection

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<sup>3</sup> This information was provided approximately one week in advance.



Workshop' on the morning/early afternoon of Saturday 1 May. Details about this to be circulated later.

## **Program**

Thursday 29 April

		<b>AAMT Office</b>		<b>Franklin Central Apartments</b>	
9.00	Candidates	Outline of Assessment Centre process and intentions Discussion and preparation time	Assessors	Commence assessing Portfolios Work individually to simulate doing this at home base	Assessors
10.30	Candidates	Sit assessment Centre items Responses handwritten or bring a laptop with a USB port to allow printing	Assessors	Continue assessing portfolios	Assessors
Lunch	Candidates	Provided	Assessors	To suit locally (chance to get some fresh air – keep receipts)	Assessors
1.30	Candidates	Work on Journals General discussion Interviews (individual) with Peter Brinkworth (Evaluator)	Assessors	Continue assessing portfolios Commence assessing responses to Assessment Centre items	Assessors
Dinner	Candidates	With Will Morony as guests of AAMT (Suggest Gaucho's Argentinean Restaurant in Gouger St)	Assessors	Dine together, but separate from Candidates (Suggest Gouger Fish Café in Gouger St)	Assessors
Night	Candidates	Free time	Assessors	(Optional) Continue assessing portfolios and responses to Assessment Centre items	Assessors

Friday 30 April

AAMT Office		Franklin Central Apartments	
9.00	Assessors Initial meeting re Candidates Compare notes Agree foci for Interviews Continue assessing Portfolios and responses to Assessment Centre items	Candidates	Outline of Assessment Centre process and intentions Discussion and preparation time
11.00	Assessors Continue assessing Portfolios and responses to Assessment Centre items Conduct Interviews Finalise assessments (including recommendation to NPSCM and draft feedback to candidates) Interviews (individual) with Peter Brinkworth (Evaluator) — can be carried over into Saturday if required	Candidates	Discussion and preparation time Undertake Interview by phone to simulate real situation.
Lunch	Assessors Provided	Candidates	To suit locally (chance to get some fresh air – keep receipts)
2.00	Assessors Continue assessing Portfolios and responses to Assessment Centre items Conduct Interviews Finalise assessments (including recommendation to NPSCM and draft feedback to candidates) Interviews (individual) with Peter Brinkworth (Evaluator) — can be carried over into Saturday if required	Candidates	Discussion and preparation time Undertake Interview by phone to simulate real situation.
Dinner	Celebration Dinner as guests (plus partners if available) of AAMT — Vietnam Palace Restaurant in Gouger St		

## Appendix A3: TSAEP Review Workshop Agenda

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### ***Saturday 1 May***

- 8.30 Display of assessment materials and informal discussions with Candidates.
- 9.00 Welcome and introductions (Note that the NPSCM, Candidates, Assessors and representatives of AATE and ASTA will be present for this part of the meeting)
- Identification of processes that need to be developed in relation to Assessors' Recommendations from the TSAEP
- 9.30 Reflection Workshop on the AAMT Teaching Standards Assessment Evaluation Project. Some topics for consideration include:
- The *Standards* themselves
  - The Assessment Model and process as they experienced it in this pilot project
  - Materials future Candidates and Assessors would find useful
  - How long should the credential 'last'?
  - What processes could be used for renewal?
- 12.30 Lunch
- 1.15 Implementing a sustainable assessment and credentialing program — the transition from this project. Matters on which recommendations will need to be made to the AAMT Council may include
- Practical issues to address for sustainable implementation
  - How Candidates and Assessors see their future involvement (if any) in AAMT's work on *Standards*
  - Material for publication
  - Target numbers for the next triennium
  - Promotion and advertising
- 2.30 Farewell to non-NPSCM people (Note that this is the *latest* time at which this will occur)

## Appendix A4: Membership of NPSCM

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### ***Membership***<sup>1</sup>

<b>Chair</b>	Prof John Mack
<b>Elected Members</b>	Ms Margaret Bigelow Ms Debbie Lee
<b>Appointed Members</b>	Ms Beth Carroll Mr Rae Deeley Mr Chris Fraser Mr Glenn Langford
<b>Members appointed by AAMT Council</b>	Ms Elizabeth Burns Ms Paulene Kibble <sup>2</sup> Ms Margaret Williams
<b>Representative of MERGA</b>	Assoc Prof Judy Mousley
<b>Executive Officer</b>	Mr Will Morony

MERGA is the *Mathematics Education Research Group of Australasia*

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<sup>1</sup> Apart from Prof Mack, Assoc Prof Mousley and Mr Morony, all members of the committee are currently working in schools.

<sup>2</sup> Ms Kibble is on leave of absence from the Committee while working overseas in the first semester of 2004.

## Appendix A5: TSAEP Advisory Committee Members

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John Mack (AAMT; University of Sydney — Chair)  
Elizabeth Burns (AAMT; Loreto Mandeville Hall, Vic)  
Chris Fraser (AAMT; John Curtin College of the Arts, WA)  
Glenn Langford (AAMT; Riverside Girls HS, NSW)  
Margaret Williams (AAMT; Blackmans Bay Primary School, Tas))  
Chris Watt (Independent Education Union of Australia )  
Andrew Skourdoumbis (Australian Education Union)  
Georgina Webb (Australian Government Department of Education Science and Training)  
Paul Carnemolla (Australian Science Teachers' Association)  
Susan Gazis (Australian Association for the Teaching of English)  
Will Morony (AAMT — Executive Officer)  
Chris Thompson (MCEETYA Teacher Quality and Educational Leadership Taskforce — Observer)  
Peter Brinkworth (Evaluator — Observer)

## Appendix A6: Project Timeline<sup>1</sup>

Task	Date
Project Preparation Workshop	August 16-17 2003
First meeting of the Project Advisory Committee	August 18
Design of application forms for trial candidates Design of Guidelines for Portfolios	August 31
Teleconference of NPSCM	September 4
Recruitment of 20 volunteers to trial elements of the Model Recruitment of 6 volunteer teachers (candidates) for assessment	Mid September
Establish Plan and structure of Report to DEST (involves agreeing foci for Evaluation)	<b>Mid October</b>
Submission of 20 sample materials	November 30
Committee teleconference	December 3
Assessment Planning Meeting	December 13-14
Advisory Committee Teleconference	<b>December 17</b>
Identify Assessors	December-February 2004
Training of Assessors	February 21-22
Progress report to DEST	February 28
Further sample items submitted	March 31
Submission of assessment Portfolios by candidates	April 23
Assessment of Portfolios	April 29-30
Conduct of Assessment Centres Holding of Interviews Review Workshop	April 29 April 30 May 1
Final assessment reports on 6 volunteers	May
Draft evaluation report Draft Report to DEST	May 13
Presentation of certificates	Start from May
Advisory Committee Teleconference	May 18
Final Report to DEST	May 21 2004

<sup>1</sup> This Timeline reflects the actual timing of all actions. Changes necessitated by the circumstances of the Project have been included. Apart from the delay in the presentation of the Progress Report from October to February (an agreed Contract Variation) changes from the timeline developed at the start of the Project have been minor.

