NUI MAYNOOTH

Ollscoil na hÉireann Má Nuad

Voices from School

Interim Report on the Project

Teaching and Learning for the 21st Century

2003-2007

TL21 | Teaching & Learning for the 21st Century

A School - University Initiative

TL21 Participating Schools
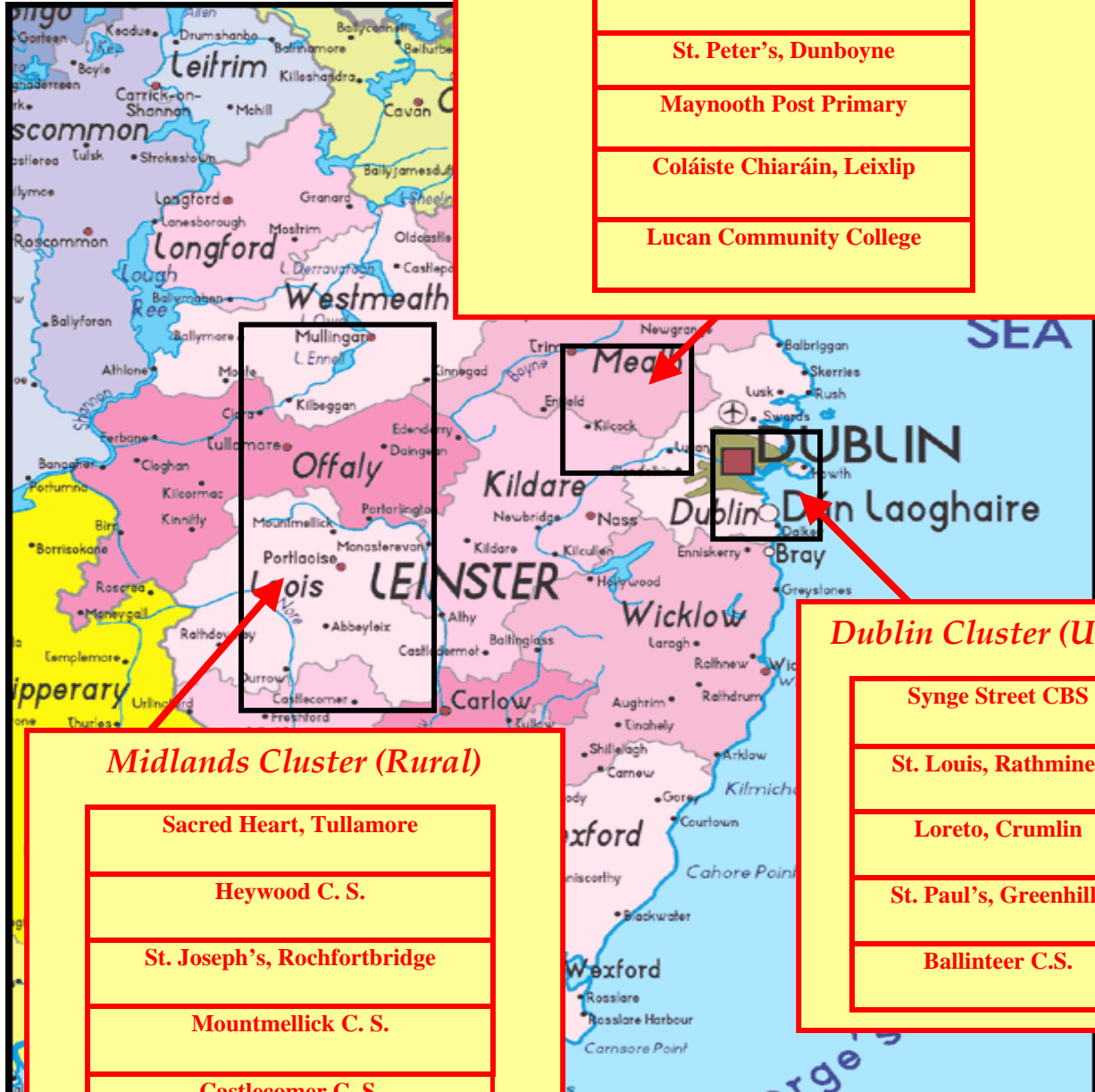
Maynooth & District Cluster (Dormitory)

Scoil Dara, Kilcock

St. Peter's, Dunboyne

Maynooth Post Primary

Coláiste Chiaráin, Leixlip

Lucan Community College

Dublin Cluster (Urban)

Synge Street CBS

St. Louis, Rathmines

Loreto, Crumlin

St. Paul's, Greenhills

Ballinteer C.S.

Midlands Cluster (Rural)

Sacred Heart, Tullamore

Heywood C. S.

St. Joseph's, Rochfortbridge

Mountmellick C. S.

Castlecomer C. S.

St. Fergal's, Rathdowney

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Preface

It is a pleasure to write a Preface to an Interim Report for a project-in-progress which has already achieved so much, and whose potential to achieve its full objectives is so promising. *Teaching and Learning for the 21st Century* (TL21) is a multi-pronged research and development project which incorporates elements of international best practice in a constructive partnership between a university and schools, working in close collaboration with key policy and support agencies. The project team works with Principals and Deputy Principals and cohorts of teachers from the participating schools to experiment with, develop and implement innovative and active teaching methods that promote higher quality, and more engaged learning among school pupils. While directly benefiting the schools involved, the research project, firmly rooted in the day-to-day circumstances of Irish schools, seeks to inform policy and practice at national level to help position Irish schooling for the challenges of "the knowledge society".

A range of analytic studies by the OECD and other agencies indicates that in relation to schooling we are in a period of transition. The inherited model of schooling, shaped by industrial society, is no longer seen as adequate to the needs of individuals living in an era of great and accelerating change. The knowledge/learning society, which is emerging requires very different characteristics from that tradition of schooling. Among the characteristics being sought are: more school autonomy; collegiality in school leadership; school planning involving inquiry, reflection, problem solving; creativity re curriculum and assessment; wide repertoire of pedagogic styles, including the integration of ICT; teacher teamwork; focus on personalised education; fostering a "learning to learn" capability and motivation; regard for multiple intelligences; teachers as learners (CPD); schools operating as networks/clusters; school as part of lifelong learning policy framework. The TL21 project is located at the cutting edge of this transitional movement and is of great benefit to participating schools and others as they re-shape themselves for a new societal era. The project's emphases are very much in line with the desired characteristics set out above. The support of the project by key international educational thinkers, such as the members of its International Consultative Panel, has helped to ensure a best practice approach.

The TL21 initiative is also very much in harmony with the recent OECD study, *Teachers Matter: Attracting, Developing and Retaining Effective Teachers* (2005), with its emphasis on schools of the future as "learning communities". Such communities, it states, "seek to maximise opportunities for staff to interact and learn from one another, as well as with external sources of research and information, and try to develop ways for learning to be cumulative and more readily accessible to all members of the organisation …. A key strategy is to encourage teachers to become more inquiring, reflective practitioners, and to do so in collaboration with colleagues". It also emphasises the importance of "school leaders who are able to build a climate of collegiality and quality improvement within schools", (OECD, *Teachers Matter*, 2005, p.110)

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The title of the Interim Report – *Voices from School* – is very well chosen. Here, after two years of engagement with the project, we get the reactions of teachers of the various subjects highlighting the advantages and problems they have encountered in that engagement. The voice of Principals and Deputy Principals is also heard as they reflect on their experiences with the project, including the challenges and opportunities it brought with it for the enhancement of the teaching and learning process within the schools. If qualitative reforms are ever to take root, efforts need to be made to tackle a number of constraints and habitual modes of operation, which do not come easy. It is a great tribute to the professionalism of the personnel involved that the Interim Report bears such testimony to the praiseworthy efforts that have been made. The participants have shown themselves to be very much in the vein of lifelong learners, which needs to be the norm for the teaching career in the future. It is quite clear that the involvement of the school personnel is characterised by their own creative contributions, whereby they are using the facilitative framework of the project to re-shape their professional engagement in new and better ways. Working in collaboration, the school personnel are the key actors in the project, stimulated by the facilitators and expert inputs made available to them. *Voices from School* also successfully conveys a realistic image of the on-the-ground contextual factors within which the project seeks to make progress

This sense of the real situation also emerges in the report. The perceptive overview in the main section that opens the report locates the TL21 initiative within its historical context and goes on to focus on eight challenges which the project is tackling. The commentary on these issues is very insightful and highly relevant to many of the curricular and in-service education reform initiatives underway in contemporary Ireland. A rootedness in Irish schooling circumstances gives an assured quality to the points being made and to the emerging lessons and insights, with implications for policy, to which attention is drawn. If Irish policy makers are serious about making a qualitative leap forward in curricular and pedagogic policy it is imperative that constraints which have been identified here, and in other studies, are addressed as a matter of urgency, even if the resolution to the difficulties may take time to become fully implemented.

The reports on the individual subjects being promoted in the project are very interesting and informative. The achievements/benefits as well as the difficulties/problems being encountered are clearly set out. It is noteworthy that the ICT strand has attracted a large number of teachers from the full spectrum of curricular subjects, as they seek to integrate ICT to their pedagogic repertoire. Overall, the voice of teachers is strongly affirmative regarding their engagement with the project. It is also interesting that a considerable number of the involved teachers are going forward for post-graduate qualifications through action research ventures base in their own schools.

The benefits of research and development projects such as this are manifold. They help all those involved – the Principals/Deputy Principals, the teachers, the project facilitators, and most importantly, the school pupils, whose welfare is the central concern. However, such projects also yield vital insights for policy makers and other supportive and interested agencies. Furthermore, they

help to create a more enlightened awareness among the general education public of the nature and importance of educational reform. When a project is interlinked, as is the case with this one, with a network of involved agencies in Ireland and has international links, then like the proverbial stone in the pool, its influences go in many, sometimes uncharted, directions. Looking from an interim report standpoint one can conclude with the old proverb: *Tosach maith, leath na h-oibre*. The on-going work of the TL21 project is favourably positioned to build on the achievements of the first phase. I wish all involved every success in the endeavours that lie ahead.

John Coolahan,
(Chairperson of the Advisory Committee)

Reviewing the Main Issues

Introduction

The TL21 project (*Teaching and Learning for the 21ˢᵗ Century* 2003-2007) is now reaching its half-way stage. In this interim report the project team would like to share with colleagues in Ireland and farther afield the more salient issues the project has encountered in its first two years, the insights that have been gained and, not least, some important lessons that have emerged for good educational practice, and for educational planning and policy-making.

  Teaching and Learning for the 21ˢᵗ Century is an educational exploration-cum-experiment, which builds on two previous projects, *Schools for Active Learning* (1990-95) and *School and Curriculum Development* I & II (1995-2001) that were carried out by the Education Department of NUI Maynooth. The TL21 initiative is organised and run by a team from the Education Department in the university and it involves a partnership between the university and fifteen post-primary schools in three different regions – five urban, five suburban and five rural. It is funded mainly by an international philanthropic foundation. There is supplementary funding by the Irish Government's Department of Education and Science, and by the university. The project is also supported by a National Advisory Committee and an International Consultative Panel. Its website address is www.nuim.ie/TL21

  There is a strong research dimension to the TL21 project, predominantly action research. The ideas and practices that such research yields are primarily concerned with imaginative forms of teaching and learning and with the forms of school leadership that are most hospitable to advancing and sustaining cultures of pedagogical innovation. Clearly then, such ideas and practices are of first importance to a range of fields within educational practice – including initial teacher education, the continuing professional development of teachers, school leadership and planning, and not least the work of the Inspectorate. During the planning stages of the project in 2003, extensive consultations took place with the leaders of the Inspectorate, and with a number of the major national agencies in education. These latter included the National Council for Curriculum and Assessment, the National Association of Principals and Deputy Principals, the various school managerial bodies at national level and the teachers' unions. The importance of these links with prominent national bodies cannot be stressed strongly enough. For if the project is to be successful in its primary purposes, it must not be viewed as an essentially academic exercise. Equally important, its work and influence must not be confined to just fifteen schools. Rather, the project's work – its actual engagement with challenges and opportunities – must be known about and talked about by those who are in the strongest positions to influence future educational policy and practice in Irish post-primary education.

  The main text of the interim report is presented directly here. This is followed by specific reports from the main strands of the project's activities to date, and by responses by Principals and Deputies to three key questions put to them in May 2005. In these sections of the interim report

teachers, Principals and Deputy Principals speak tellingly of their experiences of participation in the project and it is their contributions that give the report its title: *Voices from School*.

The Background and Main Aims

In a nutshell, the issues being addressed by the project concern the quality of teaching and learning in Ireland's second-level schools (12/13 year olds to 17/18 year olds). It must be emphasised from the start however that this question of *quality* is quite different from that of the *effectiveness* of teaching and learning in the schools. In recent years Ireland's educational system has been more praised than criticised where effectiveness is concerned. Although there are still some serious and specific concerns about areas such as special needs and equality of opportunity, Ireland's schools are largely seen to produce the goods, in terms of measurable grades (OECD 2003, Table A5.2).   The primary schools are places of active learning for the most part, with a further version of a learner-centred curriculum being introduced in 1999. The post-primary schools however, notwithstanding their general effectiveness, are still very much in the grip of exam-centred attitudes and practices. These have their strong origins in the 19th century, most notably in the Intermediate Education Act of 1878. This decisive piece of legislation embodied an uneasy compromise between the Catholic Church (then the dominant force in more than matters religious) and the British Administration in Dublin (then the dominant force in matters legal and financial). The 1878 Act installed a long era of hierarchical control, unimaginative teaching and conformist learning in post-primary education; also an era of high expectations among parents for strong examination results (Coolahan, 1981, pp.63-65; O'Donoghue, 1999, p.111ff.). A century and a quarter later, despite the major transformations in virtually all aspects of Irish life, the cultures of post-primary teaching still reveal more than a few features of the learning routines of former times. In this connection it is instructive to read in a recent OECD study that over two-thirds of Irish 15 year olds "often feel bored" at school, while the OECD average for this is under 50% (OECD 2003, Table D5.4).

The last decade has witnessed a number of significant changes that, in different ways, can be seen as attempts to address these issues. There have been some imaginative curricular innovations, new legislation that clarifies responsibilities, and an increase in the practical support services to schools. Programmes such as the Leaving Certificate Applied, Transition Year and the Junior Certificate Schools Programme, as well as developments in a range of subjects from Civic, Social and Political Education in the Junior Certificate to the revised English syllabus in the Leaving Certificate, have placed a fresh emphasis on active learning and on teachers varying and extending their approaches to teaching. A network of Education Centres, and dedicated teams of teachers on secondment from their schools to services such as the School Development Planning Initiative, the National Centre for Technology in Education, and the Second-Level Support Service, provide greater professional development opportunities than previously.

Setting out this historical background, however briefly, illuminates important aspects of the context in which the TL 21 project is undertaken. It also enables us to resist becoming enmeshed in the

countless particular demands that could occupy our collective energies and to retain an important overview of the project's main aims. These can now be summarised as:

> (a) to strengthen (post-primary) teachers' capacities as the authors of their own work;
>
> (b) to encourage students to become more active and responsible participants in their own learning.

Keeping in mind these two main aims, we have selected in this report a number of the challenges, eight in all, that the project is tackling. In this main section of the report we analyse and comment on these in turn as succinctly as we can and then provide a summary of the emergent issues for educational policy.

(1) Involving teachers in a continuing professional development programme

In each prospective school, during first term of 2003-04, we sought two teachers from English, two from Irish, two from Science and two from Maths, in addition to the school Principal and Deputy Principal. The idea of seeking pairs was that each teacher might have a partner as a "critical friend" with whom to engage in focused reflection as the project's workshops and exercises progressed. Under the ICT dimension of the project, which got under way a year later in Autumn 2004, teachers from other subject areas in the participating schools were invited to join. Here the common theme was exploring the potential of the new technologies to make teaching more imaginative and learning more participatory and fruitful.

In our initial contacts with teachers in the schools invited to participate, we met a wide diversity of response. Some teachers were clearly enthusiastic and could see potential merits straight away from their participation in the project. Other teachers were favourably disposed in principle, but tended to see participation as an "add-on" to their already busy teaching week. There were yet other teachers who had reservations about the project, and for different reasons – for instance: Would this be something like "doing my teacher-training again", with outsiders coming into one's classroom to oversee one's teaching? Was the university acting here on behalf of the Department of Education and Science, with whom one of the teaching unions had been recently in dispute? Addressing concerns such as these, we constantly stressed that the success of a continuing professional development initiative like this depended on all of us in the project working as colleagues; on developing an active professional partnership between participants from the schools and the project team members from NUI Maynooth. Despite some early apprehensiveness, and some ongoing concerns that are well-founded, the project's teacher participants are predominantly pleased to be involved and with the progress that has been made. (See the later sections of this interim report for feedback received from teachers from the various subject areas in May 2005).

