



An Chomhairle Mhúinteoireachta
The Teaching Council

Final Report of the Review Panel to the Teaching Council following a review of the reconceptualised BA Mathematics and Education submitted for accreditation by NUI Galway

December 2012



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1.0 Background

The Teaching Council is the statutory body charged with setting the standards for entry to the teaching profession and ensuring that these standards are upheld.

In accordance with Section 38 of the Teaching Council Act, 2001, the Council shall:

- (a) review and accredit the programmes of teacher education and training provided by institutions of higher education and training in the State,
- (b) review the standards of education and training appropriate to a person entering a programme of teacher education and training, and
- (c) review the standards of knowledge, skill and competence required for the practice of teaching,

and shall advise the Minister and, as it considers appropriate, the institutions concerned.

The Teaching Council's role in relation to the review and accreditation of programmes of initial teacher education (ITE) is distinct from the academic accreditation which programmes also undergo. Academic accreditation is based on the suitability of a programme for the award of a degree/diploma, whereas professional accreditation for any profession is a judgement as to whether a programme prepares one for entry into that profession.

The review and accreditation of programmes of ITE by the Teaching Council provides an opportunity for Higher Education Institutions (HEIs) to demonstrate that they offer quality programmes of teacher education. It is expected that the graduates of such programmes achieve programme aims and learning outcomes which are aligned with the values, professional dispositions, and the standards of teaching, knowledge, skill and competence which are central to the practice of teaching.

In order to guide its review of programmes, the Teaching Council has published *Initial Teacher Education: Strategy for the Review and Accreditation of Programmes* (hereinafter referred to as the Council's review strategy). That document sets out the process by which programmes are reviewed. The criteria against which reviews take place are set out in a second document: *Initial Teacher Education: Criteria and Guidelines for Programme Providers* (hereinafter referred to as the Council's criteria). That document, which will apply to existing and new programmes (from 2012 in the case of concurrent programmes and 2014 in the case of consecutive programmes), relates to a range of areas, including programme design, areas of study, the duration of programmes, the numbers and qualifications of staff, facilities and resources. Significantly, the criteria:

- prescribe those areas of study which will be mandatory in programmes, including numeracy

- and literacy, behavior management, parents in education, ICT and inclusive education
- set out for the first time the expected learning outcomes for graduates of all ITE programmes
- propose raising the minimum requirements for persons entering programmes of ITE at primary level and a literacy and numeracy admissions test for mature entrants
- require a 15:1 student-staff ratio
- call for the development of a new and innovative school placement model, involving active collaboration between HEIs and schools and an enhanced role for the teaching profession in the provision of structured support for student teachers
- require that student teachers should spend at least 25% of the programme on school placement, and that such placements should be in a minimum of two schools
- require increased emphasis on research, portfolio work and other strategic priorities.

Providers of existing programmes have been asked to reconceptualise their programmes in line with the revised criteria and to submit them for accreditation. All providers have made a declaration to the Teaching Council that the criteria will be fulfilled and guidelines followed in respect of all of their programmes.

In parallel with the drafting of the Council’s review strategy and its criteria for ITE, the Council has also published its *Policy on the Continuum of Teacher Education*, which sets out its vision for teacher education at all stages of the continuum – ITE, induction, and continuing professional development.

2.0 The Review Process

The review of NUI Galway’s submission for approval of a four year concurrent programme, the B.A. Mathematics and Education programme (hereinafter referred to as “the programme”), took place in September, October and November 2012. The process was formally initiated when the Review Panel (hereafter referred to as “the panel”) was appointed by the Teaching Council’s Director, with Professor Áine Hyland as Chairperson.¹ To assist and support the work of the panel, Fionnbarra Ó Tuama was appointed as Rapporteur. The panel was also supported in its deliberations by an external subject expert and by the Director and staff of the Teaching Council.

Documentation relating to the application was submitted to the Teaching Council by NUI Galway (hereinafter referred to as NUIG or “the university”) on 23 July 2012. The review panel met initially on 30 August 2012 in the Glenroyal Hotel in Maynooth to give preliminary consideration to the NUIG submission. At that meeting, a general briefing was provided by Tomás Ó Ruairc, Director, and Carmel Kearns, Education Officer of the Teaching Council. The Teaching Council’s terms of reference and general principles bearing on the review and accreditation of the reconceptualised programmes of initial teacher education were outlined in detail. On foot of that briefing, the panel gave some preliminary consideration to the NUIG submission.