## Appendix A7: Summary comparison of processes used in TSAEP with Assessment Model

Assessment Model	TSAEP
<p>Assessment Centre</p> <ul style="list-style-type: none"> <li>• Held at commencement of process</li> <li>• Feedback on performance provided to guide Portfolio preparation</li> </ul>	<p>Assessment Centre</p> <ul style="list-style-type: none"> <li>• Held at conclusion of process</li> <li>• No separate feedback provided.</li> </ul>
<p>Portfolio</p> <ul style="list-style-type: none"> <li>• At least 6 months for preparation</li> </ul>	<p>Portfolio</p> <ul style="list-style-type: none"> <li>• Effectively 3–4 months for preparation</li> </ul>
<p>Interview</p> <ul style="list-style-type: none"> <li>• Held 2-3 weeks after feedback on assessment of Portfolio</li> <li>• Questions in hand for 2-3 weeks to allow preparation</li> <li>• Capacity to provide further material for reference in Interview</li> </ul>	<p>Interview</p> <ul style="list-style-type: none"> <li>• Held without any feedback on assessment of Portfolio</li> <li>• Questions in hand for only 1-4 hours before Interview</li> <li>• No capacity to provide further material</li> </ul>
<p>Support materials</p> <ul style="list-style-type: none"> <li>• Portfolio Guidelines well established</li> <li>• Assumes availability of sample Portfolio entries, Assessment Centre items and sample responses, guidelines for mentors throughout process</li> </ul>	<p>Support materials</p> <ul style="list-style-type: none"> <li>• Portfolio Guidelines under development</li> <li>• Some material became available late in the preparation time; no guidelines for mentors</li> </ul>



## Appendix B1: The AAMT *Standards* Assessment Model<sup>2</sup>

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This is an outline of the model to be used for assessing teachers against the *Standards for Excellence in Teaching Mathematics in Australian Schools*.

### **Guiding principles**

The AAMT *Standards* explicitly provide a framework for teachers' career-long professional growth. They do not seek to advantage any particular style of or approach to teaching and learning.

Participation in any assessment process conducted by the AAMT will be strictly voluntary. The assessment process will be:

- rigorous and valid;
- adaptable to and applicable in all teaching contexts;
- fair to all candidates no matter what their teaching situation;
- equally accessible to teachers across the country;
- controlled by the candidate insofar as this is possible; and
- oriented towards contributing to professional growth of the candidate.

### **Overall process**

Candidates who volunteer for assessment for the credential of Highly Accomplished Teacher of Mathematics will:

- normally be currently teaching mathematics;
- normally hold appropriate tertiary qualifications as teachers of mathematics; and
- register as candidates with the AAMT and pay the appropriate fees for administration and assessment.

The NPSCM will provide candidates with a Candidate's Package that includes detailed information of expectations, sample Assessment Centre items, further advice on preparing Portfolio items, templates and proformas as appropriate. This will be in addition to the publicly available material that exemplifies the AAMT *Standards*.

It is expected that the NPSCM will be able to put candidates in touch with other candidates for mutual support on a voluntary basis. In addition, already credentialed *Highly Accomplished Teachers of Mathematics* will be encouraged to make themselves available as advisors and mentors as required. Any networking arrangements will be coordinated and supported by the NPSCM to the best of its ability, and will include only those people who wish to be

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<sup>2</sup> This is the Model as adopted for this project in September 2003.

involved.

Candidates will be required to:

- respond to unseen questions that simulate teaching decisions through an Assessment Centre;
- submit a Portfolio of their work and achievements as a teacher; and
- take part in an Interview.

## **Assessment Instruments**

The **Assessment Centre** will consist of a series of questions seeking candidates' responses. The time allowed for responses will be limited. The questions will simulate teaching decisions and will include commenting on student work, responding to hypothetical situations and 'inbox' questions. The context and content of the questions will be linked to the Candidate's level of schooling. Candidates will sit the Assessment Centre at distance with appropriate security and supervision.

The **Portfolio** enables the Candidate to illustrate their abilities and to demonstrate their performance in relation to the *Standards*. The Portfolio will consist of the following items:

- A statement of the candidate's **Professional Journey** that is a personal account of how their career has developed (e.g. in the form of a reflective essay of at most 2 500 words or some other format).
- An account of a sequence of lessons that creates a coherent whole as an example of **Current Teaching and Learning Practices**. This will typically include the planning for learning, the actual student learning experiences, assessment and annotated samples of students' work that show progression towards or achievement of appropriately set learning outcomes;
- A **Case Study** of at least two students over an extended period (e.g. two or more months);
- An entry that provides some **Validation** of the teacher and her/his work (e.g., a 30 minute video of the teacher 'in action' in the classroom; three 10 minute video snippets; as for video but using audio tapes; a colleagues' observation schedules in lesson(s); other); and
- **Documentation** (references, testimonials, certificates, etc.) that provides evidence — often from others — of the candidate's work. Assessors may seek further information from referees nominated by the Candidate.

The Portfolio may also include further items included by the candidate.

**It is essential that the candidate provide clear annotations of the material submitted in order to provide information about the teaching context for the assessors and, most importantly, to link it to the *Standards*.**

The **Interview** will provide further confirmation of evidence. In cases of 'borderline' judgements the Interview will provide an opportunity for the

candidate to add further evidence in relation to particular *Standards*. Prior to the Interview the Candidate will be advised of any particular areas about which further information and evidence is being sought. The Interview will normally be held by tele-conference.

### ***Timeline and timeframe***

<b>Month</b>	<b>Action</b>
February	Enrolments 1
March	Assessment Centre 1
April	
May	
June	Portfolios submitted 1
July	Marking, Interviews 1 & Results 1

<b>Month</b>	<b>Action</b>
August	Enrolments 2
September	Assessment Centre 2
October	
November	
December	Portfolios submitted 2
January	Marking, Interviews 2 & Results 2

Candidates will normally undertake the Assessment Centre immediately following their enrolment. They will then submit their Portfolio either 4 months or 10 months after enrolment. Their Interview will take place after their Portfolio has been assessed.

### ***Assessors, assessment and feedback***

Appropriately trained assessors will be appointed by the NPSCM. The assessment panel of at least members assigned to any candidate will consist of people with expertise and experience in the level of schooling and will have a majority of practising classroom teachers.

Assessors will judge the evidence presented by the candidate (Portfolio and Assessment Centre) against rubrics that relate directly to the expectations of the *Standards*. The design of the assessment instruments allows for verification of evidence from different sources. Candidates will need to achieve satisfactory ratings in relation to all of the ten *Standards*. Those who are successful will be recommended to the NPSCM for the award.