Among the insights we have gained on this first issue, or to put it more broadly, among the lessons to be learned from our experience, are the following two crucial ones. (a) If continuing professional development is to become a distinguishing feature of the teaching career in the 21st century, the idea that it is somehow an "add-on" must yield to the much more promising standpoint that views it

as an essential dimension of the teacher's normal working life. (b) The consequences of this are not that teachers' work must become additionally burdened. Rather the chief one is that it is necessary to envisage that work anew, not as the work of functionaries but of professionals in their own right; i.e. people who, in the course of their *normal* scheduled actions, plan and engage in a range of co-operative activities that continually enrich the learning environment of the school and the experienced quality of teaching and learning there. These two points envisage something of what the ideal of lifelong learning might mean in practice, where teaching as a career is concerned.

(2) Involving the school leaderships

All of the school Principals who received the invitation to join the project felt that it was a worthy initiative. But a willingness to engage was sometimes hampered by reservations. Those who declined the invitation all said they were reluctant to do so (twenty-three schools were invited before we reached fifteen acceptances), invariably for the reason that the busy programme of work they and their staff already had before them precluded their participation. Again the "add-on" issue is to the fore here. Only a minority of school leaders saw the project at the start of their involvement (January 2004) as something that might make their own work in school less burdensome rather than more burdensome. Looking back at this initial phase of our work with the school Principals and Deputy Principals, one point in particular should be emphasised. This concerns the distinction between initiatives that need to be *facilitated* by the school leadership and initiatives that need to be *actively led* by the school leadership. There is no shortage of the former in post-primary schools at present, but we have had to clarify for all of us that the TL21 project is an initiative of the latter kind. This means that the school leadership does not merely accommodate the project and delegate some staff member to look after it. Rather, the leadership itself has to take a strong stance of ownership of its involvement in the project and has to support its teachers' participation in a range of proactive ways. As Michael Fullan stressed in his workshops with the project's seminar participants in May 2005, informed, energetic school leadership is the *sine qua non* of meaningful advance in daily and weekly educational practice (Fullan 2005). This challenge has been energetically embraced in some of the schools and impressive advances are evident in making teaching and learning issues central to the school's thinking and actions. Progress in other schools is proceeding at a slower pace, chiefly for reasons of custom and tradition and some ongoing practices associated with these.

(3) Gap between the demands of school administration and the imperatives of leadership

Inherited practices of leadership in Irish post-primary schools – as elsewhere – have tended to create and maintain a rift between work that is essentially administrative in character and action that is essentially educational in character. Research studies conducted in the 1990s have shown that Principals and Deputy Principals are habitually burdened with an administrative workload that absorbs most of their time and energy. (Leader & Boldt 1994). More recently, surveys by the Second Level

Support Service (McManamly 2002) and the Joint Managerial Body for Secondary Schools (JMB 2005) have concluded that the administrative burden and the non-educational responsibilities of school Principals continue to increase. In addition, the lore of the teaching profession itself is replete with stories telling that the demands of administration all too often leave little time for school leaderships to focus on teaching and learning issues. This has serious consequences for school leaders' sense of professional identity. It tends to make them officeholders of a bureaucratic system and the cultural practices that have grown up around this are not often conducive to ideas that promote imaginative educational leadership.

The project's team members, together with school leaders themselves, have been tackling this big question and, during the second of the project's active years (2004-05), we have been trying to identify ingenious ways, within tightly packed school schedules, in which school leaders can move teaching and learning issues closer to the heart of what they do on a daily basis. With Principals and Deputy Principals we have been engaged in efforts to find new opportunities that allow fresh thinking and new practices in teaching and learning to emerge and grow, even within the constraints and obstacles that continually confront these efforts. Something of what this means for school leaders can be gathered from the following brief extract from an article in the Spring 2005 edition of the project's Newsletter, written jointly by a Principal and Principal and Deputy Principal.

> We feel that our success with the project in our school can be recognised by the extent to which the practice of teaching has changed and how supporting that change will have developed us as well. ... We are both supporting one another's professional learning and considering how we support teaching and learning more generically." (pp.12-13)

Despite the continuing rise of intrusive pressures progress has been very heartening in some instances, such as this one just reported. It has been slower in others, though some advance has been evident in all cases. More detailed comments from school Principals and Deputy Principals, given in May 2005, are to be found in the final section of the report. Such developments are significant in the light of the long history of a preoccupation with administration, referred to earlier, in the cultures of leadership in Irish post-primary schools. The project's team members don't underestimate the challenges that still lie before us here. Experience to date gives us confidence that in identifying these clearly, and in tackling them together with pairings of Principals and Deputy Principals, further significant inroads can be made. A strong international consensus in recent research findings on school leadership suggests that such confidence is well placed if the efforts of school leaderships remain focused on central concerns of teaching and learning and if such efforts are continually encouraged and supported (Fullan 2005, Stoll 2004, Duignan 2002, McBeath 1999).

(4). Conformist tenor of teaching and learning

As we have already mentioned in the Introduction, inherited practices of teaching and learning in Irish second-level schools have characteristically "delivered the goods" in terms of examination success, and the schools are generally deemed successful in international comparisons. All too often however, such practices have not prized imagination and originality in learning or in teaching, have overlooked needs of those who are disadvantaged or less able intellectually, and have frequently made the teacher a servant to predictable routines dictated by textbooks and by long-established perceptions about examinations. The high boredom levels among 15 year students – reported in the OECD 2003 survey – can perhaps best be viewed as an unsurprising consequence of such routines. The project's workshops with participating teachers have sought to loosen the grip of such practices, not so much by a critique of their shortcomings as by an active search for more innovative ideas for teaching and learning. A range of action-research processes has been availed of to encourage participating teachers to engage critically with their own teaching approaches and to document and analyse how the quality of their students' learning has been influenced by changes in the teachers' thinking and practices. There is considerable progress to report here, though issues with far-reaching implications for inherited curricular provision have also come to the fore.

Again, the most telling illustrations of this progress can be gathered from the participating teachers themselves. Here are a few extracts from the comments of teachers who have been using in their own classrooms some ideas introduced in the project's workshops, and who have been keeping written reflections on changes in their own practice. These were gathered for inclusion in the Spring 2005 edition of the project's newsletter. The first is from a teacher who has used algebra tiles to tackle what most students see as an unappealing area of mathematics. (Algebra tiles are small plastic tiles of different dimensions and colours, each representing some basic unit in algebra: e.g. x, $-y$, x^2, $-y^2$, 1, -1 etc.).

> My role as a teacher had been dominant while using the traditional method. I had stood at the front of the classroom shovelling algebra onto the board. ... In using algebra tiles, I discovered three specific things about pupils' learning. Firstly, good discipline permeated the whole group, and this was sustained for the duration of each lesson. Secondly, I noticed the students co-operated with each other to a degree that I had not seen before. Thirdly, I discovered that middle-of-the-road students started to outshine some of their more highly-rated classmates. (Teacher of Maths, Spring Newsletter, 2005, p.5)

Comments from other teachers include the following:

> Tá atmaisféar an-dearfach sa rang. Baineann mo dhaltaí taithneamh as an rang Gaeilge agus tá níos mó fuinnimh, díograise agus beochta ionam féin mar mhúinteoir dá bharr. (Teacher of Irish, Spring Newsletter, 2005, p.10)

> While my students have not transformed into "A" students overnight, I have noticed distinct changes. They don't just see a poem as a poem, but as a series of interlinked processes which they are able to take apart and put back together. (Teacher of English, Spring Newsletter, 2005, p.7)

Comments of this kind were prevalent among practitioners by May 2005, as can be gathered from the teachers' comments in the other sections of this report. Such comments reveal that some significant changes are already being brought about by the project's participants in their pedagogical practices and in the quality of their students' learning, though such changes have not become significant in the case of examination classes (i.e. final Junior Certificate year and final Leaving Certificate year). The changes also show the kinds of shifts that are beginning to take place in teachers' own longer-term thinking and professional outlooks. A further interesting feature of this development is that it is accompanied by a regular sharing of ideas among teachers, which brings us to the next issue.

(5). Insulation and isolation of teachers

Where professional matters are concerned, teachers in Ireland's post-primary schools are largely insulated and isolated from their professional colleagues. (Ireland fares particularly poorly here compared to other OECD countries: OECD 2004, Table D4.3). Teachers' relations with one another, and with Principal, Deputy Principal and even school authorities, are often informal, but rarely enough have these relations been informed in decisive ways by ideas of active professional collaboration on teaching and learning issues, or by practices of self-evaluation and peer review. Our early experience with the project's participants highlighted the pervasiveness of this insulation and isolation. The initial reluctance by some teachers to become involved as participants sprang, in part at least, from a sense of protectionism, or false security, associated with the idea that one's practices in the classroom are not open for discussion with one's colleagues.

A major benefit of the project's workshops and seminars is that they have enabled teachers themselves to see this insulation and isolation as a disabling feature of their professional lives and to acknowledge that it can imprison both teaching and learning in their classrooms. Some of the project's most interesting work lies in this area. A sense of emancipation and new energy can be gathered from typical comments such as the following, again made by participants in Spring 2005.

> The workshops give us an opportunity to share the problems we have and to seek solutions with other teachers in a constructive learning environment (Spring Newsletter 2005, p.4)

> I must say that I draw great satisfaction and benefit from our workshops on teaching Irish. I always come home with new ideas following exchanges with fellow-teachers. (Spring Newsletter 2005, p.10)

> The workshops give committed educationalists the opportunity for discussion and sharing of ideas in an upbeat, positive manner. The students can only benefit. (Spring Newsletter 2005, p.6)

At present some of the workshops are held during a portion of the school day and others are held in the evening. The fruits of the workshops are evident in comments like those just quoted, but the fact remains that such workshops are seen as something different from what teachers normally do. What this

highlights is that interactive workshops for continuing professional development should properly be regarded as part of teachers' normal work, not as experimental experiences for a minority of teachers. To accomplish such an outcome on a wide scale will of course require important shifts in national policy and practice. We are hopeful that the project's continuing achievements, and its ongoing yield of research findings in this area, will substantially contribute to bringing about such shifts.

(6). Misconceptions about students' understanding of themselves as learners

Students in our post-primary schools all too rarely take an active and responsible hand in their own learning. This is not to say that the students don't work. Some work very hard, but often bypass the real and enduring benefits of their studies as they become absorbed in a national preoccupation with extrinsic inducements, rewards and prizes. Significantly, many teachers share the students' misconceptions about what counts as beneficial learning, but few feel their own actions can bring about any significant changes, or even identify in proper measure the difficulties they face.

The real concerns to be tackled under this heading lie deeply ingrained in accepted custom and routine in the schools and are only slowly becoming explicit. But they *are* becoming explicit. Fundamentally, what is at issue is a questioning of the nature of the relationship between student, teacher and the subject being taught. But this is a questioning that is not confined to purposes of critique. It reaches beyond critique to envisage forms of practice that are more defensible on ethical grounds and more promising on educational grounds. To pursue this questioning involves an "unlearning" of taken-for-granted practices that were essentially teacher-centred, imperceptive and very largely hierarchical. Accordingly, the TL21 project to date has been carefully laying the ground to encourage both teachers and students to rethink their everyday attitudes and actions. Some of the comments reported in paragraphs 4 and 5 above show how teachers' conceptions of their students' learning have begun to change. There is some early evidence of changes among students, though we are planning to gather such evidence in a major way in the next stages of the project's work. Our aim-in-view is to make acceptable *as normal practice* new ways of understanding and practising in teaching and learning, so that students come to have a more active and responsible involvement in their own learning and so that teachers become more accomplished in promoting this. While progress towards this aim holds promise for all teachers and students, it is particularly significant for students who are generally seen as reluctant learners, or who are placed at a disadvantage by many of the inherited practices of second-level schooling.

(7) Time as a resource.

As readers will already have gathered from the previous paragraphs, the time question is a continuing constraint with which we have to deal. We were conscious from the start that it would be, and in our discussions with the various national agencies during the planning stages of the project we gave it careful consideration. A difficult problem that confronts us here is the traditional assumption that a

teacher's time-in-school is solely for the purpose of being in the classroom teaching the students. Teachers' contracts of employment and weekly timetables are largely drawn-up on the basis of this assumption. Current conditions of employment state that the maximum time for scheduled teaching by teachers is 22 hours per week, though it is clearly that case that teachers' actual working week greatly exceeds this, and in very many cases exceeds the European average of 38½ hours. Because of the 22 hours issue however, to suggest that some time should be *scheduled* to provide opportunities for planning and review activities by teachers is to suggest something that is seen as an "add-on" to an already full weekly schedule. But the fact remains that a programme of continuing professional development will necessarily involve *some* time commitment from practitioners. In scheduling the project's workshops and seminars then, we had to try to balance the various conflicting pressures in order to find a model that was as teacher-friendly as possible. In this difficult task we believe we have succeeded partially, even reasonably well. There were still some ongoing concerns about the timing of the workshops however at the end of the 2003-04 school year. In response to these concerns we did some restructuring for the school year 2004-05. One series of evening workshops was discontinued, with more emphasis shifting to tasks-in-progress in one's school in the intervals between the workshops. We continue to monitor the effects of this change.

There are two lessons to be learned here, one a short-term lesson and the other a lesson for the longer term. For the short term, as cooperating participants in the project we have to think imaginatively and see how far ingenuity in the use of currently available time-in-school will get us. Such ingenuity can include, for example, things like occasionally taking five minutes off the end of each class during the school day to enable forty minutes or so to be made available at the end of the day for meetings. Adroit use of the supervision and substitution scheme has also made available some valuable time. But despite the minimum disruption such measures might cause, they are essentially improvised solutions and are ultimately unsatisfactory. The longer term lesson is that if teachers' professional time in the 21st century is to be distributed between time for teaching and for a range of professional activities with colleagues – including planning, reviewing, sharing critical perspectives etc. – then a clear acknowledgement of this has to be part of the professional mentality of teaching itself. This means that provision for such a range of professional activities has to be made in the school timetable and calendar, as it is in more than a few European countries already. The inescapable conclusion is that teachers' conditions of employment for the 21st century must be re-conceived to reflect the varied nature of teachers' professional work in the communicative environments of the present and the future.

(8) Accreditation and the fruits of research

The TL21 project is essentially a professional development initiative as distinct from a university course of study. For interested participants however, accreditation is an option, as it is increasingly coming to be in professional development programmes in many careers. In our own case the university has approved new pathways toward a Higher Diploma in Innovative Teaching and Learning and, for those

who are interested in pursuing accreditation in greater depth, toward an M.Ed. in Innovative Teaching and learning. A distinctive feature here is that the research carried out for the Higher Diploma or Masters is *action research*, namely research on one's own practice and on the practices in one's own school. Equally important is the necessity for that research to reach beyond the purposes of critique. A particular emphasis is therefore being given in the teachers' research activities to engaging in new forms practice and to appraising the merits of such new forms, as experienced in the schools where they have been tried out. In the project's publication programme, many case studies and critical accounts of these new forms of practice will be made available in a range of formats: written reports, articles in journals, edited collections, illustrative resource materials, CDs and DVDs. Some of these materials have already been prepared and were on display at the Exhibition that accompanied the May 2005 the project's conference and seminar in NUI Maynooth in May 2005. (See later sections of this report)

The audience for the fruits of the project's research dimension is not confined to the educational research community in universities. From what has been said in the opening paragraphs above, it will be clear that this audience includes the teaching profession itself and, crucially, policy-makers at many levels, from school leaderships to the Government Department of Education and Science.

Some emerging lessons and insights with implications for policy

1. Continuing professional development for the enhancement of teaching and learning must come to be seen as a normal aspect of the teacher's work in the 21st century, as distinct from being seen as an "add-on" to be engaged in by relatively small numbers of teachers. This issue, like most of the others below, has important implications (a) for how time-in school is best availed of and utilised and (b) for how the teacher's *range* of professional activities is henceforth to be conceived and organised.

2. In order to be properly successful, provision for continuing professional development needs to be built into each teacher's schedule/calendar of activities for the school year. It is clear that such provision is most promising (a) where it is organised in a workshop format and (b) where it allows for and encourages well-focused, reflective discussion between teachers on teaching and learning issues.

3. It is important to acknowledge the distinction between developmental initiatives that need to be *facilitated* by the school leadership and initiatives that need to be *actively led* by the school leadership. The TL21 project, and those professional development initiatives that are aimed at enhancing the quality of teaching and learning, are of the *latter* kind. (The international research literature shows a strong consensus on the crucial import of the school's leadership in advancing teachers' professional development)

4. There is a strong burden of administration on school Principals and Deputies, but there is also a strong *culture* of administration inherited with Principalship and Deputy Principalship. In seeking to tackle some of the less favourable consequences of this the TL21 project has been encouraging efforts, within existing constraints in the schools, to find new opportunities that allow fresh thinking on teaching and learning, and new practices, to emerge and grow.