Following this meeting, individual members of the panel focused on specific aspects of the submission and circulated their comments and questions to other members of the panel. On 20 September, the Chairperson sent an email to Dr Mary Fleming, Director of Teacher Education in

¹ Details of the Panel membership are included at Appendix 1.

NUIG, indicating the areas on which the panel would appreciate further clarification. Following further consideration of the documentation and a collation of the initial views of the members of the panel, the panel met with Dr Mary Fleming, Dr Kevin Jennings, School of Mathematics, and Dr Catherine Paolucci, School of Education, Joint Programme Directors of the BA Mathematics and Education programme, on Monday 24 September.

After the meeting of 24 September, the panel further considered the documentation submitted by NUIG and took account of the clarifications provided by Dr Fleming and her colleagues at the meeting. This report sets out the outcome of the panel's deliberations.

3.0 Context of the Review

The concurrent degree for which accreditation is sought by NUIG is a two subject, four year undergraduate Arts degree leading to a (Level 8) B.A. Mathematics and Education. Accreditation is sought for the teaching of Mathematics and Applied Mathematics. The degree programme is taught by staff of the School of Education and the School of Mathematics, Applied Mathematics and Statistics within the College of Arts, Social Sciences and Celtic Studies in NUIG. A B.A. degree programme in Mathematics and Education was accredited by the Teaching Council in 2008 and the first cohort of students was admitted in that year. The accreditation process in 2008 focused largely on the Mathematics and Applied Mathematics components of the programme. There appears to have been only a limited review of the Education component at that time, as the modules in Education were the same modules as were provided for the one-year Professional Diploma in Education (PDE).

The programme has been reconceptualised in the context of the revised criteria of the Teaching Council and has now been re-submitted for accreditation. It remains a four year Level 8 programme providing a total of 240 ECTS credits (120 ECTS credits for Education and 120 ECTS credits for Mathematics and Applied Mathematics). The allocation of ECTS credits is in accordance with the requirements of the Teaching Council for concurrent degrees as set down in Table 1 of the Teaching Council's *Initial Teacher Education: Criteria and Guidelines for Programme Providers*.

4.0 Documentation

The documentation submitted by NUIG is in accordance with the template provided by the Teaching Council in the Pro Forma and Guidelines which accompany the Council's review strategy. Key areas of focus are:

- Conceptual Framework
- Programme Aims and Learning Outcomes
- Programme Design
- Main Features of the Programme
- Cross Curricular Links

- Areas of Study
- School Placement
- Assessment Policies and Procedures
- Student Intake and Admissions Criteria
- Staffing
- Facilities
- Student Support and Guidance Systems.

The documentation is informative, but it lacks consistency in presentation. Clarification was sought on a number of aspects of the programme and this clarification was readily and willingly provided by the Director of Teacher Education, Dr Mary Fleming, and by the joint Programme Directors, Dr Paolucci and Dr Jennings. Some modules are designed and presented in accordance with an institutional template for programme design², but this is not universally the case. In some instances this made it difficult for panel members to identify whether, and if so, how individual modules contribute to the overall learning outcomes of the programme. Volume 2 (Appendix Items) is not paginated and this caused additional difficulty for members of the panel when referencing their comments.

5.0 Overview of the Programme

5.1 Duration of the Programme

The B.A. Mathematics and Education is a four programme year (240 ECTS) leading to a Level 8, B.A. qualification. A total of 120 ECTS credits relate to the Education components and 120 ECTS relate to the Mathematics and Applied Mathematics components. The programme is modular in structure and is one of a number of two subject B.A. degree programmes offered within the College of Arts, Social Sciences and Celtic Studies in NUIG. While the programme complies with the Teaching Council's guidelines for concurrent programmes for post-primary teachers and satisfies the subject criteria for the teaching of Mathematics and Applied Mathematics, the panel is aware that some other providers have extended the duration of their concurrent programmes to five years.

