

MIICE Discussion Paper 1 - some explanations and much provocation

This speculative paper is an attempt to offer explanations - sometimes outrageous and always provocative - for some of the trends which can be discerned from the statistical analysis of the results of the validation of the draft **MIICE** measures of quality undertaken throughout Scotland between October 2000 and May 2001

It should be read in conjunction with *The MIICE project - initial report* (published in May 2001), especially

- Appendix 1 on pages 23 to 25
- Interpretation of the results on pages 13 to 21

It would be wrong to declaim over confidently on the basis of the numbers involved and the practical purpose of validation on which teachers were engaged. But there is a ready impulse to seek explanations

It is important to remember the context in which 250 Scottish teachers gave their views was to express approval (or otherwise) for a series of 274 draft **MIICE** measures of quality in learning and teaching when using ICT. The research was not designed purposely to test the trends which could be discerned after the event and which are the subject of this speculative paper

Proposals from interested colleagues who want to explore some of the undoubtedly interesting patterns which were observed during the initial **MIICE** enquiries would be most welcome. Please contact Tony van der Kuyl at the University of Edinburgh on 0131-651 6039 or by e-mail on tonyv@education.ed.ac.uk

It needs to be made clear that the opinions - especially the provocatively outrageous ones - **in no way** represent the views of **MIICE** partners. Helpful individual comments from many - although not always agreed to - are warmly acknowledged. The authors remain responsible for the outrageous opinions which are floated here

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Introduction

This paper will look at the following trends which could be discerned from the processing of the results, and seeks to offer some explanations. These explanations are emphatically for provocation of thought and discussion rather than for classification as absolute truth

- 1 **General reaction** There was a high overall degree of welcome for the draft measures of quality being validated. There were variations and teachers in 2 education authorities were consistently and markedly less favourable [Pages 4 and 5]
- 2 **Routine and creative activity and attitudinal development** Teachers as a whole gave a warmer welcome to measures of routine activity than those for creative activity. They were even less impressed by measures associated with attitudinal development [Page 6]
- 3 **Personal ICT experience** Some small but important differences in the perceptions of teachers according to their own personal experience of ICT use in the classroom emerged. Schools were asked to classify teachers interviewed into 3 experience categories - novice (with no significant personal experience), user (with some personal experience in the classroom) and movers (with significant professional experience). Novices and movers appear to have higher expectations than users, and to be keener on routine activity than users. There may be an important link between ICT experience and high expectations [Pages 7 and 8]
- 4 **Teaching experience** Teachers with over 20 years teaching experience gave a relatively warmer welcome to measures of attitudinal development [Page 9]
- 5 **Age** Older and younger teachers appear to be slightly more favourably disposed to continuing professional development in ICT than those in their 30s and 40s. But teachers in their 20s appear less keen on creative activity than those in their 50s [Page 10]
- 6 **Primary stages** Some differences on the part of primary teachers in the early stages (P1 to P3) compared with others were identified - higher expectations of learners, a warmer welcome for aspects of attitudinal development, and more favour for continuing professional development than teachers in (some) other primary stages [Page 11]
- 7 **Secondary subjects** Social subjects/RE teachers may have higher expectations and maths/science/technology teachers may have lower expectations than others. Creative and aesthetic subjects teachers gave a warmer welcome to routine activity and maths/science/technology teachers were less keen. Creative and aesthetic subjects teachers also appear to be keener on creative activities than others. The same teachers

also gave a warmer welcome to measures of attitudinal development and teachers of social subjects/RE appear to be notably less keen on using ICT for attitudinal development. Languages teachers and creative and aesthetic subjects teachers appear to be keener than others on continuing professional development [Pages 12 and 13]