5. Some school Principals and Deputies have been searching for ingenious ways to find such opportunities to promote new discussion about teaching and learning and new practices of teaching and learning in their schools. They emphasise however that many things hinder this – from existing timetable demands to existing transport arrangements for the students.

6. Participating teachers are very largely happy with the project's workshops – sharing of ideas, gaining new approaches and resource for teaching. Some are delighted to implement these new approaches. Where exam classes are concerned however, there are some deeply-held concerns that using active learning methodologies will cause loss of teaching time and incomplete coverage of the prescribed course. The emphasis in some of the public examinations is still seen to lie more heavily on coverage of a large amount of content than on enabling students to become active and capable learners in the subject.

7. Participating Principals and Deputy Principals are largely satisfied with their involvement in the project**:** how it has benefited their own professional work as school leaders, how it has benefited the work of participating teachers, and how in some instances it has begun to enhance the practices and learning environment of the school more widely. They are keen to have more teachers in their schools involved in the project but are also concerned to avoid serious disruption to the running of the school. This might mean a greater element of school-based activities in the second half of the project's work, although out-of-school workshops for teachers in the three clusters will also continue for the for the foreseeable future.

8. The practice of pairing participants as critical friends has produced many benefits, but it is difficult to carry out on a regular basis. We will continue to urge the school leaders to make scheduled time available for it, but in the longer term a more time-friendly way must be found to promote this kind of professional discourse, and to include it as a normal feature of the school's daily and weekly work.

9. The planning of school staff-days – including days for addressing teaching and learning issues – has traditionally tended to be on the basis of one-off events. We feel that this is not a particularly

effective model for professional development and have been encouraging a more continual approach. Such an approach needs to have developmental goals and expectations built into it. It must be linked into school development planning in an ongoing way and scheduled time needs to be made available for it if goals and expectations are to be met. Again, the existing constraints on time-in-school are a central issue here.

Conclusion

As the project moves to its two final years, tackling the issues above will feature prominently in our efforts. We will seeking to extend the reach and scope of development activities in each of the participating schools, thus helping to create opportunities for participating teachers to take more specific leadership roles in working with colleagues to enhance each school's learning environments. Building on achievements to date, we hope to work in closer co-operation with many of the national agencies in education, including the School Development Planning Initiative, the Inspectorate of the DES, the SLSS, the NCCA, the NCTE, the Teaching Council, the National Association of Principals and Deputy Principals, Leadership Development for Schools, the teachers' unions, the managerial bodies. In this way we hope to contribute significantly to emergent forms of practice that are illuminated by relevant and practical research that is rooted in Irish circumstances and conditions. Where national policy issues are concerned, our aspiration would be to make significant contributions to a research-informed capacity and shared sense of professional purpose. The project's links to international research activity in education will also continue to be actively advanced. In addition to providing a valuable context for reviewing emergent findings, these links should furnish rich comparative insights for those following the project's accreditation pathways.

Pádraig Hogan and members of TL21 project team
NUI Maynooth
September 2005

English

Introduction

In total there are twenty-nine teachers of English currently involved in the project. This comprises nine teachers in Dublin, nine in Maynooth and eleven in the Midlands. The profile of participants is varied. Twenty-five of the twenty-nine are female although there is a more even distribution in terms of their teaching experience. Over forty-two percent of teacher participants have in excess of eleven years teaching experience with over twenty-eight percent teaching in excess of sixteen years. Due to the long-term commitment requirement for involvement in this project there are no part-time participants. Over three-quarters of all teachers are permanent while another fourteen percent are employed in a Temporary Wholetime capacity.

1. Participants' Views: their reasons for involvement

The majority of teachers identify reasons of continuing professional development and the obtaining of new ideas as their principal motivations for participating in the project. Teachers speak of the attraction of "pooling" resources and "learning new things" and most clearly feel their involvement in the project is paying positive dividends for their students. Signs are that students are encouraged to take more responsibility for their learning. The following table elucidates, for the schools in the project's three regions, the initial motivations behind teacher involvement.

	C1	C2	C3	Total
I am looking for ideas in my teaching	8	8	6	22
For reasons of professional development	8	6	5	19
It is part of our school culture – the history of research/development work is well established in my school	-	1	-	1
I was asked	3	2	3	8
A progression – I believe you learn more from your own research than any other	4	-	4	8
An opportunity not to be missed	1	2	3	6
It will be good for my students	6	5	5	16
I felt obliged to do it	-	1	-	1
I feel I have a lot of good ideas that I can share with others	-	2	2	4
I was interested in what this project was about	2	3	5	10
I was encouraged by the visit of the TL21 members who came to our school	1	5	2	8
Principal asked me	3	2	1	6
Don't know	-	-	-	-
It will be good for my career – my CV	2	4	2	8

C1 = Midlands Cluster; C2 = Maynooth & District; C3 = Dublin   *N = 29*

2. Significant Developments and Benefits to Date

Breaking down isolation and insulation

Conversations with teachers show there have been significant gains/benefits made for them in relation to involvement in this project. One of the key aims of the TL21 project is to challenge the traditional culture of isolation and insulation of teachers and build professional learning communities both within and between schools. There are very positive signs that this is taking place. Teachers say since joining the project that they are actively talking about and sharing resources and methodologies with their fellow subject teachers.   One teacher declared:

> The benefits of TL21 are many. By far the most tangible benefit is the opportunity to exchange ideas and engage in discussion with colleagues from another school. It is this exchanging of ideas that then leaves one with a renewed enthusiasm for one's day to day experience in the classroom.
> (Teacher from Midlands School)

Another states:

> I have become even more focused in my subject area. It has been very interesting sharing perspectives with other professionals (I'm feeling less isolated) – the subject workshops generated lots of new ideas.
> (Teacher from Midlands School)

Jane Heaney, Gemma Fitzsimmons and Jackie Dempsey discuss pedagogic practice at a Dublin Workshop

Inside schools the operational landscape is also changing, somewhat slowly but all the time gaining apace. Prior to involvement with the TL21 project, teachers by and large acknowledge that their in-school conversations around pedagogical issues were informal, infrequent, mostly unstructured and rarely enough informed by ideas of active professional collaboration on teaching and learning issues. Such findings were not surprising and indeed to be expected, considering the art of teaching is, considered according to Bruce Joyce, the second most private professional act. In addressing this, many teachers find the "critical friend" structure to be most useful in encouraging these conversations. One teacher stated:

> I have especially enjoyed the "critical friend" discussion within the school. Our discussions
> yielded very good ideas from us both and our students have really benefited from a more
> focused and innovative approach.
> (Teacher from Maynooth & District School)

Another added:

> English teachers in my school share ideas more. Teachers tend to approach me to ask for ideas
> as they know I am involved in the TL21 project. They are also more willing to offer me their
> own ideas.
> (Teacher from Maynooth & District School)

These conversations have also been taken up with Principals and Deputy Principals. Previously, conversations between teachers and senior management around teaching and learning were infrequent, if not rare, and many have now taken these conversations up with great energy. Teachers from differing schools are also contacting each other to chase up clarification on ideas exchanged at workshops and also to develop joint resources for presentation at workshops. This they say has been a major benefit of the project and shows a growing confidence with a process that is very often not part of a teacher's inherited cultural practices. To further and assist in these new forms of professional discourse we have recently set teachers up on their very own Virtual Learning website. This is a discussion forum where they can dialogue and share information over a secure web network. It's in its infancy but the signs are very promising at this stage.

Teachers as authors of their own work

Teachers feel the process of engaging in classroom research has helped them to:

- Become even more reflective in their teaching
- Gain insight into factors influencing engagement with learning
- Further improve their working relationship with students.

One teacher acknowledges that she has a:

> ...decreased dependency on conventional notes/methods and greater dependency on personal
> response and interactive learning.
> (Teacher from Midlands School)

Another adds:

> I feel I have become an actively reflective teacher rather an 'on the run, that went ok' teacher.
> (Teacher from Maynooth & District School)

McLaughlin and Talbert (1995) found that teachers' participation in a professional community of like-minded colleagues had a powerful effect on their work in the classroom. Signs are that this is certainly happening and teachers are beginning to realise the dividends from keeping such incremental contemplations. The following two comments are representative:

I feel already that my classroom practice has improved.
(Teacher from Dublin School)

The greatest benefit for me from the TL21 project is the stimulation the sessions have provided. This gives you new perspectives on teaching methods, stimulates ideas and offshoots from ideas. It has also helped me be more adventurous in my teaching. I try new things … I think it's excellent and in fact necessary to continue to learn about new ideas in education.
(Teacher from Dublin School)

Other teachers spoke of how they feel more in control as a result of their critical engagement with their teaching. One such teacher stated:

I find that I now think about preparation more than I did previously. I am a better critic of my own work as a result.
(Teacher from Maynooth & District School)

Such sentiments are representative of more widespread benefits which teachers state they are gaining from involvement in the project.

Students taking more responsibility for the own learning

This was a key motivation for many teachers' decisions to join the project. A difficult one but progress has been made here. Moving forward here has meant a re-thinking by teachers and students alike, of concepts surrounding the student as learner. This re-thinking is encouraging teachers to consider the methodologies they use and ways in which they bring students more to the centre of the learning process. On this very point one teacher stated they are:

[More] critically aware, before jumping into an exercise I think / plan it out more. Try to cover all the bases, i.e. is my teaching meeting the needs of my students.
(Teacher from Midlands School)

Teachers in two schools tell interesting stories here. The first tells how a learning situation turned around for a difficult class group as a result of a suggestion generated at a TL21 workshop. To achieve this they had to break with long held school traditions:

I have had a very positive outcome from one class in particular. We had a big decision to make at the beginning of the year *vis-à-vis*, the play. I decided to break the school tradition and do a modern play set in Liverpool but re-adapt it to Dublin, for class purposes. This has increased the students' involvement hugely and they took responsibility for a school production in March, which led to rave reviews, and a great learning experience for them all.
(Teacher from Dublin School)

Another tells of how an apathetic, highly disruptive student group became more motivated:

For my own English students this project has been of great benefit, as I find that when I do classes with TL21 in mind I tend to be more innovative and this leads to students thinking that English is more interesting/fun …. They tend to work harder and get more out of class.
(Teacher from Dublin School)

In many instances teachers are telling of how student behaviour has dramatically improved as a result of adopting innovative teaching strategies in class. Our work here is showing some interesting signs that when students are engaged in learning – learning that actively devolves responsibility to them, then incidences of indiscipline are minimised, if not ruled out completely. This is a significant finding for the research, particularly in light of the current work which is being undertaken by the Task Force on Student Discipline. Two teachers spoke in encouraging terms about the results of using active teaching methodologies with "difficult" class groups.

> I think that my reluctance to use these techniques may stem from the probability that when these methodologies are used they may impact negatively on classroom management. I found this thinking to be erroneous … students were most enthusiastic and co-operative when using these techniques.
> (Teacher from Maynooth & District School)

> The dynamic experienced in the classroom was fantastic and it is interesting to note that I do not have one student from this class listed for any misdemeanour in my discipline journal.
> (Teacher from Midlands School)

Other teachers are telling similar stories. One tells how a weak first-year group has turned around over the past two years to the extent that some are now pursuing Honours level. Other instances include comments such as :

> Presenting topics in novel ways has increased students' enthusiasm and it challenges them to become active in their own learning.
> (Teacher from Midlands School)

> The exposure to ideas picked up from the other teachers and the facilitator has led to more variety in terms of class content which the students have commented on and enjoy.
> (Teacher from Midlands School)

Sarah Eastman making a presentation at a workshop

In summary, teachers have developed excellent resources that actively encourage students to work in more independent, highly devolved ways.

Feeling energised and affirmed by the research process

The workshops have, so far, been very favourably received. Teachers have spoken of feeling very "positive" and gaining "very valuable" and "relevant insights" into their day-to-day teaching. Resources are being built up and shared and this is encouraging teachers to question the very fundamentals and assumptions surrounding the way they teach topics. Teachers say they are feeling very energised by this work. Here are some representative examples:

> All my classes must be benefiting from a newly energised and more motivated teacher with new ideas and learning strategies. …Overall classes are more active.
> (Teacher from Midlands School)

> After ten years teaching I needed an energy boost and TL21 has provided me with that boost.
> (Teacher from Midlands School)

> The students have benefited from my increased enthusiasm. I would try group work more often and would spend more time thinking about how to make English as a subject, more interesting.
> (Teacher from Maynooth & District School)

> The whole experience has re-energised me. It has made me look at my teaching methodology and challenged me to look at other ways of presenting topics…The whole experience is like opening a Pandora's box as the possibilities are endless. You never know where it might lead you!
> (Teacher from Midlands School)

> I have found the workshops a great breath of fresh air out of the daily grind. To refresh and renew is good for anyone particularly the overstretched teacher.
> (Teacher from Dublin School*)*

Notwithstanding, the very positive feedback from teachers of English, the very nature of this work is evolutionary, dilemma-ridden and complex. Challenges and difficulties are to be expected, and indeed welcomed as opportunities for real learning. These challenges and difficulties can be set out as follows:

3. Challenges and Difficulties to Date

Structural issues

While things are improving all the time, some school structures are not set up to accommodate this type of work. There is a timetabling issue and this can and does hinder progress. For example some critical friends are not free at the same time to meet:

> There's the problem of finding time to meet my colleague as our timetables mean we are seldom free at the same time.
> (Teacher from Midlands School)

> I would like to have more time to talk with my critical friend. A slot on the timetable would
> have facilitated more discussion.
> (Teacher from Maynooth & District School)

Other teachers have identified the difficulty in getting time to meet as a subject department. They state:

> There is little or no opportunity to share with the English department in school. This is mainly
> a time constraint rather than an unwillingness to share TL21 experiences. Timetabling should
> include periods for subject meetings.
> (Teacher from Maynooth & District School)

Others still spoke of returning to school last September (the beginning of year two of the project) and discovering that their number of English classes had been cut. In one instance their number of classes had been cut to a minimum. Such incidences limits the amount of opportunities teachers have to engage with different aspects of their teaching.

Time

Time pressure and teachers' work overload emerged as the most commonly cited factor for low-level engagement or limited progress in research. It bears out Stenhouse's (1981) assertion that "the most serious impediment to the development of teachers as researchers – and indeed as artists in teaching – is quite simply shortage of time." One teacher's comment succinctly captures the general thinking here:

> The biggest difficulty is always time.
> *(Teacher from Dublin School)*

Notwithstanding this, as time has moved on teachers, and indeed schools, have by necessity had to become more discerning and creative in their use of time. They are beginning to:

- Raise some questions and not others
- Involve some individuals and not others
- Observe some practices and not others
- Analyse some features and not others
- Take certain action and not others

Decision-making, for some, is becoming key to how they are proceeding with their action research. Even so, careful monitoring will need to continue here to ensure that frustration doesn't set in and commitment gaps don't emerge.

Progress

The extent to which teachers are engaging in classroom research in the TL21 project varies within and across schools, although less so now than when we first began. Teachers are tending to work on one of a number of levels. There are those who are working very well; they are fully engaged, conducting analysis, meeting their critical friend. These are highly motivated individuals. Others are doing some very good work, especially at workshops. Work in between is somewhat inconsistent with certain moments of excellence and then a noticeable absence of it. There are multiple variables influencing this commitment gap: lack of time available, personal issues and difficulties, timetabling issues, personal expectations (e.g. not pursuing accreditation).

This variation among teachers can also be somewhat explained by the different set-ups in school structures and cultures, in addition to the differing levels of resources, communication, leadership and relationship systems which exist within schools. Such variances can mean that teachers, to use an analogy, are often not playing the same game, let alone playing on the same pitch. However, the very nature of this work acknowledges that we are not working in any linear, predetermined, rational system as the OECD report *Schools and Quality* (1989) points out:

> The pursuit of quality in education … is not an assembly-line process of mechanically increasing inputs and raising productivity.

Again, while acknowledging this reality it is important to carefully monitor such commitment gaps. Researchers from Huberman to Fullan, Senge to Hargreaves caution the need to bridge commitment gaps by ensuring the initiative remains grounded in what is personally relevant to the teachers. Teachers are highly unlikely to benefit from, and indeed to participate in the project (especially when there are time constraints) if it is perceived as personally irrelevant. To counter this, responsibility for deciding the format of each workshop this year was actively devolved to each and every teacher. The effect of this decision has ensured levels of motivation for the project's work have remained high. Workshop attendance levels have been a healthy ninety-four percent and new teachers are seeking to participate.