All candidates will receive feedback, firstly on their performance in the Assessment Centre, after assessment of their Portfolio and finally after their Interview.

If a candidate is not successful in the first round of Assessment Centre and Portfolio they can 'bank' successful results and resubmit evidence in relation to the particular *Standard(s)* they did not meet in the first instance. Banking lasts until two years after they enrol. They can only resubmit for the Assessment Centre or items from their Portfolio once.

The Candidate will be able to appeal any result by writing to the Chair of the NPSCM and identifying the nature and reasons for their dissatisfaction with the result.

## ***The Credential***

Candidates deemed by the NPSCM to have met the *Standards* will be awarded the credential *Highly Accomplished teacher of Mathematics*.

*Note: The lifetime of the HAToM qualification and the process for renewing it will be determined by the AAMT Council, on the advice of the NPSCM<sup>3</sup>, before the first awards are made. The AAMT Council will also develop means for engaging HAToMs in teacher professional development, including the mentoring of other Candidates.*

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<sup>3</sup> May 2004 discussions of the NPSCM have decided that the lifetime recommended will be 5 years, with an attenuated process required for renewal.

## Appendix B2: Application form

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### NATIONAL PROFESSIONAL STANDARDS COMMITTEE MATHEMATICS

Application Form for accreditation as a highly accomplished teacher of mathematics

#### PERSONAL DETAILS:

Title	Family Name	Other name(s)
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**CONTACT DETAILS:** Please indicate your preferred postal, phone, fax and email links by the letter P in each case.)

**Home Address:**

**Home Phone No:**

**Home Fax:**

**Workplace:**

**Work Address:**

**Work Phone no.:**

**Work Fax:**

**Email: Home:**

**Work:**

**TEACHING AND ACADEMIC QUALIFICATIONS. PLEASE ATTACH A TRANSCRIPT OF RELEVANT QUALIFICATIONS:**

Comment on the mathematics/mathematics education components of each qualification.

**CURRENT TEACHING HISTORY:**

<b>Year</b>	<b>Institution</b>	<b>Classes taught</b>
2003		
2002		
2001		
2000		
1999		

**A BRIEF HISTORY OF YOUR TOTAL TEACHING CAREER:** (Include here details of any non teaching positions you have held over the past 5 years):

Other significant relevant activities undertaken in the last 5 years:

**AREA OF EXPERTISE:**

Describe your particular area of focus as a mathematics teacher: early Years, Middle Primary, Upper Primary, Junior Secondary, Upper Secondary (indicating if this focus has changed substantially over the past 5 years)

**DECLARATION BY APPLICANT**

I certify that the information included is true and accurate.

**SIGNATURE:**

**DATE:**

**ENDORSEMENT BY PRINCIPAL**

I note the application of my staff member to be assessed as a Highly Accomplished teacher of Mathematics.

I certify that to the best of my knowledge the information provided by the applicant is true and accurate.

**SIGNATURE:**

**DATE:**

## Appendix B3: Outline of the Assessment Centre

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### **Basic Operation**

A two hour paper (although candidates can take up to 3 hours if they wish)

Four questions (so a nominal 30 minutes per question)

Each question will probe knowledge of mathematics and its teaching/ learning. Other areas of the *Standards* will be probed through the context of some of the questions:

- Community engagement
- Personal attributes/beliefs/commitment
- Helping a 'novice' teacher
- Creating a positive learning environment

The nature of the items will be such that there will be few 'right' answers. The intention is to find out the extent of the candidate's knowledge base and their facility with drawing on it.

Responses will not be expected to be polished writing. In the first instance we will need to work in hard copy (handwritten or word processed)

### **A sample item**

Consider the following work produced by an upper primary student. It would seem the student has some problems with place value.

.3	.27	.83	.4	.7
<u>+5</u>	<u>+58</u>	<u>+51</u>	<u>+35</u>	<u>+4</u>
<u>.8</u>	<u>.85</u>	<u>1.34</u>	<u>.75</u>	<u>.11</u>

1. What is surprising in this particular set of responses and why?
2. Why is it happening? What might be causing the error to occur?
3. What are some options the teacher could use as a 'next step'?

### **Discussion of this item**

#### **A disclaimer**

Some teachers may have very negative responses to this work sample as it shows some things they may not emphasise in their teaching practice. Responses such as 'This vertical layout is too traditional and may not suit some kids.', 'You should never give the kids a set of sums like this.' and 'I don't give my kids stuff like this where there is no connection to the real world.' are not



what we are looking for in this instance (even though they may be well-rooted in a sophisticated understanding of number learning and contemporary good practice). We need to encourage the candidate to deal with the work *as it is*.

Hence we should probably emphasise that the sample does not reflect a view of what should or should not be happening in classrooms. It is just a sample that will enable the candidate to use their knowledge of mathematics and its learning in an analytical way.

## A common framework for items

The intention is for the items to ‘simulate teaching situations’ and get the teacher to suggest possible decisions they might make. The item as it is presented above only has a ‘mathematical’ focus. In this state it illustrates what we may be able to use as a common framework for all the items.

The three questions in the item address a fairly logical sequencing of thinking about a sample of students’ work in particular:

- What is going on? Where is the mathematical interest in the sample (error, insight, aberration etc.)?
- Why *might* this be going on? What *might* the students’ thinking be?
- How *might* the teacher respond? What *might* they do next?

These three questions, albeit possibly added to for other reasons (see below), are the basic framework for all the items that rely on samples of student work. Other types of item such as hypothetical community situations (see below) may also have a similar framework — this needs to be further tested to see if it is workable.

## Some context for the item

The item could cover another area of the *Standards* as well through some setting of context. For example:

A young teacher at your school has occasionally come to you for help with teaching maths. He shows you this work and says

‘I thought Efraim had got this stuff, then he goes and does this. I can’t work it out.’

You are a bit busy to think about it at the time, so you ask to take it home to have a chat with the young teacher first thing in the morning.

That night at home you need to consider the work and these questions:

1. What is surprising in this particular set of responses and why?
2. Why is it happening? What might be causing the error to occur?

Next morning you have a coffee with the young teacher

3. How do you help him understand the issues in Efraim’s work?
4. What are some options you could discuss as your colleague’s next steps?
5. What else might you suggest to the young teacher?

## Appendix B4: Guidelines for Candidates for Portfolio Assessment Component

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These Guidelines were prepared by the National Professional Standards Committee — Mathematics (NPSCM). They are intended to help you in the production of a portfolio that provides good evidence of your knowledge, capability and commitment as a teacher of mathematics.

Draft version dated September 2003

Please email comments to [office@aamt.edu.au](mailto:office@aamt.edu.au)

### About the Portfolio Items

There are five compulsory items that need to be included in the Portfolio submitted by candidates for the credential Highly Accomplished Teacher of Mathematics (HAToM).