5.2 Student Intake and Admissions Criteria

Entry to the programme is through a designated entry code in the CAO list of programmes. The minimum requirements for entry are C3 in two subjects taken at Higher Level and a D3 in four other subjects in the Leaving Certificate, with at least a D3 in Ordinary Level in Irish, English and another language. A minimum of C3 in Higher Level Mathematics or an A2 in Ordinary Level Mathematics is also required. Intake is restricted to approximately 25 students per annum, with five places reserved for mature students. There is no specific preferential access quota to this programme for students from disadvantaged backgrounds or for those with disabilities, although the panel notes that NUIG has a general overall policy of preferential access for school leavers under the HEAR³ and DARE⁴ schemes. (The panel notes that, according to statistics in the Equal Access Survey carried out by the

² The panel notes that there is a standard template for module design in NUIG which states that "completion of Part B is compulsory for **ALL** programmes and **ALL** modules within the College of Arts, Social Sciences and Celtic Studies" (sic). Part B includes a statement of Learning Outcomes or Competencies.

³ Higher Education Access Route.

⁴ Disability Access Route to Education

HEA, 20% of the intake into NUIG in 2010/11 came from lower socio-economic backgrounds.)

The panel noted that of the 20 students who started the B.A. Mathematics and Education in 2008/9, only 12 (or 60%) completed the programme last year. However, the retention rate for subsequent years appears to be much higher and 26 of the 28 who entered in 2009/10 were still on the programme in 2011/12, i.e., in their third year.

5.3 Conceptual Framework

The intention of the programme is to adopt a concurrent approach where the academic study of subjects proceeds in parallel with foundational studies, professional studies and periods of school placement. The concurrent progression of modules in Mathematics and Education has been strategically sequenced to ensure that students not only engage with mathematical content and general pedagogy but that they have opportunities to focus specifically on developing pedagogical content knowledge. The framework of the programme is presented as three parallel pillars – Content Knowledge, Professional Knowledge and Pedagogical Knowledge pointing and leading to Professional Practice. A matrix which shows how the mandatory elements of the programme align with the Education modules, was included in the documentation submitted. This is a useful matrix which could provide a potential framework for cohesion and integration.

5.4 Design, Programme Aims and Learning Outcomes

The conceptual framework, the programme aims and outcomes, and the overall learning outcomes for the programme provide a sound basis for a coherent and integrated initial teacher education programme. Volume 1 of the documentation contains an overview of the Education, Mathematics and Applied Mathematics modules and indicates how the modules, especially the Education modules, fit into the overall curricular framework. However, as not all the module descriptors are written in accordance with the institutional template – in particular some of the Mathematics and Applied Mathematics modules – it was difficult for the panel to see how some of these modules fit into the overall programme design.

The panel is aware that the modules in Mathematics and Applied Mathematics are not designed solely for, nor taught uniquely to, student teachers. The students of the BA (Mathematics and Education) programme join a range of other students in attending modules in Mathematics and Applied Mathematics. This means that the modules in Mathematics and Applied Mathematics do not have a specific focus on the teaching of Mathematics or Applied Mathematics; nor do the assignments or examinations in the Mathematics and Applied Mathematics modules focus on the teaching of Mathematics. These modules effectively form the “Content Knowledge” component of the programme and from a student perspective can appear to be separate and distinct from the Education components of the programme.

While recognising that the Mathematics and Applied Mathematics modules were not designed specifically for teacher education students, the panel would expect that the programme documentation should demonstrate in a transparent and explicit way how each module fits into the overall design of the programme, in accordance with good practice in curriculum design. This would require that each module descriptor should include learning outcomes congruent with the overall learning outcomes of the programme. As programme/curriculum design should be a fundamental component of any programme of teacher education, those who design and deliver teacher education programmes should model best practice in all aspects of their work, including curriculum

design.

The panel notes that some modules contain a very large number of learning outcomes and that other modules contain none. For example, the school placement in Year 4 (a 20 ECTS credit module) contains no less than 36 separate learning outcomes which are listed in an unsystematic and undifferentiated manner. The Integrated Project (Parts 1 and 2) (a 10 ECTS credit module) contains 42 separate learning outcomes, again listed in an unorganised way.