Whole school profile

In many schools the work of the TL21 project is accorded a high profile due very much to the fact that the Principal, Deputy Principal and teachers give it a high significance. Time is scheduled for meetings; Principals and Deputies check in and keep an eye to progress, listening to concerns and needs. Others don't and this contributes to increased levels of frustrations among participant teachers. One participant states:

> While senior management were very insistent we join the project I do not feel they have given
> the commitment to teachers in the trenches.
> (Teacher from Dublin School)

Teachers need to believe in the legitimacy, relevance and importance of what they are engaged in. Leithwood (1990) tells us it is the Principal who strongly influences the likelihood of cultural change within a school environment. Principals/Deputies need to continually display explicit support and stimulate whole-staff initiative in order to further legitimate the benefits and status of involvement in this project. There are some questions here that teachers are asking of their school's leadership.

Notwithstanding these challenges, which require prompt and sustained action, the project is beginning to yield real and significant benefits for teachers and schools. In summary, these include:

- *Moral support and affirmation in one's practice*

    DiMauro and Jacobs (1995) state:

    > Although all teachers are leaders within their classroom, there are few forums for
    > their leadership skills and expertise to be formally utilized outside of the classroom.
    > Instead, teachers most often work in isolation, demonstrating their expertise only to
    > their students.

    Teachers from differing schools are contacting each other to seek clarification on ideas exchanged at workshops and also to develop presentations/resources for presentation at workshops. This they say has been a major benefit and shows a growing confidence with a process that is very often not part of the teacher's inherited cultural practices.

- *Gaining and sharing of ideas and resources*

    Involvement in TL21 is encouraging teachers to adopt and contribute to a greater repertoire of innovative teaching strategies. Typical quotes include:

    > New ideas are very fruitful from meetings/workshops. They make me realise my
    > performance gap and broaden my teaching.
    > (Teacher from Midlands School)

    > The benefits of the TL21 project are many … through attending a session at TL21
    > one leaves armed with resources that can be immediately used in the classroom.
    > (Teacher from Midlands School)

- *Workload is experienced differently*

    While initially many teachers saw, quite understandably, that the project was an "add-on" now teachers are realising the incremental benefits of involvement in an active research

community. There are many signs that collaboration is working to reduce some of the burden and overload that teachers can experience.

- *Professional assertiveness*

  Collaboration is, as we have seen, encouraging a level of professional assertiveness where teachers are interacting more confidently with senior management on issues of teaching and learning. Prior to involvement with the project some teachers say their professional conversations with Principals around teaching and learning issues were infrequent, if not rare. There are real signs that this is changing and even Principals themselves say they are surprised by a level of contact which they never thought possible.

- *Increased capacity for reflection*

  Collaboration is increasing teachers' capacity for reflection. Teachers are encouraged through engagement in this active reflection to reformulate their pedagogic thinking more critically.

  > I'm also reflecting more on classes – considering what worked well and what didn't,
  > as well as the reasons why something did or didn't work.
  > (Teacher from Maynooth & District School)

- *The teacher's own continuing professional development*

  Involvement in a community of like-minded peers is increasing teachers' opportunities to learn from each other between classrooms, between departments and between schools. Darling Hammond (1995) captures the point well:

  > A powerful form of teacher learning comes from membership in professional communities that extend beyond classrooms.

  And Gary Sykes (1996) states:

  > An invaluable resource for teachers is a professional community that can serve as a
  > source of insight and wisdom about problems of practice.

Conclusion

Our work to date reveals that there are real benefits to be gained in encouraging teachers to get outside their classrooms, both within schools and outside their schools and to link in and network with what is going on. To learn from other teachers as well as contribute to them. It is this work, that is the sharing and peer learning, which our participants state they enjoy most of all and which they say the system least encourages. In continuing this work it will ultimately assist in building enduring relationships of learning. Notwithstanding, there is a continual need to keep building a sense of collegiality among participants and to ensure they become "at ease" with researching/discussing pedagogic practice in front

of mixed audiences. Getting to this point has, for many, taken considerable amounts of time, clarification, trust building and persuasion. This is understandable considering that the organisations in which we work are "designed for separate functioning, rather than collegial inquiry and support." (Joyce, B., Calhoun, E. & Hopkins, D. (1999). Teachers need time, coupled with pressure and support, to interpret their own meanings to the information they find.

Notwithstanding the challenges that these teachers face in conducting this work, considerable achievements have been made in a relatively short time frame. These achievements are a great testament to the work that these teachers have voluntarily put into the project. The level and quality of their participation is to be commended and it is a great tribute both to them as professionals and to their schools as supportive learning communities.

Anthony Malone

Gaeilge

Introduction

The project's experience to date has been an exciting and challenging time for participants who are teachers of Irish. This report begins with an account of the main activities in which the Irish language teacher participants were engaged. It then reviews the experiences of teachers and of learners, and the benefits gained by both. A brief overview of some of the constraints encountered by the participant teachers follows that. Finally the report ends with a summary and conclusion.

1. Main Activities

Workshops

The main pedagogical focus this year in the Irish language workshops was a communicative approach to the teaching of Irish with a particular emphasis on the **learner**. In order to get learners more involved in the learning process, teachers began the task of encouraging students to take more control and responsibility for their learning by sharing in the choices and decision making process. The advantages of having students plan, monitor and evaluate their own work were discussed at the workshops. Teachers were encouraged to make use of the ELP (European Language Portfolio), a Council of Europe initiative, designed by the CLCS in Trinity College. A combination of mixed-ability, higher level and foundation level student groups at Junior Certificate level were chosen by the teachers. Encouraging learners to be more autonomous was the primary aim. The workshops were vibrant events, with many contributions from participants themselves on a wide range of topics such as teaching film, prose and poetry for the Leaving Certificate. Teachers shared their experiences and resources with other participants.

The importance of the media in promoting the Irish language was the focus in the May '05 workshop. The guest speaker, Lisa Ní Choisdealbha, Oifigeach Gaeilge, from the Broadcasting Commission of Ireland (BCI), gave a very informative and practical presentation to the teachers. She encouraged them to work with local radio stations to create Irish language programmes. The BCI funds equipment to the schools to make these programmes and runs yearly competitions, such as "Réalt DJ". Encouraging and supporting teachers of Irish to enable them to create their own radio programmes will be an aim for the coming year. Making these programmes may help towards improving the attitudes and motivation of many disaffected Irish language students and will give them an opportunity to use the language in a fun and purposeful way.

Beyond the Classroom: Tráth na gCeist Competition

Irish language teachers from four schools in a suburban cluster of schools initiated and organised an inter-schools quiz competition for fifth year students. It was held in the host school, (Lucan Community College), on 26th April, 2005. Sixty-four students took part in the quiz and seven Irish

teachers attended the event. It was an enriching experience for the students who enjoyed the opportunity to talk Irish and to interact with other students from other schools at the *sos* (break). Video footage of the quiz shows students enjoying the experience. Teaching can be a lonely profession as Séamus Ó hAodha, in the poem, *An t-Oide*, reminds us: "*Uaigneach ceird an oide*". Activities such as an inter-schools' quiz can help break down the culture of isolation and insulation amongst teachers and can help to establish stronger collegial relationships amongst the teachers of Irish both inside and outside of their respective schools. Events like this can help in the development of a local network of professional Irish language teachers. It is intended that another cluster of schools, either in the city or in the country, will run a quiz this coming year while the suburban cluster of schools will organize another inter-schools competition, such as a debate.

Exhibition of May 2005

The May exhibition in Maynooth displayed work done at the Irish language workshops and some of the work undertaken by the teachers of Irish in their classrooms. These works included a drama written for Junior Certificate students, "Biddyella", which is a skit on the fairytale Cinderella. Teachers presented their views and class preparation notes on how to teach prose and poetry. Guests attending the exhibition displayed an interest in the fact that many teachers of Irish were using of the European Language Portfolio (ELP) as a pedagogical and learning tool. Teachers of Irish were present at the exhibition to answer questions and they received very positive comments from viewers. Photographs of the presentation of prizes at the *Tráth na gCeist* competition in April 2005 and photographs of students and teachers in the classroom aided the visual presentation.

2. Experiences of Participant Teachers

Overview

Teachers are reporting many significant changes in the classroom dynamic as a result of focusing on learner autonomy. Teachers began to examine in a critically constructive way their roles as teachers in the classroom. Many tried out different approaches to teaching Irish and widened their pedagogical repertoires. There were reports of a diminishing reliance on the textbook and emancipation from autocratic teacher-centred style of teaching. Working on the principle of promoting learner autonomy has been challenging but worthwhile for many of the teachers on the project. This focus has been challenging because they have had to question the nature of the relationships between student and teacher and examine their teaching styles. Many teachers are moving further from a teacher-led pedagogical approach to a more learner-led approach. This is facilitating learner empowerment where students make decisions about their learning, set targets, choose activities, and produce materials for their dossier (portfolio). Teachers are learning, to varying degrees, how to implement a learner autonomy approach to teaching and learning Irish with success.

In widening their pedagogical repertoires and becoming more in touch with their own creativity participant teachers are gaining the courage to try our new active strategies and resources, thus strengthening their skills. Many report a boost in energy arising from this project. A teacher from a rural school states: "Tá níos mó fuinnimh, díograise agus beochta ionam féin mar mhúinteoir dá bharr." (I have more energy, diligence and vitality as a teacher as a result of my involvement in the project). Some teachers are realizing that they have a largely untapped capacity to embrace change. Others are a bit hesitant to let go inherited routines and traditions of the classroom and some are prisoners of habit and history. "I'm inclined to be a little bit set in my ways", admits one teacher from a rural school who was reluctant to try out the ELP (European Language Portfolio) and reluctant to have students work in pairs. Change is a complex and difficult process and some teachers are finding it difficult to make changes in their particular school setting. Conditions in some schools are not conducive to change. A challenge here is to bring about in an unforced way a change in the mind-sets of teachers. Continued encouragement and support are needed in the coming year for some teachers to become more comfortable with embracing change.

Reflective Practitioners

Teachers are encouraged, at workshops, at seminars and at visits by members of the TL21 team to the schools, to reflect regularly on their teaching practice and to make this reflection part of their normal, daily practice. Many teachers are becoming more reflective as practitioners, as evidenced from their portfolio work and monthly reflections. A significant majority of participant teachers have opportunities to reflect on their teaching with a critical friend on a weekly basis and some are fortunate to be able to share reflections with other professionals in their school also. Incremental shifts in outlook and practice are thus much in evidence on the part of most of the teachers of Irish. On the other hand, there has been movement and change in personnel in some schools, which has made this reflective practice with a critical friend very difficult for some teachers to sustain. Some teachers have been forced to "go it alone" and are reflecting in solitude.

Professional Development

The topics in the workshops are directly related to teachers' daily work in the classroom. The support system of workshops, visits to the schools by the TL21 facilitator for Irish and the meetings with critical friends are designed to meet teachers' own ongoing professional needs. One teacher describes, in written reflection, the benefits of having a critical friend:

> My critical friend was of enormous benefit and support. We shared ideas, criticized positively and made suggestions that were hugely beneficial. The feeling of support and encouragement acted as a motivating factor. My critical friend also shared resources, facilities, and knowledge which saved valuable preparation time.

As well as being focused on their professional needs, the support system offered by the TL21 project is perceived by the teachers as being particularly welcome now, now as subject organizations such as Comhar na Múinteoirí Gaeilge (the Irish Language Teachers' Association), are no longer in receipt of public funds and have had to curtail their activities.

A total of five Irish language teachers have to date chosen to pursue the project's accreditation track.

Using Irish as a medium of instruction and learning in the classroom

Opportunities to use and hear Irish outside the classroom can be very difficult for many students, and therefore the use of Irish inside the classroom is crucial in striving for language proficiency. One of the pedagogic goals this year was to increase the use of Irish as a teaching and learning medium in the classroom. This goal has been achieved by most participants. For example, one teacher in a rural school reported an increase of 15% in student talk in classroom interaction over a six month period. Others have commented that students are definitely speaking and using more Irish in the classroom.

The use of Authentic Materials

A communicative approach to teaching Irish, advocated in the Irish language syllabuses, emphasizes the need to use authentic materials to expose learners to a wide variety of language. There is strong evidence that a wide variety of authentic materials is being used in the classrooms of the project's teachers of Irish, for example, modern prose, poetry and novels. The Irish language station, TG4, is proving to be an invaluable font of information and a resource also. Programmes such "Ros na Rún", "Paisean Faisean", "Spongebob" (as Gaeilge!) "Hector" and "An Nuacht" (News) are some of the more popular TV programmes being used by teachers of Irish.

Some short films *as Gaeilge* from the Irish Film Board are also proving to be a useful pedagogical tool, for example the film entitled "Yu Ming is Ainm Dom". (This particular film is about a Chinese boy who learns Irish in China and when he visits Ireland he is surprised to learn that people do not speak Irish but English.). A newly qualified teacher in a suburban school was very positive about the benefits of using film as a resource: "I feel that the variety of activities and the use of video (the film " Fluent Dysphasia") has made the experience more enjoyable."

The frequent use of authentic materials in Irish language classrooms is a very positive sign because it brings pupils in contact with the living language and it also counters an over-reliance on the textbook. Teachers remind us that a lot of preparation is needed to make these authentic materials appropriate for classroom use. But when a teacher invests the time and designs appropriate tasks for the students, these resources can be used again and again with other class groups as well. A fine example of this is the use a recently qualified teacher in a rural school made of the programme "Paisean Faisean" to improve aural skills, to expose students to a wide vocabulary and to improve oral interaction skills.

3. Students' Experience of Learning Irish:

With the emphasis on a learner-centered approach to teaching and learning Irish, students being taught by the participating teachers are, on the whole, very positive about learning Irish. This is in stark contrast to recent research findings by Smyth, McCoy and Darmody (2004) that showed Irish as the least liked and the most difficult subject for first year students at second level.

Choice

Some students are allowed a choice of what to learn, or what homework to do, or what tasks to engage in. For example, a second year honours student from a rural school explains how they select suitable works of literature: "She (the teacher) gives us a choice. She might bring in five poems and we have to choose whatever one we prefer." This approach empowers students by giving them greater levels of responsibility in the process of learning Irish. Another teacher from a rural school has students setting their own homework. The consequences are revealing and encouraging:

> My students really liked the idea of setting their own homework. They took this responsibility very seriously. Nobody failed to complete any homework assignment assigned by their group. This also had a positive effect on their work as they felt more of a sense of ownership and value to it than homework imposed by me.

Self-Confidence

A rise in self-confidence has been cited by many students, especially in speaking Irish. "I am more confident this year. I can speak Irish much better now", reports a student from a suburban school. Fear of making mistakes or asking questions are not problems for a high percentage of students. For instance, only one class group out of seven class groups videoed to date showed a reluctance to talk or to ask questions in class.

Many students, with the help of their teachers, are producing their own videos of classroom activities such as sketches, plays and pair-work and they are very proud of this work. One student from a suburban school remarked about a video they produced in class: "That video was deadly". (Translated to Standard English as meaning "That video was super, brilliant, great!!!"). A teacher has also commented: "Confidence has increased as students feel more at ease and natural with oral presentations in class". One student from a suburban school remarked: "I am more confident in Irish. I feel that I can speak it better than I could. I'm after improving a lot in Irish this year."

Students are active participants in some Irish language classes with regular group work and pair work in evidence. Word games, bingo, projects, drama, and dialogues name but some of the activities occurring in classrooms. Students are enjoying the variety of teaching methodologies, strategies and activities. As one student explained: "If you're learning and you're having fun, you're going to learn it better."

Self-assessment and Peer-Assessment:

There is some evidence of self-assessment and peer-assessment occurring in the Irish language classrooms. Students are correcting their own work and each others' work, for example, their monologues about themselves, about school and about hobbies etc. Two teachers, one urban and one suburban teacher, cited that learners engage in group correction of essays in their classrooms, picking out the most common mistakes. The benefits of this type of activity are well documented elsewhere. A student may use a self-assessment grid to evaluate his/her proficiency, and can record this self-assessment in a Profile of Language Skills (five skills in all) page in the Language Passport component of the European Language Portfolio. Many teachers have their students using this grid.

Learner Choice

There is some reporting of learners choosing content, learning activities and homework For example, a teacher in a rural school allows second year honours students to choose from a selection of poems and prose and she comments that this works very well. Other classes are allowed choose classroom activities and homework. This is having a motivating influence on learners because they feel ownership of their learning as they're having some say into what, how and when topics are taught. A teacher from a suburban school explains how the students are more motivated: "I think that if they're involved in the process of what we're doing and how we're going to do it and what we're going to achieve at the end, there's more motivation there". There is little evidence in research studies of learners' *intrinsic* motivation to learn Irish and the extrinsic motivation of passing Irish to get into third level college or to get a job is now becoming less relevant. Giving learners a choice and responsibility may go some way towards addressing this problem of poor motivation to learn Irish.