- **Professional Journey** — a brief ( 2500 words) reflection on your professional life as a teacher of mathematics.
- **Current Teaching and Learning Practices** — an example of your current/recent classroom work.
- **Case Study** — an example of your efforts over time to address a particular issue(s) with one or a few students.
- **Validation** — some ‘objective’ material that attests to the real ‘you’ as a teacher (video or audio tape of you teaching; a report on a structured observation by a peer)
- **Documentation** — material you have collected over the years that shows some more of what you have done.

The table below identifies the *most likely* links between the components of your portfolio and the ten Standards. This should be used as a guide to assist your preparation of the items. Your annotations should identify both the actual Standards to which you believe the material is relevant and how the evidence you provide demonstrates your achievement of the Standards.

	1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	3.3	3.4
Professional Journey				*	*	*				
Teaching and Learning	*	*	*				*	*	*	*
Case study	*		*	*				*	*	*
Validation			*				*		*	
Documentation				*	*	*				

You may submit additional items if you wish, but these must be accompanied

by a rationale that justifies that inclusion. Extra items are worth the extra time and effort only if they relate to an unusual aspect of your teaching that you feel is important to highlight. Please seek the advice of others (e.g., a mentor, the Assessment Coordinator assigned by the NPSCM) before deciding to produce and include extra item(s) however.

## ***Professional Journey***

The Professional Journey is designed to be reflective description of your career to date, demonstrating your journey to this point where you are able to demonstrate your attainment of the levels of knowledge and capability described in the AAMT *Standards* document.

### **Purposes:**

Through presenting your professional journey you have the opportunity to provide an account of your own professional development throughout your teaching career and to highlight your strengths as a teacher of mathematics.

The Professional Journey section of your Portfolio will be a good means for demonstrating your achievement in relation to Standards 2.1, 2.2 and 2.3 in particular.

### **Format/Contents:**

Your Professional Journey entry will be a written paper of no more than 2500 words. It will contain a description of the major influences and milestones in your teaching of Mathematics in your career thus far. The description should be reflective in nature, with clear links to the *Standards*.

What you include will be your decision, but you should consider including the following elements:

- some chronological order to reflect your professional development up to this time in your career;
- brief discussions of the major influences that have shaped you professionally;
- an identification of particular milestones in your career;
- any connections to other evidence that you have included in your Portfolio; and,
- reflections on your responses to the professional development situations you have experienced.

### **Advice:**

Present the most significant situations and influences that clearly shaped your work as a teacher of mathematics and how you have responded to these influences.

Use a mentor who may be able to support you in preparing your Professional Journey entry. A mentor could help you in an initial brainstorm of ideas to include and subsequently by reading and responding to drafts of your Professional Journey entry.

Reflect primarily on your current practice, within the past five years, but identify your growth story to this point and those earlier situations that have informed your practice.

Indicate clearly, as annotations to your professional Journey, how it links to and demonstrates your achievement of the *Standards*.

## ***Current Teaching and Learning Practices***

This section of your Portfolio will provide evidence of your work with a whole class. It probably will not cover a single lesson, but is more likely to encompass class work that has taken place over a week or two.

### **Purpose**

The aim of this entry is to enable you to demonstrate how you plan for students' learning and the sorts of learning experiences that students actually undertake. It is important that you show how student learning improved as a result of your teaching strategies — hence the suggested timeframe of a week or two.

The Current Teaching and Learning Practices section of your portfolio provides scope to cover, in particular, Standards 1.1, 1.2 and 1.3; 3.1, 3.2, 3.3 and 3.4.

### **Format/Contents**

This section might include:

- course plans;
- lesson plans;
- work sheets;
- descriptions of 'hands on' activities;
- examples of student work;
- assessment examples (tests and marking schemes, self-assessment schemes, peer-assessment schemes, assignments, projects etc.); and
- other items that you consider suitable.

A short section on background/context should include a description of such things as the class setting (mixed ability, single sex, composite class etc.) as well as specific information on the students themselves (age, grade, information on 'where they are at' in the context of the intended learning)

When you present class work in this section of your Portfolio, it is advisable to submit:

- planning documents;
- a copy of any worksheets you gave the students or a description of the activities they engaged with;
- some illustrative examples of students' work; and
- the assessment schedule (if any) that you used.

You should also include a Reflective Statement on the whole activity (no more than 2 pages). This should include:

- a discussion of student engagement, student performance against what was expected (hoped?) and against previous teaching and learning activities, level of guidance provided during the unit.

- annotation of the teaching and learning unit against the *Standards*.

## Advice

Planning Documents could include:

- a statement of the outcomes the students are expected to demonstrate from this teaching and learning sequence;
- a statement about the design of the learning unit (modification of another learning unit; an innovative activity; from the syllabus or professional discourse with colleagues);
- identification of any out-of-class activities or research undertaken by the students as part of their work;
- a statement on how the program and approach allow you to cater for individual student differences. This includes attending to the entire range of, but not limited to, differences in ethnicity, socio-economic status, gender, culture, exceptional needs, and language; and
- identification of the students' current outcome levels within the curriculum and plans for their development in the curriculum.

Worksheets/Descriptions of activities could include:

- a statement on the relevance of the learning activities/worksheets, the expected standard of performance for the range of students within the class.

Samples of student work could include:

- feedback provided and other annotations (eg how the student's response prompted you to modify your plans etc.)

Assessment process materials could include:

- assignments, tests or validation activity used to monitor performance in the unit of work
- any assessment rubrics or criteria used to provide you and the student with information on the quality of the learning
- student reflections that cover such things as their perceptions of purpose and challenges in the work.

## **CASE STUDY**

The Case Study section of the Portfolio will be a written report of an in depth study, over a period of two months or more, of one or more students in the classroom. It is an excerpt from a teaching situation that focuses on and describes one or more specific teaching and learning strategies or areas of study.

### **Purpose**

The aim of the Case Study is to allow you to demonstrate your skills in identifying and working on learning issues for individual students over a sustained period of time.

The Case Study will be particularly useful in demonstrating your achievement against Standards 1.1 and 1.3; 3.2, 3.3 and 3.4.

### **Contents/Format**

Your Case Study entry must provide clear evidence of purpose in the manner of delivery, choice of learning opportunities provided and assessment of the progress student(s) make in a specific topic, process or area of study.

The Case Study consists of two elements — a description of an intensively studied event or events and an explanation of how these events came about. You could use your Case Study to provide evidence of your attention to:

- general teaching and learning issues;
- social/cultural factors;
- students' confidence levels;
- innovative teaching strategies;
- the ability to meet individual student needs;
- assessment strategies; and
- any other factor(s) relevant to your accomplishment as a teacher.