The panel recommends that a Student Handbook, designed in accordance with modern curriculum design protocols, should be prepared and made available to all staff and students of the programme. The Handbook should contain a summary of the conceptual framework of the programme; a statement of the overall learning outcomes of the programme, and a short description of each module in Mathematics and in Education, using a standard and consistent template.⁵ The relationship between the programme learning outcomes and the individual modules might be mapped on a matrix. The Handbook should also contain clear information on the assessment of all aspects of the programme including a timetable indicating when assignments are due and should make explicit the ways in which the programme addresses the strategic priority areas of numeracy and literacy, ICT and inclusion, and the mandatory areas of study prescribed in the Teaching Council's criteria.

5.5 Co-ordination and Integration

The panel notes the feedback provided by 11 students from the first cohort to complete the programme. Of the 11, eight would welcome better linking of Mathematics and Education modules, and from the point of view of some students, Mathematics and Education “appear to be two separate courses”. These students suggested that the education courses should involve more specific Mathematics references/examples/approaches to help students to be Mathematics teachers and that the Mathematics courses should refer to the secondary school Mathematics curriculum.

The panel notes that in the design of the programme, some student assignments were intended to assist students to make links between the Mathematics and Education elements, e.g., the Integrated Project Module in Year 3, the Final Year Symposium in Education, and the Final Year Project in Mathematics. However, it would appear (at least in the case of the first cohort of students) that these assignments did not fully achieve their purpose. The panel recommends that the issue of making visible the overall coherence and integration of the programme be addressed. For example, consideration might be given to requiring students to collate a professional portfolio over the four years of the programme which might include personal reflections, teaching and learning materials, and evidence of engagement with research in Mathematics education. Such a portfolio could also encourage students to develop assessment tasks linked to assessment for, and of, learning. Steps should be taken to ensure that in the Integrated Project in Year 3, students “make connections” between the Mathematics and the Education components of the programme.

While the panel is aware that there is on-going collaboration between the joint Programme Directors (Dr Paolucci and Dr Jennings), it suggests that further opportunities for cross-departmental collaboration should be exploited. (It is noted that 29 different lecturers are involved in the delivery of the programme.) For example, strategies such as joint Mathematics/Education seminars and workshops might be considered, as well as projects which involve academic staff from both the Mathematics and Education Departments.

⁵ The standard NUIG template would appear to be suitable for this purpose.

The panel notes that student examination results in the Mathematics and the Education elements of the programme are considered and approved by two separate examination boards at the end of the programme. This contributes to the perception that Mathematics and Education are two separate elements of the programme and that the programme is not an integrated one. The students' results in both subjects (Mathematics and Education) should ideally be considered and approved by a single Examinations Board, especially at the end of the final year of the programme. At the very least, there ought to be cross-departmental membership of the two Examination Boards.

5.6 *Linking Theory and Practice*

The programme documentation recognises that “one of the most important aspects of the teaching, learning and assessment on this programme is the integration of theory and practice”. It lists a number of ways in which this linkage occurs, including:

- opportunities for the students to apply their learning in school settings;
- opportunities for students to integrate their various studies of Mathematics and educational theory in the Professional Studies modules;
- criteria for grading assignments in Foundation and Professional Studies ensure that students are rewarded for their capacity to link theory and practice;
- demonstration of creative and advanced uses of ICT in Education.

While the importance of linking theory and practice is highlighted in the programme documentation, the link is not always evident in the module descriptors. The panel notes that a number of modules (both Education and Mathematics modules) do not include suggested or required reading lists. In a number of cases the lack of a reading list is apparently justified by the statement: *“This is a practical module in which student learning will be through practical experience and tutorial support.”*

It is a matter of concern to the panel that some module descriptors give the impression that practical modules do not have an underpinning theory and are not research-informed. This issue needs to be addressed when the proposed Student Handbook is being prepared.

In any professional programme, the link between theory and practice should be made explicit at every opportunity. If teachers are to develop as reflective practitioners, they need to understand the theory which informs best practice in their profession. It is important that all aspects of ITE programmes are informed by up-to-date research and that this link between research and teaching and learning is explicit and understood by students.