Target Language Use

Teachers are reporting high levels of target language use in the classrooms. The highest reporting was 90%+ in an honours second year class and the lowest was 40% in a weak first year class. Video footage of some Irish language classrooms confirms that levels of target language use are high in comparison with other research studies, such as a study by Ní Thuathail (2003). These figures also compare favourably to what the Inspectors of Irish are reporting from Irish language classrooms.

Oral skills

Language production and interaction were the most frequently cited language skills improved in the school year 2004-2005, according to the Junior Certificate students interviewed. Many teachers have been focusing on these skills as they find that some students entering second level from primary schools have low competence in oral Irish skills. Teaching Irish as a living modern language is desirable and using Irish as the language of instruction and communication in the classroom is one

way of achieving this. A teacher from a rural school focused on student talk time with a first year group and wrote about the change in his portfolio: "Oral contribution by students accounts for 23% of my class interaction analysis now. This is a significant change from September when student talk accounted for 8% of classroom interaction". This is a positive development for this particular teacher. It is hoped that other teachers on the TL21 project will undertake classroom interaction analysis on a regular basis.

Independent Learners

Students in a suburban school are reporting that they are becoming more independent learners in Irish compared with their experiences in other subject areas. Setting goals, reflecting on how to learn a language, sharing in the decisions and initiatives in the language classroom and taking responsibility for one's learning are helping students to be independent learners. The meta-cognitive skills that these students are developing will carry them through to other areas of learning in the future.

4. Challenges to date:

Time

Time to meet with one's critical friend, time to plan active methodologies, time to reflect on one's own teaching are mentioned by teachers as challenges. Ways to meet these challenges are been looked at. Some school Principals are facilitating regular subject meetings and regular meetings with critical friends.

Class size

Class size appears to be a mitigating factor for teachers in deciding to have pair-work and group-work activities. Two teachers have class groups of over 30 second year honours students. A teacher from a rural school explains the problem: "You literally don't have room to move around." School principals and Deputy Principals will need to address this constraint.

Exam Pressures

Teachers are reluctant to experiment with new ideas and strategies with third year and sixth year examination classes. Our school system is exam-driven and teachers are under pressure to complete the examination syllabus. We have to convince teachers that active methodologies can achieve as good or better examination results. Initial evidence from this project suggests that the first year group who experienced a learner autonomy approach achieved particularly good grades in the end-of-year traditional-style examination in Irish.

Discipline

Another constraint on using active methodologies is that some teachers fear that students would be more talkative and "mess" if they worked in pairs or became more active participants in the learning process.. A student from a weak second year class in a suburban school concurs with this view: Asked if they would like to do pair work and group work, the student replied: "I'd say we'd end up messing though". A teacher from a rural school has a solution to the problem of inattentive students: "I feel a need at times to change students (seating arrangement) who do not work well together or who are not enthusiastic, as I am conscious of their negative influence on other learners." A teacher in a suburban school has commented that her weak first year class improved in discipline as they became more involved in the learning process.

5. Summary and Conclusion:

There ha**s** been strong evidence of progress made by many teachers of Irish on the TL21 project this year. Significant changes in teaching practices and in the quality of learning are in evidence from video footage, student interviews, teacher interviews and written reflections. Students are the best judges of the quality of learning taking place in the classroom and it is heartening to listen to the predominantly positive reports by so many students. Students are given the opportunity to become pro-active by taking responsibility for their own learning. Constraints on implementing best practice must however be worked on in the schools.

It is hoped that next year will bring a strengthening of the pedagogic practices and active methodologies mentioned above and the dissemination of good practice to other teachers of Irish in the schools. Our mantra for the coming year is "Bímis ag foghlaim óna chéile" (Let's learn from one another).

Bernadette de Róiste

Mathematics

Introduction

This report reviews the experiences of mathematics participants in the TL 21 project. It examines the benefits that students and teachers have gained from the project and then considers the challenges that lie ahead. The two areas that were identified by the participating teachers as those that posed the greatest difficulty to them were algebra and geometry. In order to meet teachers' needs these were the two main areas concentrated on in workshops for the academic year 2004/05. The advances made by individual teachers through their participation in the project are as varied as the needs these teachers brought with them to the project. From a questionnaire distributed to the 31 mathematics teachers in May 2005 (23 responded) the data collected suggests that they have become more progressive and innovative in their classroom practices, as indicated in the tables below. Table 1 and Table 2 indicate the percentage of teachers who used active learning methodologies in algebra and geometry prior to and since their involvement in TL21 workshops of 2004-05.

Table 1: *Prior* to your involvement in the TL21 project, how often did you use active learning methodologies in Junior Cycle Mathematics classes in algebra and geometry?

	Never	Almost Never	Some Lessons	Most Lessons	Every Lesson
Algebra	38.1%	33.3%	23.8%	4.8%	---
Geometry	28.6%	28.6%	33.3%	9.5%	---

Table 2: *Since* your involvement in the TL21 project, how often have you used active learning methodologies in Junior Cycle mathematics classes in algebra and geometry?

	Never	Almost Never	Some Lessons	Most Lessons	Every Lesson
Algebra	15.0%	15.0%	55.0%	15.0%	---
Geometry	10.5%	5.3%	57.9%	26.3%	---

Teachers' receive active learning methodologies and innovative ideas for their teaching from many varied sources. Data from the same questionnaire that provided data for Table 1 and Table 2 suggests that the TL21 project has been a considerable source. Table 3 illustrates in percentage figures the major and minor sources of respondents' ideas for active learning methodologies

Table 3: Indicate the sources of your active learning methodologies and the importance of the source in each case (Percentage totals drawn from the 23 individual responses):

	Major Source	Minor Source	Not a source
Your own ideas	80.0	20.0	---
Teacher in school days	20.0	30.0	50.0
Parents/ Family/ Friends	---	40.0	60.0
Initial teacher education course H. Dip in Ed.	10.0	40.0	50.0
Colleagues	35.0	55.0	10.0
D.E.S. Inservice course for Revised Junior Cert Syllabus	21.1	47.4	31.6
Reading/ Research	25.0	50.0	25.0
Websites	36.8	42.1	21.1
TL21 Workshops	95.0	5.0	---

The maths teachers participating in the TL21 project are becoming more aware of groups of students who might respond better to different teaching methods. There is a belief that there are substantial benefits for themselves and for students in using active learning methodologies. Increasingly, teachers have found that less of their teaching is now based solely on textbooks, with a growing confidence that they can go it alone in the classroom. Most of the maths participant teachers stated that they had never done geometry with students in first year, simply because the chapters on geometry were not included in the first half of the textbook. They realise increasingly now that the order in which topics are covered is up to the teacher's own professional judgement and not up to where the topics are placed in textbooks. Another development is that discussions with other mathematics teachers relating to teaching methodologies are more frequent now than they had been in the past. Table 4 shows a significant rise in the percentage of teachers now engaging in scheduled meetings with other mathematics teachers.
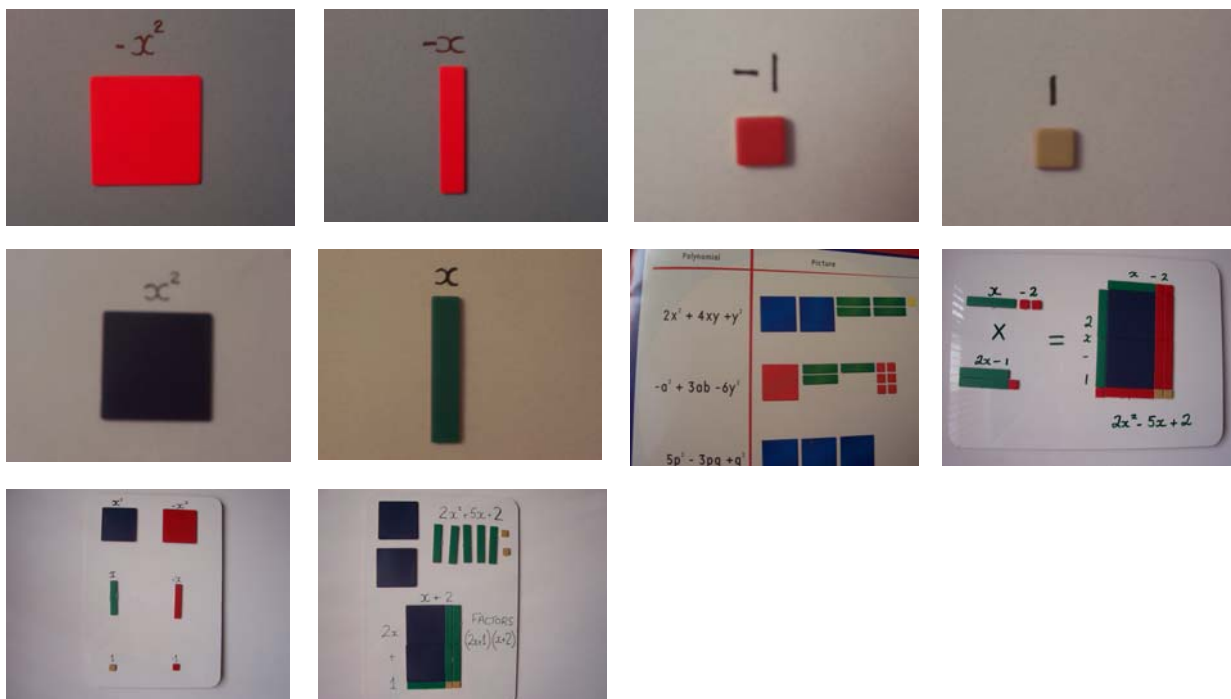
Table 4: How often did/do you engage in scheduled meetings with other mathematics teachers in the school?

	Never	Once or twice a year	Every other month	Once a month	Once a week
Prior to TL21	9.1%	81.8%	9.1%	---	---
Since TL 21	4.5%	40.9%	9.1%	40.9%	4.5%

Focus on Algebra

Algebra has traditionally been taught at the symbolic level in mathematics classrooms. To tackle the recurrent negative reactions of students to this traditional approach an active learning methodology

was introduced at the workshops, based on an innovative teaching aid called Algebra Tiles. One of the project's team members had previously used these in a preliminary way. Algebra Tiles introduce algebra at a very concrete level and can helpfully bridge the gap between the practical, or experiential on the one hand and the abstract on the other. The tiles have different shapes, sizes and colours and each gives a concrete representation to a specific term in algebra. For instance, each green narrow tile represents X. The same tile, but red in colour represents $-X$. Each large navy square tile represents X^2, but if it is coloured red it represents $-X^2$. Each small brown square tile represents 1, but if this kind of tile is coloured red it represents -1. (See illustrations below). The tiles can be arranged to give concrete representation of algebraic expressions and thus provide the student with the means of constructing a visual route to finding sums, products and factors.

Some of the participant maths teachers have used the algebra tiles approach and have realised it is a huge shift away from the more usual (and often more perplexing) ways of teaching algebra. One teacher with over forty years teaching experience who had been introduced to the algebra tiles at a workshop said "I had been shovelling algebra onto the board for years and here was an active learning methodology I could not wait to try out in my own school". After using the tiles with a second year class whom he had previously taught algebra to in first year in the traditional/procedural way he recorded the benefits for himself as a teacher as follows:

> My role as a teacher had been dominant using the traditional method of teaching algebra. With the tiles
> I found myself becoming more of a background figure, guiding and encouraging pupils and having
> more time to engage with individuals.

He also noticed three specific things about the students' learning:

- Good discipline permeated the group and was sustained for the duration of each lesson
- Students cooperated with each other to a degree that the teacher hadn't noticed before
- Middle of the road students started to outshine more highly rated classmates.

Below are quotes from the students who used the algebra tiles:

"I can do sums now that I couldn't do before. From now on I think that doing algebra will be much easier."

"Algebra looks very hard on the board and the tiles made it easy"

"I like using the tiles I think it is easy"

"I thought it was good fun using the tiles"

"Algebra on the board is much more confusing than doing it physically"

"I thought it was an enjoyable way of doing Maths, I would not have a clue if we did not use the tiles"

"I would find it very hard to figure out algebra if it were not for the tiles"

Another teacher who used the tiles with a second year mathematics class was equally enthusiastic in his comments. He too noticed specific things about how the students benefited from using the tiles:

- Weaker, less enthusiastic students became eager participants in class
- Students' success in modelling algebra with the tiles gave them a confidence they had been missing before
- Students behaved better
- Students retained their understanding of what they had learned using the tiles.

This teacher learned that group work, which he had only used infrequently in the past, became the norm when using the algebra tiles and found the experience to be a very positive one. Other teachers are finding likewise. From a variety of discussions with participating teachers they have described their approach to teaching algebra as "traditional". They had not been aware of alternative approaches. Many however have not yet moved to using the algebra tiles. The chief reasons for this include:

- the cost of the tiles
- doubts about whether they would they really make a difference
- concern that if the tiles didn't "work", a lot of classroom time would be wasted
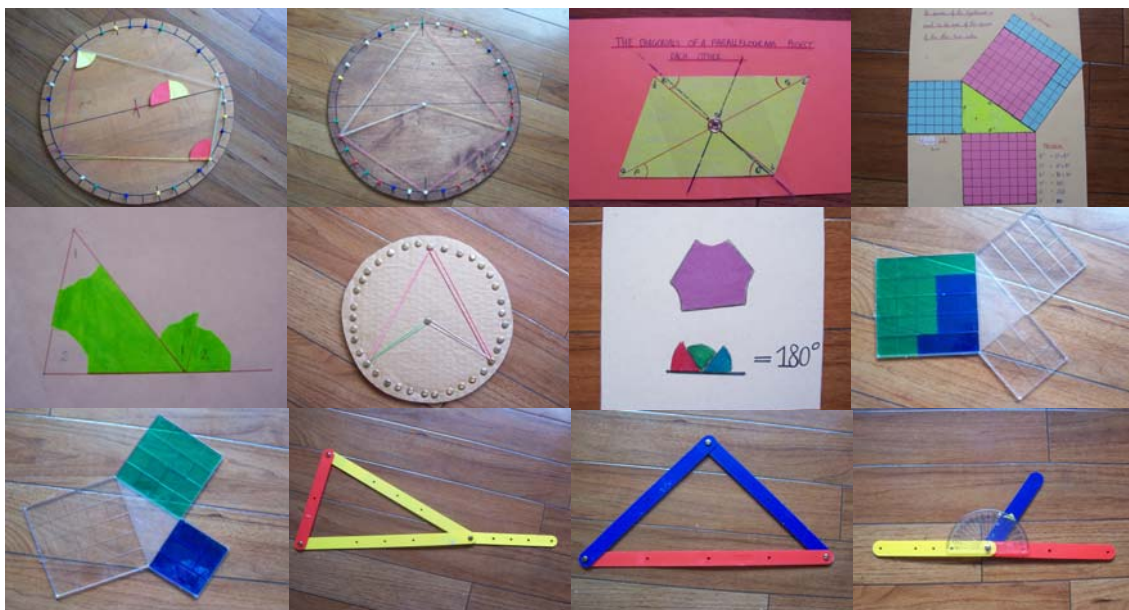
Focus on Geometry

The workshops throughout the year also encouraged active learning methodologies in the teaching of geometry and project work compiled by pupils in participating schools was exhibited at the May 2005 seminar in Maynooth. Photographs of these are also attached. This work was done primarily by first year pupils. Teachers had normally started to teach geometry in second year and the only reason given for this was the location of the geometry chapters in the textbooks. Data collected from a questionnaire completed by participating teachers in May 2005 shows in percentages the response from teachers to various statements about the benefits or otherwise of using such active learning methodologies.

Table 5: How beneficial have you found the use of active learning methodologies?

	Major Benefit	Minor Benefit	Not a benefit
Improves students' understanding	86.4	13.6	---
Improves students' application	85.0	15.0	---
Improves students' motivation	80.0	20.0	---
Improves students' attitude to maths	81.0	19.0	---
Enhances own enjoyment of teaching	71.4	28.6	---

Hitherto some teachers on the project thought that content knowledge was enough. Now there is an increasing appetite by the participating teachers to discuss pedagogical approaches.

Below are photographs of the students' project work and innovative resources being used by teachers for teaching and learning geometry that were part of the exhibit at the May 2005 seminar.

Some of the benefits students have gained from using project work in geometry are apparent from the following interview, which was conducted with a focus group of six pupils who had recently started the project work:

Interviewer: How did you find simultaneous equations when you were doing them?

Karen interrupts: We've moved onto geometry.

Interviewer: Oh, have you?

Karen: Just now, like, we've just started.

Jill: Yeah, we have, like last week we had to make for homework; we had to get a piece of cardboard and butterfly clips and make some angles.