The report may be presented in a variety of ways but suggested sections are:

**Title:** the specifics of the Case Study itself

**Background or Context:** This should include a description of such things as:

- the class setting: mixed ability, single sex, composite class etc.
- specific information on the students themselves ie age, grade, information on 'where they are at' in the context of the Case Study.

**Rationale:** a brief analysis of why this specific study was chosen.

**Implementation:** a description of the methodology including timelines, methods of data collection etc

**Commentary:** A reflective comment on the process including annotations pointing to the relevant *Standards*. This may include diary notes, points of interest, points of elaboration, relevant data on the student's learning (or lack



thereof), relevant data on the student's situation on particular days ie last period Friday, first attendance after illness, absent locker key, 'dog ate my homework' type excuses.

**Conclusion including impact** should include:

- reflection and evaluation of whether teaching and learning activities were appropriate/successful measured by the progress or otherwise of the student with respect to the specified goal.
- any other demonstrable affective changes
- an outline of the next step in this student(s) mathematics learning.
- an indication of whether this approach could be used in the future with similar students, or if not, what modifications would be made.

## Advice

Some strategies that might assist the gathering of data are:

- assessment (whether written, oral or the synthesis of your previous judgements) prior to commencing the teaching of a unit to establish the student's entry level.
- the keeping of a journal in which you note things that surprise you.
- interviews with students and, where appropriate, parents.
- research on the students' backgrounds (academic, social, cultural)
- comparisons in other areas of their schoolwork such as Literacy, Geography, Commerce, the Art etc.

Careful attention must be paid to the context, rationale and commentary. The extent to which the Case Study demonstrates ways in which you meet the *Standards* will be assessed from within the context presented.

## ***Validating Material***

The Validating Material will provide some 'objective' evidence about you and your teaching of mathematics gained from a single 'snapshot' of a lesson.

### **Purpose:**

To provide evidence of your daily professional practice in teaching mathematics. It will prove particularly useful in terms of demonstrating your achievement in relation to Standards 1.3; 3.1 and 3.3.

### **Content/Format**

You have several options for this entry and will need to choose one of the following:

- A video (digital or analogue) of an entire lesson segment of at least 30 minutes duration, accompanied by a written annotation of not more than two A4 pages.
- An audio tape of an entire lesson segment of at least 30 minutes duration, accompanied by a written annotation of not more than two A4 pages.
- A written report (proforma provided) from a colleague of a lesson(s) they observed you teach, accompanied by your written annotation of not more than two A4 pages.

A short section on background/context should include a description of such things as the class setting (mixed ability, single sex, composite class etc.) as well as specific information on the students themselves (age, grade, information on 'where they are at' in the context of the intended learning)

The evidence you provide should highlight your skills in:

- verbal interaction with the class — using appropriate language, questioning techniques, discussion techniques;
- types and appropriate level of activities;
- pace and delivery;
- concept development — that students are further 'down the line' than they were at the start of the lesson;
- classroom management (discipline, positive reinforcement, rapport with students); and
- positive promotion of and enthusiasm for mathematics.

The annotation should provide:

- a rationale for the lesson (why particular activities were chosen, where the lesson was located in a unit/topic/sequence, etc)
- evaluation/reflection on lesson aims and outcomes
- how this lesson influenced what came next in the students' learning?
- clear links to the *Standards*.

## Advice

- Do not worry about a video/audio being technically proficient – this will have no bearing on the result.
- Choose a lesson containing a variety of activities, not just one.
- Remember that assessors are looking for evidence of your everyday practice which reflects the usual classroom interactions in order to judge your achievement of the *Standards*.
- Further, the assessors want to experience you teaching and the students learning – think carefully about how the video/audio/observation report can show this (whether you get someone to video for you, whether a static camera can see what's happening at each stage, whether the audio captures all types of interaction, whether the colleague accurately captures what occurred in their report).
- Be aware of Privacy Act in your state in relation to identifying students, and how that will impact on your video or audio.

## ***Personal Professional Documentation***

The Personal Professional Documentation entry will consist of a collection of materials that give a picture of your achievements as a teacher. Often they will have been provided to you by others.

### **Purposes**

The purposes of this item are:

- for the candidate to provide further evidence to address their claims against the *Standards*, especially in relation to Standards 2.1, 2.2 and 2.3;
- to provide the candidate with more flexibility in the type of evidence they can present;
- to provide evidence from a variety of sources supporting the candidate's claims.

### **Format/Contents**

As candidates will provide documents from different sources and a variety of media it is impossible to set a format for these documents in terms of their individual length or font size, etc. The types of evidence that are expected are references, testimonials, certificates, evaluation of workshops or professional development sessions presented, etc.

This section allows you to address a standard that you decide has not come across sufficiently strongly in your other sections, and also provides you the opportunity to emphasise a particular area of strength.

As there are ten standards there should be not more than ten (10) pieces of material in this section. Remember that the attributes are interrelated. So, it is expected that each of these will be supported by some piece of documentary evidence and less than ten(10) items may suffice.

A clear statement linking the evidence with the Domains in the *Standards for Excellence* must annotate each piece of documentation.

### **Advice**

Include items that specifically link with the *Standards* and clearly articulate those links.

It is strongly recommended that, as with all aspects of the Portfolio, that candidates work in collaboration with a mentor who is able to provide supportive advice in relation to selection and annotation of items.

Do not include general references or documents that provide no link between your work and the *Standards*.

## Appendix B5: Highly Accomplished Teacher of Mathematics: Interview Information

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### ***Outline***

The Interview will provide further confirmation of evidence. It will be held after the evidence from the other components of the assessment have been assessed. The Interview will normally be held by teleconference and will be likely to take 30–45 minutes<sup>4</sup> at a time negotiated as convenient to the Assessors and the Candidate. The Candidate should be alone in a quiet room and free of interruptions. The Candidate should have their original Portfolio with them. There are no restrictions on the other material that the Candidate can have at hand during the Interview.

### ***Special conditions for the AAMT Teaching Standards Assessment Evaluation Project***

The special circumstances of this pilot project mean that the timeframe will be much shorter than is anticipated. This results from the intention to complete the full assessment process over as few days.

In practice, Candidates will receive information about their 'status' and the foci of their Interview by early on Friday 30 April. The Interviews themselves will take place later that day, at an agreed time. The Assessors will use the AAMT Offices (speaker phone), with the Candidates probably best able to take the call in their room at the Franklin Central Apartments. Although it would be possible to hold the interviews in face-to-face mode, conducting the interviews by telephone is the best simulation of the 'normal' operation.

### ***Nature of the questions/discussions***

The nature of the Interview will depend on how the Candidate is placed in their overall assessment for the other components (Assessment Centre and Portfolio). At least two weeks prior to the Interview the Candidate will be given feedback on their progress in the assessment process to date. Three broad categories have been identified:

- **Candidates have already convinced the Assessors that they meet all the Standards**

These Candidates can choose to not have an Interview. In this case the Interview is irrelevant from the point of view of assessment, but it does provide an opportunity for providing further feedback to the Candidate,

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<sup>4</sup> This is an estimate only. The results of the AAMT Teaching Standards Assessment Evaluation Project will provide information that will allow a better estimate to be made.

and for the Assessors and Candidate to have a professional conversation about the Candidate's work and achievements.