- 8 **Primary and secondary teachers** There were few differences between teachers in the 2 major sectors. The only area where a difference could be seen was over their reactions to routine activity using ICT, where primary teachers were slightly keener than their secondary counterparts
- 9 **Primary school size** There were no patterns of difference between teachers from different sizes of primary school
- 10 **Secondary school size** There were some interesting differences between teachers in smaller secondary schools (with a roll under 600) and those more numerous teachers in secondary schools with a roll between 601 and 1200. Those in the smaller schools consistently gave a warmer welcome to measures associated with high expectations, creative activity, attitudinal development and continuing professional development [Page 14]
- 11 **Location** There were some intriguing differences, generally small but with a degree of consistency, between teachers in urban areas and those in suburban and rural areas. Only in attitudinal development was the generally greater favour on the part of teachers in urban schools significant [Page 15]
- 12 **Sex** There were clear differences between male and female teachers. Reflecting the profession as a whole, 69.5% of respondents were female. Female teachers gave a warmer welcome than male teachers to measures associated with high expectations, routine activity and creative activity [Page 16]

Why was there a general pattern of support?

What was observed

Teachers were asked to react to the validity of the draft measures. The alternatives they were offered were

Excellent (coded as 1)

Valid (coded as 2)

Marginal (coded as 3)

Unhelpful (coded as 4)

The overall averages for the draft measures can be summarised as follows

	Level 2	Level 4
Group 1 (relating to learners' abilities/attitudes)	1.88	1.88
Group 2 (related to the management of learning)	1.77	1.75
Group 3 (related to teachers' CPD in ICT)	1.77	1.77

An average below 2.00 indicates that more teachers thought it *Excellent* than *Marginal* or *Unhelpful*

Individual motivations are complex, especially when instant judgements are being sought. It is always an exercise in uncertainty to try to draw conclusions across a large group of over 200 teachers. But here goes ...

Positive explanations

- Teachers recognise that ICT in schools is *a coming thing* and that there has not been much of a conceptual framework for articulating success in its use; anything sensible will generally be welcomed
- In spite of much disdainful public comment and a widespread belief that Scottish educational standards are spiralling downwards, Scottish teachers *are* keen to identify quality in learning and teaching and are predisposed to favour reasonable articulations of quality
- Many of the measures were derived from curriculum documentation already circulating and already regarded as valid by practitioners

Common sense explanations

- It has been observed many times that teachers do like to please. Many of those involved in interviewing reported general sympathy with the aims of the project. The default *polite* response would usually have been *Valid* giving expected overall averages of 2.00, but the averages were generally better than that
- Is there still a tendency for teachers to highly approve of things which they do not understand because of vestigial respect for 'brains', crudely equated with "too complicated for me"?
- Many of the interviews were conducted by people 'from the authority' and perhaps some teachers felt that they wanted to impress

Some nuances

1 There are hardly any significant differences between the average responses at level 2 and at level 4. The outcomes where there is more than 0.1 difference between the average at level 2 and the average at level 4 are as follows

- Outcome 4 on *Shared planning/organisation* was better approved at level 4 (overall average of 1.79) than at level 2 (overall average of 1.91) - signifying acknowledgement as a 'higher order' skill?
- Outcome 13 on *Teacher use of computers as productivity tools* was definitely less well approved at level 4 (overall average of 1.94) than at level 2 (overall average of 1.76) - suggesting that most teachers are 'fragile' in their confidence about their ICT skills and see the implicit targets at level 4 as just a little too challenging (although significantly still averaging below 2.00)

2 There appears to be more favour for the 'down to earth' components of the panoply of measures than for the 'airy fairy' ones

- *Collection and analysis of information* averaged 1.70 and *Ability to modify information in a variety of forms, including text, graphical objects, moving images, sounds and web pages* averaged 1.67
- *Realistic but improving culture* averaged 2.15; *Enterprise and taking risks* averaged 2.02; *Developing informed attitudes in relation to ICT in society* averaged 2.29 (almost the lowest in the entire analysis)

All averages above are at level 4. This is hardly a new insight into the practical rather than philosophical bent of Scottish teachers

3 With the exception of *Skills in the use of computer tools for recording, reporting, registration, course planning and other aspects of the processes of management of learning* (average of 2.40 at level 4 - the lowest in the entire analysis), teachers are (equally) interested in the 3 elements of teachers' continuing professional development

- using productivity tools (except for management information systems)
- facilitating the learning of ICT principles and good habits
- using a rich and effective learning medium

Except for outcome 13 at level 4 (pulled down by disdain for the use of management information systems), all the CPD outcomes at levels 2 and 4 were in the 'top 10' of averages (out of 26)

4 The outcome which was most 'popular' was *Quality of outcomes*, with its components of *Assessment policies; Relationship to development planning priorities; Planning of resources; Breadth of experience of ICT use in context*. All of them attracted relatively low averages - between 1.46 and 1.85 - at both level 2 and level 4

Why are teachers so conservative?