*In*terviewer: What did you think of that?

Jill: Em, I thought it was quite fun

Interviewer: Do you all like doing that

All: Yeah.

Mary: Geometry was a bit of a turn off in Primary school. We had a maths teacher and he'd just tell you, he'd put examples on the board and say "that's how it's done", and then he'd give you loads and loads of questions and you'd have to do them. I didn't really like it that well and you wouldn't understand it at all.

Interviewer: And do you think making things for geometry will be better?

Mary: Yeah

Maura: Because you'll understand it, if you were in a test and if there was an angle on the page and what's that angle, you think back to when you made it yourself, and you just picture it and I find it that much easier. You can see what it is.

Interviewer: That's a fantastic way of putting it, you can picture it.

Mary: Yeah, we did simultaneous equations before that and I didn't understand them because, em, I just don't get algebra at all but now we've moved onto geometry and it's going to be the best thing so far because we're making things we get to keep and put it into folders.

These pupils, although only first years, are very insightful as to the benefits of being actively involved in geometry. They have pointed to a more positive attitude, a sense of ownership around their learning and enhanced understanding. One pupil made it clear that such learning outcomes were not achieved by her teacher in primary school who relied on exposition, examples and exercises.

Benefits reported by teachers

Benefits that participating teachers have gained from being involved in the project have been gathered by a variety of feedback routes and can be summarised as follows:

- meeting maths teachers from other schools at workshops, which are a valuable forum for sharing ideas; the teachers have found an endorsement of what they have been doing in their classrooms and feel affirmed and more confident.

- a new enjoyment from teaching, discovering the students benefiting from new strategies for teaching and learning

- improvement in class discipline

- improvement in students' motivation and understanding

- improvement in attitude and an engagement among students that they had not seen before.
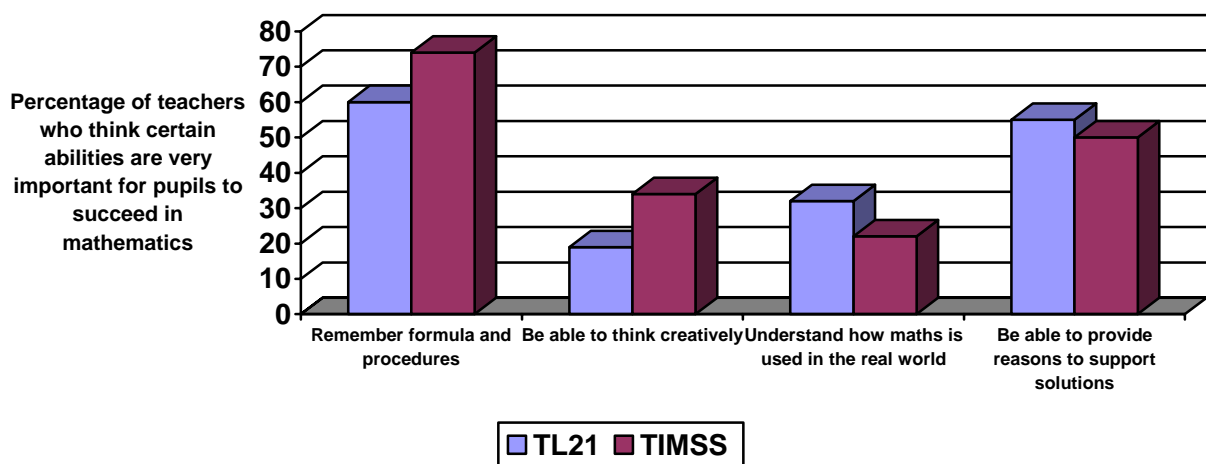
Challenges

Many challenges still lie ahead. Researchers such as Ernest have discovered that among the many key elements that influence the practice of mathematics teaching, three are most notable:

1. teachers' systems of beliefs
2. social context, particularly the constraints and opportunities it provides
3. teachers' level of reflection (Ernest, P. 1988 pp288-295)

1. *Teachers' beliefs:*

Bearing this in mind, Figure 1 below presents in percentages the responses of participating teachers to a questionnaire in May 2005 relating to various statements concerning particular abilities students need to be good at mathematics in school. The teachers were asked to rate their responses as very important, somewhat important, or not important. Figure 1 outlines the attitudes of teachers to the cognitive demands of mathematics. It documents in particular the skills that teachers regarded as "very important" for succeeding in mathematics. The views of the teachers participating in the TL21 project are compared with those teachers who participated in The Third International Maths and Science Study (TIMSS) 1994-95 (Beaton et al., 1996). The first column represents the responses from the teachers participating in the TL21 project and the second column represents the national results of the Irish mathematics teachers who participated in TIMSS.
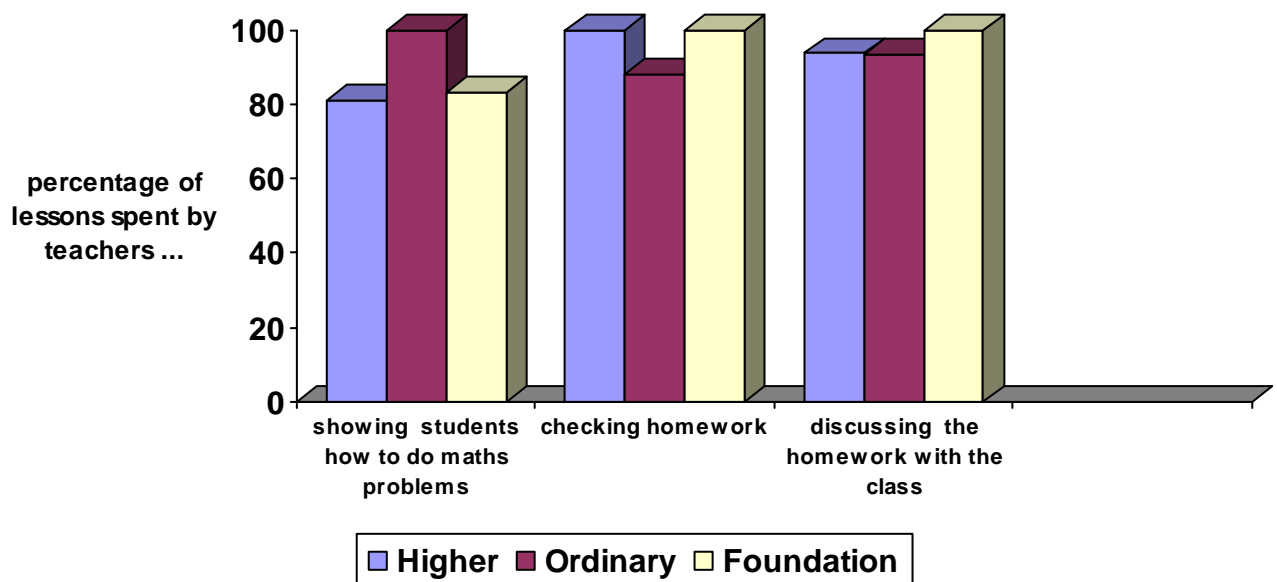
Figure 1: Percentage of mathematics teachers who think that particular abilities are very important for pupils' success in mathematics in school

In general there is a high level of congruence between the TL21 participant teachers' views on what is required for success in mathematics and the views of those surveyed in the national TIMSS study of 1994-95. In the international TIMSS study, Irish mathematics teachers generally rated lower-order abilities of remembering formulae and procedures more highly than higher-order abilities. Higher-order abilities such as providing reasons to support conclusions, thinking creatively and using mathematics in the real world were rated less highly by Irish teachers than teachers in many other countries. On the whole, the participant teachers also rated lower-order abilities higher than higher-order abilities.

Even though many of the participant teachers have acknowledged the benefits of using innovative practices in the classroom their view of mathematics seems to impact on their pedagogy. The pedagogy a teacher uses is dependent on a teacher's philosophy of mathematics (Thom, R. 1973 p204). Figure 2 below presents in percentages how frequently particular pedagogical styles are used in Junior Certificate Foundation, Ordinary and Higher level mathematics classes by the participant teachers. There is a strong indication that teachers are primarily concerned with showing pupils "how" to do sums and with correcting homework.

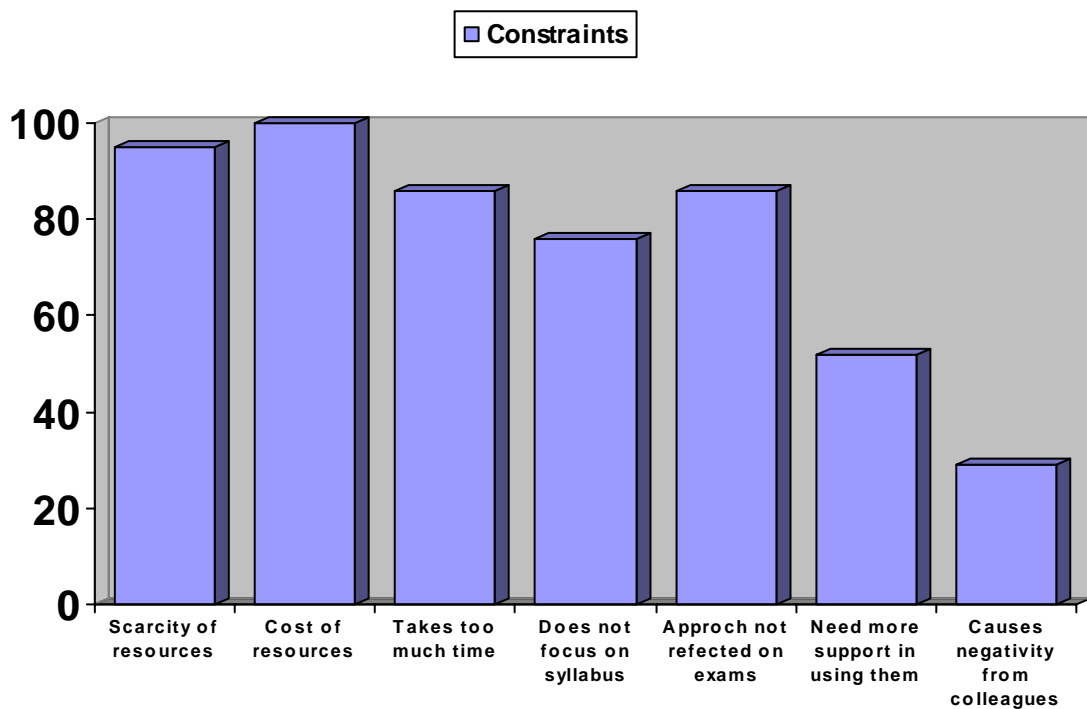**Figure 2:** How often does the following happen in your Junior Cycle mathematics class

Figures 1 and 2 indicate that the teachers still seem for some of their teaching time to be traditional in their attitudes and pedagogy. Significant here is the value placed on remembering formulae and procedures for students' success at learning school mathematics, and the influence this has on approaches to teaching mathematics in the classroom.

2. *Constraints*

Participating teachers identified many constraints as factors that hindered them from using active/innovative methodologies in their classrooms. Figure 3 illustrates in percentage figures the teachers' responses to a questionnaire distributed in May 2005.

Figure 3: Percentage of teachers who identified constraints/ difficulties as " factors" hindering teachers from using active/innovative methodologies

Scarcity and cost of resources are major constraints. The algebra tiles that teachers were introduced to at the workshops cost €175.40, which includes a classroom set for 30 students, an overhead set for the teacher and a 40 page booklet explaining how to use them. Other constraints identified by some teachers are: active learning methodologies don't focus on the syllabus and the approach is not reflected in the examination. The latter shows how some teachers teach to long-established perceptions of the examinations. Needing more support in using innovative resources and negativity from colleagues were also identified by some as constraints. The difficulty of negative feelings from colleagues can be a stimulus for change however. This was expanded upon by one of the participants. This teacher said that with the TL21 project he has begun to use active learning and innovative methodologies on a more regular basis. Other teachers are hearing about this from students and these teachers in turn are now asking him what he's doing. He doesn't know if they'll actually use the fresh

approaches but they are interested in finding out more about them. Prior to this year colleagues would laugh at alternative methodologies. He concluded maybe this was because they didn't know or understand anything about them. Another constraint that teachers have identified is the perceived idea that extra time is required in using innovative methodologies. Time spent using active learning methodologies often reduces the amount of time spent on revisiting topics. Time is mentioned as a problem over and over again; time and the scarcity of it.

3. *Reflection*

Ernests' third key element that influences the practice of mathematics teaching is teachers' level of reflection. To reflect requires time. For some teachers on the project, to document reflections is seen as a beneficial activity that provides them with insights into their own teaching and with the impetus to explore pedagogical changes in their classroom practices. For others the activity is too time-consuming, yet they are aware of its benefits. For others still, this activity is viewed with scepticism and a general uncertainty as to why one should bother engaging in such an activity.

Some emerging insights

1. Teachers as a body need to see that continuing professional development is part of their work, not just for the few "interested" ones or something you have to go to. It is crucial for the improvement of mathematics teaching and learning.

2. Teachers are very pleased with the mathematics workshops, but not all are using the methodologies they are introduced to for a variety of reasons – mainly money. In order for teachers to introduce the methodologies shown at workshops some funding needs to be made available to buy resources. Teachers also need to be supported and encouraged to make their own innovative resources and not be solely dependent on commercially available one.

3. Participating teachers have become more imaginative by and large in their teaching practices through involvement with the TL21 project. They can identify the benefits to be gained from using innovative practices in their classroom; yet for some practices remain quite traditional. There is however a strong inherited culture among teachers on how mathematics should be taught and to change this culture will take much time and effort.

4. Sustained support from the Department of Education and Science is needed by teachers in introducing practices within classrooms which are effective in enhancing the quality of teaching and learning in mathematics.

5. Many maths teachers are still placing a higher premium on lower-order skills such as remembering formulae and procedures, to the detriment of higher-order skills. This is associated

with the strong cultural belief systems teachers have about the nature of mathematical teaching and learning. The pervasive emphasis on the style of existing syllabuses and examination papers feed this culture.

6. Subject department meetings have customarily been taken up with discussions of textbooks and schemes of work for the year. Now however, many participant teachers have a new awareness and are actively engaging with their critical friends and others about teaching methodologies. Time will have to be built into the school calendar to formalise such meetings.

7. Reflections with one's critical friend have been beneficial for those who have engaged in the process. Time to meet for this purpose is a problem however and this is a serious issue for the future.

8. Feedback from students can have a beneficial influence on how teachers teach mathematics. By listening to reports of students' views on innovative methodologies used by teachers in the project, other teachers in participating schools have sharpened their interest.

Anne Brosnan

ICT

Introduction

Since the commencement of the ICT strand of the project in September 2004, a total of 89 teachers have become involved in this strand. These participants are increasingly integrating elements of ICT into their teaching practice across a wide variety of subjects. A very small number of teachers participating on this strand of the project teach one of the project's four original subjects – English, Irish, Maths and Science. The majority of participants are teaching subjects that represent the full range of options in the school curriculum. Subjects such as Art, Business Studies, French, German, History, Home Economics, Geography, Materials Technology (Wood), Religious Education and Spanish are represented. These subjects are being taught both in mainstream classes and also as part of other curricular programmes such as LCA, TY, CSPE and Learning Support. The numbers of participants in each school ranges from two to thirty five.

It has been customary in the main for ICT to be taught as a subject in itself in second level schools. Currently, schools are increasingly considering the wider use of ICT for teaching and learning as they reflect on their work in school development planning.

Over the last decade or so, second-level teachers in all subject areas had opportunities to attend national skills-based training programmes in ICT. These programmes were provided under the auspices of the National Centre for Technology in Education (NCTE). Teachers participating in TL21 are understood to already have had some training in basic ICT skills. The invitation to participate in TL21 is, therefore, first and foremost an invitation to teachers to explore their teaching practice. Such exploration is supported by an action research process. One of the principal purposes of such an action research orientation is to bring about considered developments in practice. In this strand of TL21, developments in practice are characterised by the inclusion and use in practice of self-selected elements of ICT. Teachers exercise their individual judgements as to what will best develop their practice in order to improve the quality of teaching and learning in their own contexts.

Teachers using ICT for teaching and learning.

Participants attend school-based professional development sessions that are facilitated by a member of the project team. The in-school location is chosen because teachers are familiar with existing levels of their own ICT resources. This familiarity is a good foundation for teachers to begin to solve problems on the ground that emerge as they come to terms with using the ICT facilities. In the initial phase at least, using the resources available in other high tech environments such as local Education Centres or NUI Maynooth, may have raised expectations that were subsequently unrealisable in practice.