Possible 'prompts' to the discussion from the Assessors might be

*'We particularly liked ....'*

*'How have your colleagues responded to ...?'*

etc.

- **Candidates for whom the evidence is not yet convincing for one or a few of the individual *Standards***

These Candidates will be those thought to be highly likely to be able to demonstrate that they have met the *Standards*. The Interview will provide an opportunity for them to add further evidence in relation to particular *Standards*. At the time feedback is provided Candidates will be advised by the Assessors of any particular areas of concern and the kind of evidence is being sought. They can provide more physical material directly to the Assessors if they wish.

Possible 'prompts' to the discussion from the Assessors might be

*'We thought you might have expanded on ... in your Case Study in order to show your skills at....'*

*'Are there any other examples like ...?'*

*'Talk to us a bit more about...'*

etc.

Should the Candidate not provide sufficient evidence in the Interview that they have met the *Standards*, they will be provided with verbal and written feedback on the Interview, and an update in relation to their positioning with respect to the *Standards*. The Chair of the NPSCM (or his/her nominee) will counsel the Candidate on the possibilities for their next steps (see document on Banking and Redemption processes — yet to be prepared)

- **Candidates for whom there are serious short-comings in terms of the evidence presented**

Note that it is expected that other processes of self-monitoring, mentoring and advice in the overall assessment process will mean that there are very few, if any Candidates in this category. Assessors will automatically seek the advice of the Chair of the National Professional Standards Committee — Mathematics if they believe a Candidate has presented evidence that they are in this category.

The Candidate will be provided with detailed verbal and written feedback on their responses to the Assessment Centre Items and Portfolio Entries that identifies the aspects of each of those *Standards* that they have and have not met. They will be advised that an Interview would be unlikely to provide sufficient extra evidence for them to be recommended for the HAToM credential. They can insist on having an Interview, and this would seek out additional evidence through the processes outlined above.

The Chair of the NPSCM or his/her nominee would chair the Interview, which would not extend beyond one hour. The Assessors and Chair would undertake detailed preparation for the Interview and maintain a positive, professional demeanour at all times. The Interview will be terminated by the chair if in his/her opinion, and after up to two warnings, the Candidate is not responding in a similarly professional vein.

## Appendix B6: Validation Entry for Candidate's Portfolio: Observation Guidelines

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### Background

To be assessed as a Highly Accomplished Teacher of Mathematics, candidates need to demonstrate that they meet all the requirements of the AAMT Standards for Excellence in Teaching Mathematics in Australian Schools.

There are three assessment components:

- Assessment Centre
- A portfolio containing at least five specified items
- An Interview.

The Observation Report can be submitted by the Candidate as the *Validation Entry* in their Portfolio. In brief, the Validation Entry is designed to provide some direct evidence of the quality of the Candidate's work. It is designed to give the assessors confidence that what they read and see in other parts of the Portfolio are a reasonable representation of the teacher's work. Other options for the Validation Entry are a Video or an Audio tape of the teacher in the classroom.

The ideal situation would be for the Assessors themselves to visit the Candidate in their school. This would be prohibitively expensive, however. The use of experienced local mathematics educators who are willing to undertake these observations is seen as a cost effective means of obtaining the information.

### ***What will be the focus of the Observation?***

The Observation will have two components

#### **Assessor-directed**

The Observer will be asked to make brief notes on the learning environment and the actual work the students are asked to do.

#### **Candidate-directed**

The Candidate will identify the areas of the Standards they particularly want to highlight in the lesson, and these will form the focus of what the Observer will be looking at/for during the lesson. For example, the teacher might say 'I reckon this lesson will show how I use a variety of teaching strategies including...' or 'how I integrate different bits of maths' or 'how I promote and support constructive discussion in class'. This will guide what the Observer looks at and records as notes to pass to the Candidate.



## Some principles

An underpinning principle of the AAMT's work with Professional Standards is that diversity in approaches to teaching is important. Our slogan is 'standards, not standardisation'. In other words, throughout the assessment process there can be no bias that might be reflected in judgements along the lines of 'I don't like the method s/he is using to teach this' or 'I always do it the other way'. What is expected is that teachers know why they do what they do and can articulate that as evidence that they meet the expectations of the Standards.

Another important orientation of this process is that it should be professionally supportive of the candidate. Whilst judgements will ultimately be made, the main focus for a professional association like the AAMT has to be on helping improve the work of members of the profession.

Finally, there is a commitment, as far as is possible, for the Candidate to have control of the process.

## Outline of the observation process

The AAMT or the Candidate will contact you directly to ask if you are willing to do the Observation. In either case, the Candidate will have indicated that s/he is happy for you to be in the classroom and undertake the observation.

You and the Candidate will make the necessary arrangements for the visit. This includes

Since this whole process is voluntary we are unable to make strict rules about the length (time or number of lessons) of the observation or whether there is any time made available for the school for you and the Candidate to have a professional discussion. It is hoped that some time is set aside, beyond merely 'lunchtime' or some other incidental break.

During the observed lesson(s) you will need to take a fairly passive role in the class, but if it is part of what you and the Candidate agree, you may spend some time interacting with the students as they attend to their work.

After the observation, you will need to prepare your report for the Candidate to verify. A time for some discussion and clarification is strongly advised at this time. The Observation Report then becomes the Candidate's property for inclusion in their portfolio (or not, in which case s/he will need to present the *Validation Entry* in one of the other formats).

## Appendix B7: Validation Entry for Candidate's Portfolio: Observation Report

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Candidate's name	Observer's name	Date
Signed	Signed	

Lessons/times/classes observed
--------------------------------

**1. Brief description of the physical classroom(s)** (*write n/a with reasons if the room for today's lesson is not the 'normal' classroom eg Computer lab; outside lesson etc*).

**2. Brief description of the mathematics in the lesson(s)**

**3. What were the students actually expected to DO?**

**Candidate's nominated areas:**

**Observations**

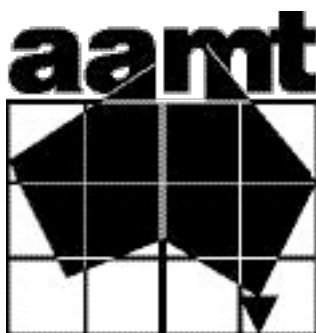
**Any other comments**



**Candidate's comments**

# Appendix C1: Assessor Information and Application Pack

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## Highly Accomplished Teacher of Mathematics (HAToM)

### DRAFT Assessor Recruitment Pack

January 2004

Prepared and authorised by the National Professional  
Standards Committee — Mathematics

Contact Officer

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## **Overview**

The Australian Association of Mathematics Teachers Inc. has defined the credential Highly Accomplished Teacher of Mathematics to be awarded to those teachers who demonstrate that they meet the expectations of its *Standards for Excellence in Teaching Mathematics in Australian Schools*, published in 2002 (see Appendix 1). The process for assessing candidates for the credential is covered in the Assessment Model (see Appendix 2).