5.7 *Suggested/Required Reading*

The review panel notes that there is considerable variation between the suggested/required reading lists for the various modules. There is no suggested reading for some modules. On the other hand, some reading lists are unrealistically long and lack guidance in relation to required reading and supplementary reading. For example, a module in Year 3 on Psychology, Sociology and Catering for Diversity lists no fewer than 60 URLs without suggesting any priority for the websites listed. Some key publications on education (nationally and internationally) and on key aspects of pedagogy do not appear in the lists of readings.

The panel recommends that all reading lists should be reviewed in a co-ordinated way, and that every module should distinguish between required reading (a short list) and supplementary reading.

All references for reading and research should be rationalised in a consistent way in the Student Handbook.

5.8 School Placement

Students on the programme experience a range of teaching situations and education settings. During Years 1, 2 and 3, students work mostly in local schools in and around Galway city and placements are integrated with their university programme. The placements during these years are organised by a School of Education Placement Co-ordinator. In their final school placement block in Year 4, students are themselves responsible for finding a placement school. Where possible and feasible, students are encouraged to partake in various aspects of school life during their school placements. The panel recommends that the Placement Co-ordinator takes steps to ensure that students spend each placement in a different type of school (as recommended in the Teaching Council criteria).

Students undertake 180 hours of face-to-face teaching over the duration of the programme. In addition they spend a further 160 hours in other school-based activities, giving a total of approximately 340 hours. In second year, students work closely with a co-operating teacher and receive one visit from the Programme Director, Dr Paolucci. They receive a minimum of three visits in Year 4. While this provides consistency of supervision, it means that there are fewer school visits than are provided in similar ITE programmes in other institutions. While it might have been feasible for one placement tutor to visit all the students in the early years when numbers were relatively small, the panel is of the view that it is not realistic to expect that one member of staff can carry full responsibility for school placement visits now that the full complement of students has been reached (around 100 over the four year programme). The panel seeks reassurance that the number and timing of school placement visits will be kept under continuous review and that appropriate and moderated school placement visits by appropriately trained placement tutors will be provided on an on-going basis.

The panel welcomes the inclusion in the documentation of comprehensive and clear criteria and grade descriptors for the assessment of school placement.

The development of a systemised and co-ordinated support system for school placement by the School of Education in NUIG, in partnership with schools, is in its infancy. In September 2011, an innovative Partner School Placement Model was initiated and piloted in 20 post-primary schools. At present, the possibility of developing a co-ordinated mentoring system with co-operating teachers from all schools is being explored. In this context, a protocol setting out the roles and responsibilities of partners in this process has been prepared and this protocol, which clarifies the university's expectations of all involved in school placement, including student teachers and their placement tutors, is welcomed by the panel.

5.9 Mathematics and Applied Mathematics modules

As regards Mathematics, the review panel is satisfied that the programme includes the study of Analysis, Algebra, Geometry, and Probability & Statistics to a minimum of 40 ECTS credits as required by the Teaching Council. The panel is also satisfied that the programme has a minimum of 20 ECTS credits in the accepted list of optional areas specified in the Teaching Council's draft subject criteria (Mathematics) as published in November 2011.

As regards Applied Mathematics, the panel is satisfied that the programme includes the study of Analysis, Algebra, Geometry, and Probability & Statistics to a minimum of 25 ECTS credits. The panel is also satisfied that the course includes the study of Mechanics to a minimum of 25 ECTS credits. It is further satisfied that the programme has a minimum of 10 ECTS credits in the accepted list of optional areas specified on p. 25 of the Teaching Council's draft subject criteria (Applied Mathematics) as published in November 2011.

5.10 Staffing, Facilities and Financial Resources

The names and academic qualifications of full-time academic staff involved in the delivery of the programme were made available to the panel, together with details of their teaching and research experience. The panel notes with satisfaction that almost all of the staff mentioned in the appendix hold a Ph.D in a relevant area of expertise. Most of the Education staff have had some experience as post primary teachers and many are research-active in relevant areas of education.

The two Programme Directors, Dr Paolucci and Dr Jennings, were both appointed three years ago, after the first cohort of students had been recruited. The panel notes that when the joint Directors were first appointed, the total number of students on the programme was less than 30. Now that the programme is fully up and running, the total number of students is almost 100 and the workload of the Directors has grown significantly.