These development sessions are conducted in a conversational manner that is both jargon-free and low-tech in its approach. The purpose of the sessions is twofold, to develop teacher confidence

and to facilitate professional dialogue among teachers in their own school environment. This is to ensure that pertinent issues of teaching and learning, rather than technology, are central. Participants are encouraged to reflect on their individual fears, reservations, enthusiasms, and collaboratively to support one another's general sense of readiness to include elements of ICT in their teaching. Throughout these sessions, teachers identify those educational priorities that might be best advanced through using elements of ICT in their own situations. Teachers have identified the following as being among significant educational priorities:

- to find ways to include those students who find "learning difficult" in conventional teaching settings (Language Teacher):
- to make teaching a "traditionally bookish subject" more interesting (History Teacher A):
- to break away from "chalk and talk" (Teacher of Business Studies):
- to introduce a "new voice" into the classroom (Science Teacher A):
- to encourage independent learning (Teachers of Irish, Maths, Business, Science and Home Economics):
- to develop "learning by experience" (Teachers in LCA):
- to develop "language skills in real settings" with a partner school (Language Teacher):
- to promote a culture of research among students (History Teacher B):
- to initiate class discussions on material (Biology Teacher):
- to help make difficult concepts easy (Teachers of Geography, Chemistry):
- to "enhance teaching" (Science Teacher B):
- to create "more professional class notes, handouts and exams" (Teachers of History and Science):
- to create banks of teaching and learning resources etc.

Teachers have used the Internet as the main research tool and a source of new materials rather than CDRoms or DVDs. There is a shortage of material that is specific to the need of the Irish curriculum in these formats. Students have been encouraged to use search engines to conduct open searches on the web for information on given topics. In other cases, the teachers nominate web sites for students to access. Teachers have found that students are learning more gainfully in situations where the purpose of the web search is clear, where the type of information required is well understood in advance and where the research is restricted to one or two sites. A teacher of history uses this approach to bring original sources such as newspaper reports and photographs to the students' attention so that they can see for themselves contemporary interpretations of the events being dealt with in class. This approach contrasts with the situation where students can be "tempted" off task if they are allowed to roam freely over the web to find "information" on a specific topic. Students have been encouraged to word process their projects resulting from these searches. In the

case of one teacher, a teacher of Home Economics, the result of work done on projects such as this is specifically for display in the HE room. This has a dual purpose: to boost learner confidence and to act as a resource and inspiration for other learners of the subject.

Interactive and animated web sites have been used with the Data Projector for whole class teaching. These sites have been found particularly valuable for explaining complicated scientific or geographical processes such as the structure of the DNA molecule, coastal erosion, and the movement of tectonic plates. Having used these animated, visually engaging sites, some teachers of science have found that in subsequent tests students showed a greater level of recall on such material.

In general, there has been very little use of PowerPoint as a means of presenting material for teaching and learning. One teacher reports using it "only occasionally". Another teacher in the same school reports using PowerPoint presentations in a very weak class to assist the students with revision in history. In this latter case it is the students who prepare the material and make the presentations under the teacher's guidance. Pairs of students are allotted a topic on the course. They then must convey all important information about that topic on a stipulated number of slides and present it to the rest of the class.

Interactive web sites have also been used to teach and learn German grammar. Learning in this instance is self-paced and dialogical. Students are grouped in pairs at individual terminals to encourage peer-coaching. In one disadvantaged single-sex school, language learning in Spanish has been promoted through the use of e-mail correspondence with a partner school. The teacher reports that the students are more concerned to "get it right" in this real live situation than they are with other more conventional pen and paper exercises. He also reports that that the desire to "get it right" on e-mail might also have something to do with the fact that the partner school is a single sex-school also: but of the *opposite* sex.

With the shortage of digital resources specific to the Irish curriculum, various strategies have been used to create personal teaching and learning resources. While a standard approach has been to use the word processor to create notes and handouts, a teacher of religious education cuts and pastes images from the web to create personalised worksheets for the students and visually interesting acetate transparencies for class presentations. One teacher has been active in creating her own digital resources for history. A digital camera was used to take photographs of historic sights while on a school tour. These images of the Middle Ages and Early Christian Ireland, with features such as Portcullis and Celtic Crosses, were subsequently transferred on to DVD and played during class when studying the topics. Downloaded medieval music was added to create a multimedia presentation. The photographs were printed out and displayed in class.

In general, individual teachers are finding creative ways in which their own practice is enhanced by the inclusion of elements of ICT for teaching and learning.

Benefits for Teachers

Teachers report that the project has enthused them to develop their practice in ways that would not have been an option before. One such comment will serve as an example. A teacher of Home Economics states:

> The project has given me confidence to use ICT in my subject: put the idea of using ICT into my head! (Teacher of Home Economics A)

Others speak of a growing sense of confidence in using ICT in their teaching and learning. Also, by having to reflect anew on teaching and learning in order to include ICT as an element of practice, some teachers report that they have become more aware of themselves as learners in the classroom. This learning includes a new awareness of the benefits of a change in approach and includes comments on:

- the development of renewed classroom energy – a break from the routine, using alternative/varied methodologies: some teachers speak about introducing a "different voice" into the classroom:
- seeing students in another light – seeing them collaborate with one another and develop their leadership skills: recognising how natural ICT is to them:
- improved student motivation:
- the development of collegiality – discussing teaching ones subject with colleagues, showing them new resources.

Below is a sample of such comments:

> It is another teaching strategy that is refreshing for me as well
> (Teacher of Irish)
>
> Using ICT proved to me how capable and responsible the students could be.
> (Teacher in LCA)
>
> Adds an extra dimension to maybe a boring section.
> (Teacher of History)
>
> I am learning myself what the benefits of learning with ICT are for the students.
> (Teacher of Science)
>
> Encourages me to think about alternative teaching methods and share these with subject colleagues.
> (Teacher of Geography)
>
> …more exciting. It is a practical way to see a place for the computer in my subject.
> (Teacher of languages)
>
> This represents a start…to help me improve to become innovative, a better teacher.
> (Teacher in TY)

It has motivated my particular students…it promoted a more interesting learning environment.
(Teacher of Business Studies)

As a research tool, it means that the students do the work rather than the teacher "spoon-feeding" them.
(Teacher of Home Economics B)

Challenges

None of the advances in practice have happened without meeting and attempting to overcome new challenges. Some of these challenges are personal, others reflect how ICT is positioned in the wider school organization and some are technological in nature. On the personal level, time is a particular issue when the pressing need to ensure coverage of fairly long courses for examination purposes is taken into account. Specifically, teachers report difficulty in finding time (a) to review teaching programme and practice to identify where an external resource might be helpful and (b) finding time to search the web for relevant resources. The school-based development sessions facilitated by the project team have gone some way towards providing school-time for teachers to reflect on their teaching programme in this regard. A teacher of Business Studies comments that:

(The project)…allowed me to focus on areas of my subject in which I could use ICT to enhance learning and to make the learning process easier and more exciting for my students.

Depending on the size of the school, banks of computers tend to be centralised in one or two rooms at most. As indicated earlier, the main emphasis for ICT is the development of basic skills. In a number of cases, large numbers of first year, second year and Transition Year students may have two or three timetabled sessions per week devoted to basic skills training. At the same time, the LCA programme is a task-based programme where the use of the computer is essential for a range of activities. This includes assessment. When the computer room is committed with such intensity on the timetable to these activities, it can leave very little time for teachers of other subjects to avail themselves of the facilities. Generally it is possible to book the computer room in advance on a central form. However, sometimes this official route can be bypassed by other colleagues in favour of "seizing the moment" on an impromptu basis. Teachers report that in the current conditions a considerable amount of advance planning would be necessary for them should they wish to regularly align their programme with the availability of the computer room: or *vice versa*.

The usual class period is about forty minutes. Teachers talk about the amount of *teaching time* that can be lost going to and coming from the computer room in these conditions. More teaching time is lost seating and settling the class and waiting to boot up. Not all machines may boot up: connecting to the web is not guaranteed. Currently some teachers on the project are working in schools where in

a computer room of thirty terminals, there is one machine with an Internet connection. A teacher of History comments:

> Not all the computers have Internet access; therefore that side of the project was extremely limited. As the teacher, I am extremely challenged in general re-computers! Anyway, finding the time to show students while I struggle to get the course covered…finding the computer room free? – Impossible!

Teaching in a class where the students are not sitting facing the teacher presents other challenges. Teachers mention the challenge of keeping the students focused on appropriate Internet sites. Teachers comment that this is a danger more so with the less motivated student. Teachers realise that the set-up of most computer rooms, where students are facing the screens with their backs to the centre of the room, calls for the development of new class-management skills to ensure good order for teaching and learning. Teachers recognise this as a new challenge. A teacher of Home Economics states:

> The big challenges are finding appropriate material: keeping less motivated on task: watching that other web sites are not in use! (other than those suggested by the teacher)

The situation regarding Internet access should improve, given the Government commitment to have every school connected to broadband before the end of 2005. Independently, schools are responding to the challenges posed by the trend towards increased use of ICT for general teaching and learning among their staff. In some cases, Boards of Management have provided funds for the installation of more computers. In others, grant monies are earmarked to renovate existing buildings and upgrade existing machines and facilities.

Benefits to students' learning

Teachers comment that over the course of the project, they have discovered the value of the visual in learning. Teachers of Science and History particularly comment on the value to the learner of *seeing* material to help them learn. Teachers of History comment:

> Students with poor literacy can grasp concepts by visualising exactly what was done and how – i.e. drawings by Cole displayed Victorian attitudes to the Irish. But the published version in the Illustrated London News was even more biased.

> Web resources in the subject can capture the students' imaginations. I find it especially beneficial for the weaker students.

A teacher of Science comments:

Animations are more powerful that words: good, clean diagrams.

Students are encouraged to use downloaded visual material for inclusion in their projects. These visually enhanced projects are for classroom display. Teachers report that this requirement to display the work is having positive results. The material is of a higher standard than if it were just collated and submitted to the teacher for private marking. Taking a broader more developmental view of education, teachers report that allowing students to find their own information over the net for instance has resulted in an increased level of self-esteem and confidence for some students. It allows them both to show "other" skills that they have and to develop them for learning. A teacher of Home Economics states:

> Since we have been using web searches, there has been more active involvement in the learning process. Students can sometimes correct their own work encouraging responsibility for own learning.

Teachers recognise the potential for the student to develop the skills of independent, self-directed learning, but are finding it difficult to engage the student in this form of learning. Even though the web allows access to wider and more varied sources of information, there is concern that if students are required to search the net independently for homework, only those students who have a computer with Internet access can participate. Teachers comment that there are issues of equality involved in this approach which need to be carefully examined. There is general agreement that the use of web resources for teaching and learning has had a beneficial effect on student motivation, and the development of interest in the work at hand.

The ICT Strand in Summary

- The project has been actively encouraging participants to discover and act on approaches to teaching and learning with ICT that take their own individual readiness and situations into account.

- Teachers are reporting increased levels of confidence in their use of ICT in their classes.

- Teachers have seen the benefits of working with ICT in the classroom. They report themselves renewed. The use of ICT has been a challenge to look at alternative ways of working with their subjects and classes.

- While recognising the benefits of students developing independent and self-directed learning capacities, the unequal access to Internet facilities outside the school inhibits teachers from setting tasks to develop this capacity.

- Teachers report increased levels of student involvement, interest and engagement with learning: this has been most evident in the case of students who do not conform to conventional-learner profiles.

- In the light of the imperative to "cover the course" for examination purposes, time to search for resources and to re-think teaching programmes has been cited as a significant obstacle to using ICT.

- In some cases organisational difficulties in the school such as timetabling and access to the computer facilities have been principal obstacles to furthering teaching and learning with ICT. In others, the condition of the terminals and lack of Internet access have been obstacles.

- Schools recognise the growing need to develop teaching and learning using ICT. There is a willingness to develop processes to facilitate this.

Alec MacAlister

Science

As in the other areas of the project, workshops for teachers of science got under way in January 2004. In these workshops the topics dealt with included: innovation in science education and strategies for promoting reflective practice. In November 2004, the Research and Development Officer for Science, Ms. Geraldine Mooney Simmie, left the project team to take up a post in another university. As it was not possible to second a teacher at this stage of the school year to the project team, an interim arrangement was made to enable the workshops for science teachers to continue. Three teachers with particular strengths in science education – Majella Dempsey, Michael Quane and Greg Smith – were recruited on a part-time basis to organise the science workshops for the remainder of the 2004-05 academic year for the schools in the project's three regions. These workshops were planned in a co-operative way by the three part-time project members and were highly interactive in character. Co-operative learning and concept mapping were among the topics that received particular attention in the workshops. Participating teachers in these workshops have spoken positively of their involvement and of gaining some welcome new ideas on science teaching. Typical comments include: "TL21 has made me think about my teaching"; "I have picked up many new ideas and strategies for use in the classroom",: "It has encouraged me to change my style of teaching, which is now more activity-based and less dependent on the textbook". Notwithstanding these gains, it was not possible however to provide the participating science teachers with the kind of on-going support between the workshops that was being provided in the other areas of the project's work.

In September 2005, Mr Greg Smith was appointed as a full-time member of the project team to replace the R & D Officer for Science. He has engaged in extensive consultations with teachers in the participating schools in recent weeks and, arising from these consultations, has set out a number of priorities for the science strand of the project for the school year 2005-06. These are closely linked to the project's milestones for the year and include:

- strengthening further the sharing of ideas in the workshops on best practice for science teaching;

- developing science modules for Transition Year;

- using these modules to explore and advance innovative developments in science education and to strengthen action research practices in the classroom;

- taking new ideas and approaches not only into to one's own practices, but also promoting such ideas with one's colleagues and through the ongoing work of subject departments;

- promoting a new awareness of continuing professional development for teachers as an ongoing and shared responsibility – between teachers themselves, school managements and official educational agencies.

Finally, during the second half of the project's term that still lies ahead, work in the science area will increasingly join with the themes in the other areas, with a view to enhancing further the quality of teaching and learning in a whole-school context.

Greg Smith and Pádraig Hogan

Responses from Principals and Deputy Principals to three questions put to them in May 2005

The three questions were:

1. What benefits have there been for yourself, professionally, as a result of your work with the TL 21 Project?

2. What benefits have there been for your school as a result of your work with the *TL 21* Project?

3. What challenges have you faced in advancing this professional development work?

The answers to the three questions are presented in turn below. Their responses have been transcribed and nothing further has been added.

1. What benefits have there been for yourself, professionally, as a result of your work with the TL 21 Project?

It has helped me to centralise my role in the school as a promoter of teaching and learning and has allowed me the opportunity to stand back from day-to-day role as "housekeeper". It has allowed me access to teachers and their work in an absolutely non-threatening way. It has helped me recognise the value of Principal and Deputy Principal conversations on the running of the school and its philosophy of education.
`Deputy Principal, Maynooth and District`

The TL21 project has given me the opportunity to network with school leaders from outside Dublin. It has also brought teaching and learning centre-stage in our school in a natural way – thus supporting my own role as "instructional leader".
`Principal, Dublin.`

I have found participation in the TL21 project enormously beneficial this year. The project helped me to focus on the essential tasks of the school: teaching and learning . . . and to prioritise what should be important in my role. I found the seminars informative and supportive, especially where colleagues from other schools shared their practices and policies.
`Deputy Principal, Midlands Region`

It has given me the opportunity to listen and take heed. I valued the input to the school by members of the project team – opening up of minds to other ways and solutions. . . . It has given me a greater awareness of the needs and the support of other colleagues.
`Principal, Maynooth and District`

The sharing of ideas in relation to teaching and learning, and the sharing of the challenges we encountered have been particularly helpful. TL21 has also provided a forum for me to meet with the Principal to discuss teaching and learning.

`Deputy Principal, Dublin`

The project gives a great opportunity to share perspectives with professional colleagues. We all need affirmation! Being involved in TL21 has made me more aware of the need for more curriculum development and planning as a pivot for my duties on a daily and weekly basis.

`Deputy Principal, Midlands Region`

I've been helped by coming in contact with fellow Deputy Principals: the exchange of ideas and practices has been very profitable. The group of schools has been quite varied . . . and this has been of benefit as well.

`Deputy Principal, Dublin`

It has given an opportunity to share ideas with our teachers on teaching and learning methodologies and to come up with suggestions on how innovation could be advanced. . . . It has given the Deputy Principal and myself the opportunity to share good practice as regards teaching and learning and to use our roles to advance this in the school through group discussions. The initiative has given me the opportunity to share good practice with other Principals and Deputy Principals.

`Principal, Midlands Region`

It has enabled me to interact with Principals and Deputy Principals from all sectors of second-level schools.   It has helped me to focus on issues of teaching and learning as they pertain to senior management and to get us "back on track" of instructional leadership, as opposed to more sideline issues.