The HAToM Assessors will be responsible to the National Professional Standards Committee — Mathematics for assessing the candidates. This document contains information for potential Assessors and an Application Form.

## **The work of the Assessors**

The HAToM Assessors are critical components in the AAMT's implementation of its *Standards* as a means of recognising those teachers who are doing a great job. As a result of their involvement the Assessors will make a significant contribution to the profession and the efforts of the AAMT to improve the community recognition of the quality of the work of teachers of mathematics. It is also likely that Assessors will gain professionally from their work.

The Assessors will work in teams of two or three to judge whether the amount and quality of evidence provided by a candidate is sufficient to recommend the awarding of the HAToM credential. They will only assess people who are teaching at the same level of schooling as themselves (early childhood/lower primary; primary; junior secondary; senior secondary).

Assessors will conduct the whole process for a candidate (Assessment Centre items, Portfolio and Interview) as a complete assessment of the teacher's knowledge, skills and attributes. In normal circumstances the Assessors will work at their home base and communicate with other members of the Assessment Team by phone and email. It is anticipated that the assessment of a candidate will take between 3 and 8 hours<sup>1</sup> and that Assessors will be remunerated for their time<sup>2</sup>. Assessment teams will be expected to reach a consensus decision. In the case of disagreement on the Team, further Assessor(s) will be involved. Assessors will be responsible for providing constructive feedback to all candidates.

## **Eligibility**

Assessors will normally be currently-practising, experienced teachers of mathematics with the capacity to work to deadlines. A small number of teacher educators may also become HAToM Assessors. Assessors will have an interest in contributing to the profession. They do not need to be HAToMs themselves.

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<sup>1</sup> Note that a better estimate of this time will be possible after the completion of the AAMT Teacher Standards Assessment Evaluation Project (TSAEP) in mid-2004.

<sup>2</sup> But not during the TSAEP.

The AAMT is keen to establish, over time, a cadre of Assessors that includes teachers from all sectors, level of schooling and locations (city, rural, remote).

### ***Training***

There is a two-day Training Program for Assessors. This is normally held out of school hours (weekend or vacation). Those who successfully complete the training course will become members of the Assessment Panel and thereby be eligible to be part of Assessment Teams that are appropriate in relation to their level of schooling.

The Training Program will cover, at least:

- familiarity with the AAMT Standards;
- understanding of the Assessment Model;
- protocols for reading candidates' material and evaluating evidence;
- reaching on-balance judgements against the Standards; and
- providing constructive feedback.

### ***Special conditions within the AAMT Teacher Standards Assessment Evaluation Project (2003-4)***

During 2003-4 the AAMT has received funding from the Australian Government Quality Teaching Programme to conduct the AAMT Teacher Standards Assessment Evaluation project (TSAEP). This project is piloting the implementation of the Assessment Model and evaluating what happens against a range of criteria including quality of judgements, feasibility in terms of workloads and sustainability. As part of the TSAEP, a group of HAToM Assessors is being recruited and trained to undertake these initial assessments. These Assessors will contribute to the project by providing their impressions and feedback, and ideas for improvements of processes.

As far as is possible, the process will be as it is envisaged for the full implementation. Some differences exist, however. These include:

- potential Assessors are largely being 'targeted' rather than relying on volunteers 'out of the blue';
- the Assessor Training will be held in Adelaide on the weekend of 21-22 February;
- the project will meet all costs for attending the training;
- assessors will be brought together in April to undertake the assessment, rather than doing it in their home bases. This will enable evaluative data to be gathered.

## ***Application Form***

### **PERSONAL DETAILS:**

**Title**

**Family Name**

**Other name(s)**

**CONTACT DETAILS** : Please indicate your preferred postal, phone, fax and email links by the letter P in each case.

**Home Address:**

**Home Phone No:**

**Home Fax:**

**Workplace:**

**Work Address:**

**Work Phone no.:**

**Work Fax:**

**Email: Home:**

**Work:**

### **CURRENT TEACHING HISTORY:**

<b>Year</b>	<b>Institution</b>	<b>Classes taught</b>
2003		
2002		
2001		
2000		
1999		

**OTHER RELEVANT EXPERIENCE** :(Include here information about your professional involvement and leadership):



**BRIEF STATEMENT OF YOUR REASONS FOR WANTING TO BE A HAToM ASSESSOR:**

**AREA OF EXPERTISE:**

Describe your particular area of focus as a mathematics teacher: Early Years/Lower Primary, Primary, Junior Secondary, Upper Secondary

**NAMES OF TWO REFEREES** (these people may be contacted to provide further information)

**DECLARATION BY APPLICANT**

I certify that the information included is true and accurate.

**SIGNATURE:**

**DATE:**

Appendix 1 — Standards for Excellence in Teaching Mathematics in Australian Schools

See <http://www.aamt.edu.au/standards/standxtm.pdf>

Appendix 2 — Assessment Model

See [http://www.aamt.edu.au/standards/assess\\_model.pdf](http://www.aamt.edu.au/standards/assess_model.pdf)

## Appendix C2: Assessment Centre Papers

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### **Primary Question 1**

*This simulated teaching in action decision scenario is posed to teachers of Primary students to elicit responses that would demonstrate the teacher's **establishment of the learning environment**.*

At the start of the year your year 4s have been doing some vertical addition - starting with no carrying

The problem required them to work this out and most did it like this

$$\begin{array}{r} 23 \\ + 32 \\ \hline 55 \end{array}$$

When they moved on to more complex examples involving carrying some problems emerged

Example 1 — answer from Rachel and some others

$$\begin{array}{r} 47 \\ + 64 \\ \hline 101 \end{array}$$

Example 2 — Ben's answer

$$\begin{array}{r} 47 \\ + 64 \\ \hline 21 \end{array}$$

Ben explains 'I did 4 plus 7 plus 6 plus 4 and got 21'

Using your knowledge of Mathematics and the learning of Mathematics respond to the following questions.

1. What is surprising about the responses provided by Rachel and Ben?
2. Why do you believe this is happening?
3. How would you continue the development of the class' mathematical understanding?

## **Primary Question 2**

*This simulated teaching in action decision scenario is posed to teachers of Primary students to elicit responses that would demonstrate the teacher's **novice teacher development**.*

A novice Grade 2 teacher tells you they are feeling frustrated with the fact that they are having difficulty getting children in their class to understand manipulating fractions eg. adding halves and quarters.