As regards the funding of the programme and the student-staff ratio, the data available in the submission was insufficient for the panel to come to a definitive conclusion about these matters. The panel is aware that in a large Education Department such as that in NUIG, it is difficult to separate the resources available for the B.A. Mathematics and Education and the resources available for the PDE. It recommends that NUIG be required to furnish further details to the Council in relation to these matters and that when the reconceptualised PDE is being reviewed by the Teaching Council, the resourcing and staffing issue be examined more fully.

The panel is aware of the challenges being faced by Education Departments in dealing with the current economic constraints and the funding and staffing cutbacks experienced in recent years, particularly in the context of extending the length of consecutive ITE programmes. The panel recommends that the resourcing situation of the Education Department of NUIG be carefully monitored in the years ahead to ensure that adequate resources (staffing, funding and space) will continue to be available for the effective delivery of all ITE programmes. In this regard, it is important that the interests of student teachers and of ITE are represented on all relevant committees/structures of the College of Arts, Social Sciences and Celtic Studies; that ITE remains a strategic priority of NUIG; and that adequate resources for the effective delivery of ITE programmes are provided on an on-going basis.

6.0 Overall Findings

The panel notes that this programme satisfies the criteria set down by the Teaching Council in its Criteria and Guidelines and in the draft subject criteria and recommends to the Teaching Council that the programme be accredited. It proposes that such accreditation would have a lifespan of not more than five years and would be subject to any policy developments with regard to the duration and award level of teacher education programmes or changes made to the subject criteria in the intervening period. It further recommends that any subsequent review should take account of the views and experiences of graduates of the programme and of employers of those graduates. It should also take account of relevant findings arising out of the review of the university's consecutive programme (PDE).

The commendations below relate to areas of particular strength which the panel has identified.

With regard to the recommendations below, the panel recommends that the Teaching Council should require the college to set out to the Teaching Council its proposals for implementing the recommendations. Such proposals should be submitted in advance of the review of NUIG's consecutive programme. It further recommends that the Council should prioritise those areas for particular attention when this programme falls due for re-accreditation.

The following commendations are made:

1. The panel commends the Director of Teacher Education, Dr Mary Fleming, and the joint Directors of the B.A. Mathematics and Education programme, Drs Paolucci and Jennings, for their commitment to the provision of a high quality ITE programme, and appreciates their help and co-operation in providing further information and clarification when requested by the review panel.
2. The panel commends the institutional arrangements for student feedback and welcomes the open way in which student views were made available to the panel.
3. The panel notes that the concurrent progression of modules in Mathematics and Education has been strategically sequenced to ensure that students not only engage with mathematical content and general pedagogy but that they have opportunities to focus specifically on developing pedagogical content knowledge. The panel commends the three-pillar framework of the programme – Content Knowledge, Professional Knowledge and Pedagogical Knowledge leading to Professional Practice.
4. The panel notes that the matrix showing how the mandatory elements of the programme align with the Education modules could provide a potential framework for greater cohesion and integration.
5. The panel is impressed by the commitment of NUIG to the school placement element of the programme and by the emerging partnership between the university, and schools. The panel welcomes the guidelines which set out the roles and responsibilities of all parties involved in the placement.

6. The panel welcomes the comprehensive and clear criteria and grade descriptors for the assessment of School Placement.
7. The panel commends the recognition in the programme documentation that “one of the most important aspects of the teaching, learning and assessment on this programme is the integration of theory and practice.”

The following recommendations are made:

1. The panel recommends that a Student Handbook, designed in accordance with modern curriculum design protocols, be prepared and made available to all staff and students of the programme. The Handbook should contain a summary of the conceptual framework of the programme, a statement of the overall learning outcomes, and a short description of each module in Mathematics and in Education, using a standard and consistent template. The relationship between the programme learning outcomes and the individual modules might be mapped on a matrix.

The Handbook should also contain clear information on the assessment of all aspects of the programme, including a timetable indicating when assignments are due. It should make explicit the ways in which the programme addresses the strategic priority areas of numeracy and literacy, ICT and inclusion, and the mandatory areas of study prescribed in the Teaching Council’s criteria.