`Deputy Principal, Midlands Region`

The benefits for me are the exchange of Ideas with other schools and the heightening of awareness of the importance of teamwork, especially in subject departments, in policy development and in whole-school planning.

`Deputy Principal, Maynooth and District Region`

It gave me an opportunity to reflect on "a day in the life" of a school Principal. It proved to me that school-based in-service is very worthwhile; that it can be accommodated in an on-going way with good-will on both sides. The outcome is rewarding and appreciated.

`Principal, Midlands Region`

It has made me more aware that much time has been going on activities that are not related to teaching and learning. It has also made me very much aware that as a school leader I must do all I can to facilitate teaching and learning, especially if behavioural issues are interfering with it.

`Deputy Principal, Maynooth and District Region`

It has given me the opportunity to engage in professional dialogue with my colleagues about the core business of the school: teaching and learning. I have had more discussions with my deputy about what constitutes teaching and learning. With my deputy, we selected two main themes and tried to work towards them. This is also in keeping with our school development planning process. TL21 and SDP worked well complementing each other.

`Principal, Dublin`

It has given me more involvement with the relevant departments and teachers in the school.

`Principal, Maynooth and District Region`

- It has helped me gain a sharper focus on teaching and Learning
- It has helped me to thing and plan more strategically than personally
- It has provided me with professional support and encouragement

`Principal, Maynooth and District Region`

The principal focus of any school must be learning. My involvement with the TL21 project has given me an opportunity to analyse how much time I spend on this aspect of school. It has given me an insight into ways of supporting learning in the school. Most of all it has challenged me to reflect on my own role and my contributions to learning in the school.

`Principal, Midlands Region`

- Personal reflection on my philosophy of school management & leadership
- Personal reflection on my practices of school management and leadership
- Sharing ideas with other school leaders
- Greater and more specific dialogue with subject teachers

`Principal, Maynooth and District Region`

- It has given me an increased awareness of the need to focus on teaching and learning in the school, and a practical way of implementing this.
- It has shown me the obvious and immediate advantages when teachers in subject departments work and share together.
- It has been a huge help in preparation for subject evaluations, even for Whole School Evaluation.

`Deputy Principal, Midlands Region`

2. What benefits have there been for your school as a result of your work with the *TL 21* Project?

There is evidence of TL21 thinking in classroom layouts and on walls and noticeboards and evidence of colleagues being innovative and experimental. It "rubs off" on other teaching staff. . . . Communication with teachers in other schools extends the pool of experience that staff can draw upon. . . . A number of our teachers have participated in the ICT module and I see this as a positive initiative

`Deputy Principal, Midlands region`

It allows teachers to become self-critical without beating themselves up over what they are "not" doing. ... It exposes our teachers to "strangers" who are also interested in talking about teaching and learning. ... It has reinforced staff in the knowledge that they are doing a good job.

`Deputy Principal, Maynooth and District Region`

Teachers of specific subjects have met together more frequently to discuss teaching and learning. ... There is greater experimentation in the classroom and greater collegiality in the school.

`Deputy Principal, Dublin`

Involvement in the project has made the staff prioritise teaching and learning in a time when there are so many other demands on teachers. . . . Our school has benefited from a staff seminar from the project team, which went down really well and was very practical.

`Deputy Principal, Midlands Region.`

The benefits for the school include better team work, better subject departments and new thinking among teachers.

`Deputy Principal Maynooth and District Region`

The project has given a clear focus to the participating subjects in particular and to all subject areas in general, where teaching and learning strategies are concerned. Feedback has been shared among all subject departments. A common approach to homework has come from participation in the TL21 initiative. ... It has given us an opportunity to focus on teaching and learning as part of School Development Planning.

`Principal, Midlands Region`

It has given us the opportunity to evaluate how our own school is run – also the opportunity to change. ... It has stressed for us the role and importance of teamwork, and has provided above all the chance to listen to others and to learn from their coping skills.

`Principal, Maynooth and District Region`

The participant teachers have given valuable feedback to their subject departments. The Principal and I have used the initiative to focus on aspects of our development plan This has led to an overall review and evaluation of the homework policy.

`Deputy Principal, Midlands Region.`

The teachers involved have been able to evaluate their teaching and the students' learning in a critically constructive way. I would hope that some of the new methodologies they have tried and enjoyed using can be shared with teachers in other departments. The use of ICT is something that a number of teachers are trying.

`Deputy Principal, Maynooth and District Region`

The teachers have found the exchange of ideas on teaching methods very beneficial and we intend to have this extended into our staff. This definitely contributes to improvement in teaching.

`Deputy Principal, Dublin`

The spread of good practice is tangible. The teachers directly involved in the TL21 project – even their classroom shapes have changed. They talk about their experiences and staff are listening more. The involvement of so many staff in the ICT element is very welcome. Staff development is seen as an ongoing phenomenon much more now.

`Deputy Principal, Midlands Region`

The school has benefited through the creation of an active learning community. Teachers have had enormous benefit by sharing best practice. They have grown in their role of "reflective practitioners". They have developed in confidence (for instance, leading workshops) and some are working on Masters programmes. Thank you, TL21.

`Principal, Dublin`

Benefits for our school have included:

- forming a group of teachers among the staff with a clear focus on the classroom and their practice;
- having a target group when we come to discuss teaching and learning – they have valuable insights.
- The ICT group formation was timely. The number involved has justified our investment in networking our school last year. The ICT dimension has invigorated them.

`Principal, Midlands Region`

Generally those involved are open to new concepts in teaching, and especially teaching the academic child. Discussion on teaching and learning is led by these teachers at meetings and informally in the staff room.

`Deputy Principal, Midlands Region`

Without a doubt it has contributed very significantly to teacher professional dialogue. The two teachers in each of the subject areas have worked very well together. It has given them a focus for discussion. It has also given them the support they may have needed to be innovative and to reflect on their practice. The ICT part of the project has been very successful in increasing awareness of, and opportunities for using ICT as a learning tool. I believe it will encourage more teachers to develop their skills in this area.

`Principal, Dublin`

The highlighting of teachers' own learning has been a benefit to the school. It is good to see different approaches to stimulating learning in classrooms taking place. It is good to hear discussions among teachers about different approaches to teaching and learning in the classrooms. Getting ideas from other schools was also of great benefit to the school.

`Principal, Midlands Region`

- Discussion on aspects of teaching and learning is now coming forward more naturally at staff meetings.
- Staff are becoming more open to contributing to the bigger picture of whole-school development.

`Principal, Maynooth & District Region`

- I found that talking to the teachers about their TL21 experiences was very useful, particularly as a teacher myself.
- When the ICT area is fully running, that will be a huge encouragement to the rest of us to be braver about that aspect of teaching and learning.

`Deputy Principal, Midlands Region`

- greater emphasis on teacher collaboration with colleagues
- staff meetings now more focused on issues of teaching and learning
- greater desire on part of teachers to develop new skills – pedagogical, ICT
- improvements in teaching methods on the part of participants
- more school money is being spent on classroom materials and teaching resources.

`Principal, Midlands Region`

3. What challenges have you faced in advancing this professional development work?

- Getting the time to meet with the staff
- Finding ways to expand the project within the school
- Moving towards the idea that initial training is only the starting point and that continuing professional development becomes an integral part of teachers' working lives, as with most other professions
  `Deputy Principal, Maynooth and District Region`

- Finding time to discuss with the teachers what they are doing
- Facilitating them "spreading the word" without leaving them open to teasing – good-natured or otherwise
  `Principal, Midlands Region`

- Providing a suitable timetable for the participating teachers: i.e. time off concurrently
- Finding a structured system for participants to report back to their colleagues – some are very shy about reporting back to the full staff
- Lack of finance to implement some very valuable suggestions (However I am reviewing ways and means)
  `Principal, Maynooth and District Region`

- Finding times for the departments to discuss ideas – some departments more cohesive than others
  `Principal, Maynooth & District Region`

- Time is the major challenge and my task next year will be to prioritise a place for TL21 in the timetable
- Broadening the scope of the project to include other subject areas.
- To motivate the more "mature"/"senior" teachers to get involved and update their skills – getting away from the mindset that says "sure I've only 4 or 5 years left", because this time is a student's entire second-level education
  `Deputy Principal, Midlands Region`

- Finding time
- Resistance to change among some colleagues
  `Deputy Principal, Maynooth and District Region`

- My own personal involvement causes me frustration from time to time, as it does not claim the amount of time it should! Other demands push it aside
- Trying to organise a staff session is proving difficult.

  `Principal, Midlands region`

- Time for meetings is the main challenge
- Traditions, syllabus length, expectations of parents (e.g. courses for exams finished on time etc.)

  `Deputy Principal, Dublin`

- Getting time to meet with the teachers involved is a major difficulty
- Time for teachers to meet with colleagues from their departments and other departments is also very difficult
- Upgrading of computer facilities needed

  `Deputy Principal, Maynooth and District Region`

- Time management: It's difficult to have regular time to reflect on teaching and learning. But the log is a helpful mechanism, as are the seminars, which force me to focus.
- To lead the participants actively is a challenge; the project is beginning to create opportunities where I can do that.

  `Deputy Principal, Midlands Region`

- Changes in staff
- Lack of teachers in one subject area to act as critical friend
- Changeover in Leadership

  `Principal, Dublin`

- Keeping teacher interest and facilitating meetings to allow necessary feedback and further planning
- Linking into Whole School Evaluation so as to advance the work of teaching and learning in each subject area
- The final term is tied up with orals and practicals, and finding time for group meetings is difficult, despite the fact that these have been set out at the commencement of the year.

  `Principal, Midlands Region`

- Time is a major difficulty. School already has many interruptions – Parent-teacher meetings, etc.
- The lack of staff continuity – we have a very transient staff with a high turnover of teachers.

  `Deputy Principal, Dublin`

- The challenge of availing of the TL21 project to further the recommendations made by a recent Whole School Evaluation in our school.
- The system of holding practical and oral exams during school time makes it almost impossible to find time for anything else during third term
- It is sometimes difficult to keep teachers to the meeting times that have been allocated at the beginning of the school year.

  `Deputy Principal, Midlands Region`

- The biggest challenge has been finding time to discuss the issues related to the project. This constraint applied to the Deputy and myself as well as other teachers. With regard to the Deputy and myself, I would say we have only limited success in achieving the aims we set ourselves.
- Finding time to work together is also one of the biggest challenges for teachers. We will try to facilitate them being free at the same time in 05-06
- Spreading and extending the dialogue beyond the two teachers in each subject area is still a challenge. Hopefully next year we will be able to do this and extend the ideas to other subject areas.
- Perhaps a school-based session, facilitated by some of the Maynooth project team would get us off to a good start next year.

  `Principal, Dublin`

- Encouraging teachers to stick with the project was challenging in one instance.
- Finding the time, as in all school activities, is a difficulty.
- In general, it was not overly difficult; on the contrary it was most enjoyable and stimulating.

  `Principal,Midlands Region`

- Finding time
- The challenge of engaging staff in reflective practice on whole-school development, as well as on development in one's own subject areas
- The inflexibility of a teacher's school day – any meeting after 3.45 pm is on a "grace and favour basis".

  `Principal, Maynooth & District region`

- The main difficulty is creating time to think, meet, discuss teaching and learning in an increasingly busy and more demanding school life.
- A second related difficulty is the fact that I rarely discuss teaching and learning issues with other school principals or with my management body.

  `Principal, Midlands Region`

- Time: to stop and think about what's going on
- Time: to talk to the teachers involved
- Time: to reflect on weekends away and what I have learned
- The project really is a challenge to see beyond the nitty gritty of everyday details and to see the bigger picture – to be open and flexible in an ever-developing educational world.

  `Deputy Principal, Midlands Region`

Members of the National Advisory Committee

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Bibliography:

Beaton, A.E., Mullis, V.S., Martin, M.O., Gonzalez, E.J., Kelly, D.L. and Smith, T.A. (1996), *Mathematics Achievement in the Middle-School Years: IEA's third International Math emetics and Science Study,* Boston

Coolahan, John   (1981)   *Irish Education: History and Structure* (Dublin: Institute of Public Administration)

Darling-Hammond, L. (1995) "Policy for Restructuring", in Lieberman, A. (ed.), *The Work of Restructuring Schools: Building from the Ground Up* (New York: Teachers College Press)

Darling-Hammond & McLaughlin, M.W. (1995, April) "Policies that Support Professional Development in an Era of Reform" *Phi Delta Kappan*, 76(8)

DiMauro, V. & Jacobs, G. (1995) "Filling in the Professional gaps: Active Teacher Participation on a Telecommunications Network." Paper presented at the American Educational Research Association Annual meeting, san Francisco, CA, 22 April, 1995

Duignan, Patrick (2002) Formation of authentic educational leaders for Catholic schools, in Leadership in Catholic Education, edited by D.J. Duncan and D. Riley (Sydney: HarperCollins)

Fullan, Michael (1991) *The New Meaning of Educational Change* (New York, Teachers College Press)

Fullan, Michael (1992) *Successful School Improvement: The Implementation Perspective and Beyond* (Buckingham: Open University Press)

Fullan, Michael (1993) *Change Forces: Probing the Depths of Educational Reform* (New York: Falmer Press)

Fullan, Michael (2005) *Education in Motion: Leading in a Culture of Change* Handbook for 2005 UK & Ireland Workshop Tour

Joint Managerial Body (2005) *The Workload of Principals in Voluntary Secondary Schools – a JMB Report* (Dublin: Joint Managerial Body for Voluntary Secondary Schools

Joyce, B.R., Calhoun, E. & Hopkins, D. (1999) *The New Structure of School Improvement: Inquiring Schools and Achieving Students* (Buckingham: Open University Press)

Leader, D. & Boldt, S. (1994) *Principals and Principalship: A Study of Principals in Voluntary Secondary Schools* Dublin: Marino Institute of Education

Leithwood, K. (1991) "The Principal's Role in Teacher Development" in Fullan, M. & Hargreaves, A. (eds.) *Teacher Development and Educational Change* (Philadelphia: Falmer Press)

McBeath, John (1999) *Schools Must Speak for Themselves* (London: RoutledgeFalmer)

McLaughlin, M.W. (1995) "Strategic Sites for Teachers' Professional Development" in Grimmett, P. & Neufeld, J. (eds.) *The Struggle for Authenticity: Teacher Development in a Changing Educational Context* (New York, Teachers College Press)

McLaughlin, M.W., Talbert, J.E. & Bascia, N. (eds.) (1990) *The Context for Teachers' Work in Secondary Schools* (New York: Teachers College Press)

McLaughlin, M.W. & Talbert, J.E. (1993) *Contexts that Matter for Teaching and Learning: Strategic Opportunities for meeting the Nation's Educational Goals* (Stanford: Stanford University Press)

McManamly, Sheila (2002) *Providing for the Professional Development of Teachers in Second Level Schools: A Survey of School Principals* (Dublin: Second Level Support Service)

Ní Gorthaí, Pádraigín (2003) *Siollabas an Teastas Shóisearaigh sa Ghaeilge agus a oiriúnaí is atá sé don churchuige cumarsáideach*   Unpublished M.Ed. thesis, Education Department, NUI Maynooth

O'Donoghue, Tom A. (1999) *The Catholic Church and the Secondary School Curriculum in Ireland 1922-1962* (New York: Peter Lang Publishing)

OECD (1989) *Schools and Quality: An International Report* (OECD, Paris).

OECD (2003) *Education at a Glance* www.oecd.org/document/52/0,2340,en_2649_34515_13634484_1_1_1_1,00.html

OECD (2004) *Education at a Glance* www.oecd.org/document/7/0,2340,en_2649_34515_33712135_1_1_1_1,00.html

OECD (2005) *Teachers Matter: Attracting, Retaining and Developing Effective Teachers* (Paris: OECD)

Senge, P. (1990) *The Fifth Discipline: The Art and Practice of the Learning Organisation* (New York: Doubleday)

Stenhouse, L. (1981) "What Counts as Research?" *British Journal of Educational Studies*, 29, pp.103-14

Stoll, Louise (2004) "Leading through Professional Learning Communities" accessed at http://www.thegrid.org.uk/leadership/programmes/conferences/documents/secondary_headteachers_23June04.ppt

Sykes, G. (1996, March) "Reform of and as Professional Development" *Phi Delta Kappan*, 77(7), pp.465-76. TIMSS International Study Centre. Ernest, P. (1988). The attitudes and practices of student teachers of primary school mathematics. In A. Borbas (ed.) *Proceedings of PME-12*, Veszprem, Hungary

TL21 Project (2005) *TL21 Newsletter,* Issue no 2. Spring 2005 www.nuim.ie/TL21

Thom, R. (1973) Modern mathematics: Does it exist? In A.G. Howson (ed.) *Developments in Mathematical Education*, Cambridge University Press