You are somewhat surprised that they are even trying.

Using your knowledge of Mathematics and the learning of Mathematics respond to the following questions.

1. What course of action could you take to find out just what they were doing?
2. How could you support them / what could you suggest they 'might' try without saying outright that they may be asking children to do something they aren't ready to understand? (i.e. support rather than put down)

## **Primary Question 3**

*This simulated teaching in action decision scenario is posed to teachers of Middle School students to elicit responses that would demonstrate the teacher's **Community responsibility**.*

You run into a parent of a child you had a year or 2 ago and she tells this story. The teacher concerned is a very experienced and traditional teacher - a colleague you have known for several years. This is what they say:

As you know, Amy is in now in Year 5. She has been learning about division. For homework the other night she was doing loads of practice exercises set by the class teacher of the type

$23/7$  to yield an answer of the type  $3r2$ , the remainder of 2 being identified by the 'r'.

She said to me that this doesn't make sense ...she thinks the answer should be 3 groups and 2 out of 7 pieces for another group. I said she could talk to her teacher about it.

She did discuss it with the class teacher, only to be told she got it wrong and she was 'corrected'.

Using your knowledge of mathematics and the learning of mathematics respond to the following questions.

1. What is surprising about the context?

2. What might you say to the parent and the child?
3. What strategies might you provide to the teacher professionally to deal with this situation?

### **Primary Question 4**

*This simulated teaching in action decision scenario is posed to teachers of Primary and Middle School students to elicit responses that would demonstrate the teacher's Personal Attribute and establishment of the learning environment.*

Pierre and Brad always sit next to each other in maths and always work in the same group for investigations. Pierre is good at maths and Brad is not. They are very good friends outside school and live near each other. Brad's homework is always well done as is Pierre's, but he never seems to be able to explain the work when the teacher talks to him. He always does poorly in tests as well.

Brad has just presented another well-done assignment.

Using your knowledge of Mathematics and the learning of Mathematics respond to the following questions.

1. What is going on?
2. What factors might affect the teacher's decision?
3. How might the teacher respond? Provide several examples and reasons.

## **Secondary Question 1**

*These simulated teaching in action decision scenarios are posed to teachers of Middle and High School students to elicit responses that would demonstrate the teacher's Personal Attributes and establishment of the learning environment.*

### **Choose ONE of the following**

Having accepted that there are  $360^\circ$  in the interior of a rectangle, Peter is now considering a parallelogram 'I think it will be  $360^\circ$  again, because if you push it a little it will become a rectangle.'

Using your knowledge of Mathematics and the learning of Mathematics respond to the following questions.

1. What background knowledge is the student demonstrating?
2. Would you consider Peter's as acceptable reasoning, bearing in mind that later in the year he is going to need to deal with the 'general polygon'?
3. How would you develop his mathematical understanding?

### **OR**

You have asked the class to suggest a fraction lying between  $1/2$  and  $3/4$ , and Candice gives  $2/3$ . You ask Candice how she knows it is, and she replies 'Because, the 2 is between 1 and 3, and 3 is between 2 and 4'.

Using your knowledge of Mathematics and the learning of Mathematics provide a couple of scenarios on how you would deal with this answer?

### **OR**

You are helping a Karl. He is having trouble with 'the difference of two squares'. He says he just can't understand it and offers 'The teacher I had before used to draw lots of diagrams and I liked those'.

Using your knowledge of Mathematics and the learning of Mathematics respond to the following questions.

1. What would affect your decision?
2. How would you continue the development of the Karl's mathematical understanding?

## **Secondary Question 2**

*This simulated teaching in action decision scenario is posed to teachers of Secondary School students to elicit responses that would demonstrate the teacher's **Community responsibility**.*

The physics teacher button-holes you in the staffroom during break and says, 'I wish you'd hurry up and teach your year 8's how to draw tables. It's a real nuisance for me'. The biologist overhears, and before you can say anything, adds 'I agree. When are the Maths department going to get its priorities right?'. You are not the head of department, but hope to be when he retires at the end of the year.

Using your knowledge of mathematics and the learning of mathematics respond to the following questions.

1. What is going on?
2. Why might this be going on?
3. How might you continue the conversations?

## **Secondary Question 3**

*This simulated teaching in action decision scenario is posed to teachers of Secondary School students to elicit responses that would demonstrate the teacher's **Community responsibility**.*

You renew acquaintance with a colleague Diana who tells you she has been trying to introduce more technology into her classes but the maths coordinator has not encouraged it, probably due to lack of confidence and skills. At the parent interviews, one of the mothers, who works in computing, asked why they were not doing more with technology in mathematics.

Using your knowledge of mathematics and the learning of mathematics respond to the following questions.

1. How might you have responded to the parent's question about the application of technology in mathematics?
2. What courses of action could Diana take, and why she might take them?
3. What professional issues does this situation raise for you?

## **Secondary Question 4**

*This simulated teaching in action decision scenario is posed to teachers of Middle and High School students to elicit responses that would demonstrate the teacher's **Personal Attribute** and **establishment of the learning environment**.*

'If a man can run a kilometre in four minutes, how far can he run in an hour?'. A pupil answers 'Fifteen kilometres'. On being questioned about the reasonableness of the answer he replies, 'Well, maths is nothing to do with real life, is it?'

Using your knowledge of mathematics and the learning of mathematics provide several responses to this answer, and explain why you might respond in this manner.





***Example of recording proforma provided***

**Standard 1.1:** Excellent teachers of mathematics have a thorough knowledge of the students they teach. This includes knowledge of students' social and cultural contexts, the mathematics they know and use, their preferred ways of learning, and how confident they feel about learning mathematics.

Location and description of evidence	Assessor's comments	Assessor's judgement

Etc.

## Example of a proforma developed by one of the Assessors

Name of candidate: .....

	STANDARD 1.1 Excellent teachers of mathematics have a thorough knowledge of the students they teach.				STANDARD 1.2 Excellent teachers of mathematics have a sound, coherent knowledge of the mathematics appropriate to the student level they teach, and which is situated in their knowledge and understanding of the broader mathematics curriculum.			STANDARD 1.2 Excellent teachers of mathematics have rich knowledge of how students learn mathematics.							
	Knowledge of students' social and cultural contexts	Knowledge of the mathematics they know and use	Knowledge of their preferred ways of learning	Knowledge of how confident they feel about learning	Sound, coherent knowledge of maths appropriate to student level they	Understand how maths is represented and communicated, and why	Confident and competent users of maths who understands connections	Rich knowledge of how students learn mathematics.	Understanding of current theories	Knowledge of mathematical development of students (learning	Aware of range of effective strategies and techniques:	o Teaching and learning mathematics	o Promoting enjoyment of learning and positive attitudes to mathematics	o Utilising information and communicating technologies	o Encouraging and enabling parental involvement
Case study															
Current Teaching and															
Professional Journey															