2. As students appear to have difficulty in perceiving the programme as an integrated one, the panel recommends that further opportunities for cross-departmental collaboration should be exploited. Consideration might be given to requiring students to collate a professional portfolio over the four years of the programme which might include personal reflections, teaching and learning materials, and evidence of engagement with research in Mathematics education. The students’ results in both subjects (Mathematics and Education) should ideally be considered and approved by a single Examinations Board, especially at the end of the final year of the programme. At the very least, there ought to be cross-departmental membership of the two Examination Boards.
3. The panel recommends that students be made aware of, and become familiar with, the national strategy Literacy and Numeracy for Learning and Life (2011) as well as reports of national and international assessments of literacy and numeracy, especially those relating to pupils at second level.
4. It is a matter of concern to the panel that some module descriptors give the impression that practical modules do not have an underpinning theory and are not research-informed. This issue should be addressed when the proposed Student Handbook is being prepared.
5. The panel recommends that all reading lists should be reviewed in a co-ordinated way, and that every module should distinguish between selective, required reading (a short list) and supplementary reading. All references for reading and research should be rationalised in a consistent way in the Student Handbook.
6. The panel recommends that a systemised and co-ordinated support system for school placement in partnership with the schools continue to be developed and that the pilot

School Placement Model be extended and mainstreamed. The panel seeks reassurance that the number and timing of school placement visits will be kept under continuous review and that appropriate and moderated school placement visits by suitably trained placement tutors will be provided on an on-going basis. It further recommends that the Placement Co-ordinator takes steps to ensure that students spend each placement in a different type of school (as recommended in the Teaching Council criteria).

7. The panel recommends that when the reconceptualised PDE is being reviewed by the Teaching Council, the resourcing and staffing issues relating to both the PDE and the B.A. Mathematics and Education be examined more fully.
8. The panel recommends that the funding and staffing of the Education Department of NUI Galway be carefully monitored in the years ahead to ensure that adequate resources (staffing, funding and space) will continue to be available for the effective delivery of ITE programmes.

Appendix I – Review Panel Membership

Independent Review Panel Chair	Professor Áine Hyland is Emeritus Professor of Education and former Vice-President of University College Cork. She was a member of a review team organised by the Irish Universities Quality Board which carried out an institutional review of NUI Galway in 2010 and is a member of the European Universities Association Institutional Evaluation team. She has been involved in reviews of universities in Italy, Turkey, North Cyprus, Bosnia-Herzegovina, Slovakia, Portugal and Romania. She is author of <i>A Review of the Structure of Teacher Education Provision in Ireland</i> , a Background Paper published in June 2012, and <i>Transition from Second to Third Level</i> , published in September 2011.
Teacher Education Expert	Professor John Anderson is Managing Inspector for teacher education in the Education and Training Inspectorate in Northern Ireland and an Honorary Professor of Education at Queen's University, Belfast. He was formerly a lecturer in Education at the University of Ulster and an adjunct Associate Professor in the School of Education at Duquesne University, Pittsburgh, USA. He has also worked for British Educational and Communication Technology Agency (Becta) where he was responsible for the formulation of national UK teacher education in IT policies. He is a former Academic Secretary for the Committee on Early Professional Development for Teachers of the Northern Ireland Teacher Education Committee.
Teaching Council Member	Christy Maginn is a member of the Teaching Council and serves on the Disciplinary and Finance Committees and the Primary Applications Panel. He is a full-time teacher of Mathematics, Applied Mathematics and Physics. He has prior experience of the Teaching Council's review and accreditation function, having previously been appointed as a member of a review panel.

Inspector from the Department of Education and Skills

Carmel Donoghue is senior Post-Primary Science Inspector at the Department of Education and Skills. She has a variety of experience in research, curriculum, teaching and inspection. Her work involves a range of evaluation models of teaching and learning, as well as whole-school evaluations, including management and leadership.

Rapporteur

Fionnbarra Ó Tuama was, until recently, a member of the Inspectorate in the Department of Education and Skills. Initially he worked as a District Inspector and later at Divisional level. He contributed to policy formulation and implementation in a variety of settings throughout the education system during a period of over thirty years. Prior to that he taught at primary, secondary and third level.