What was observed

Teachers as a whole gave a warmer welcome to measures related to routine activity than to those related to creative activity, and an even more lukewarm welcome to measures related to attitudinal development

The averages for the groups of draft measures which comprised the 3 analyses - explained in full in *The MIICE project - initial report* - were as follows

Group of measures	Average
Routine activity	1.70
Creative activity	1.96
Attitudinal development	2.09

There was also a difference in the reaction to draft measures associated with routine activity on the part of primary teachers and secondary teachers. The average for primary teachers was 1.60, while the average for secondary teachers was 1.74

Positive explanations

- The pressures on teachers from parents and others is towards the safe and concrete rather than the experimental and woolly and can stifle teacher initiative
- While teachers are arguably becoming increasingly comfortable with the repetitive aspects of ICT use in the classroom, the challenge of being creative may be a demand too far
- There were (slightly) more primary than secondary teachers in the analysis. Perhaps this accentuates the overall difference. Celebrating the routine in a class of 33 where you are trying to cover the entire curricular spectrum is wholly understandable

Common sense explanation

- Many commentators will affirm that Scottish society is suspicious of the creative and even more of the notion of developing informed attitudes, and teachers reflect the society whose values they transmit and reinforce
- Aspects of school life - subjects and new ways of learning - which were not established when politicians, parents (and sometimes teachers) were at school can often be viewed in a lesser light

Do teachers with a lot of ICT experience have higher expectations of learners?

What was observed

Some of those involved in the interviewing gained an impression that those who were personally most experienced in the use of ICT in the classroom tended to assume that children could do more than those whose experience was limited or negligible

The statistical analysis does not unequivocally bear this out. But

- 1 The average rating for the group of measures associated with high expectations was lower for those who, in terms of ICT experience, are 'novices' (1.78) and 'movers' (1.81) than for those who are classified as 'users' (1.99)
- 2 When the individual measures are examined, the proportion of 'movers' who have indicated that they see the measure as *Excellent* is consistently above the proportion for all teachers (and in all cases higher than or the same as the proportion for 'novices' and 'users')

Measure	% Movers	% All
Can speculate on 'what if' questions about alternatives	47.37	38.98
Systematic evaluation of efficiency of ways of achieving agreed ends	40.00	27.12
Ability to phrase - orally and in writing - value/drawbacks of alternatives	40.00	33.33
Synergy between developing ICT skills and use of ICT for wider skills	50.00	36.67
Ability to derive patterns from a wide array of stimuli	30.23	29.51
Adopt systematic approaches to putting things right when they go wrong	48.89	43.20
Relish chance to suggest new approaches, worthwhile strategies	37.50	31.67

Also, 'novices' and 'movers' equally were more sympathetic to the measures associated with routine activity than those classified as 'users' - averages of 1.63 for novices, 1.76 for users and 1.64 for movers

Positive explanations

- Teachers with a lot of ICT experience in the classroom have seen the difference which the flexibility of ICT tools can make to the nature of the learning processes, for both routine (established) activity and for creative (previously impractical) activity. The possible uncertainty deriving from the statistical analysis may relate to their uncertainty about the reliability

of the resources which are at their disposal. Some of the ‘movers’ interviewed had tales to tell of loss of opportunity because of imperfections in the support infrastructure

- ‘Novices’ are mainly teachers who have seen ICT in use in colleagues’ classrooms or demonstrated by expert colleagues and therefore are relatively more conscious of the potential of learning with ICT. ‘Users’ are likely to have had de-motivating experiences in their (limited) use of ICT in the classroom. Questions around the theme of “but what if it goes wrong?” are commonly articulated by teachers with limited confidence in their use of ICT in the classroom. This could explain both the relative disdain for high expectations and for relying on ICT to carry out established and routine activity on the part of the ‘users’

Common sense explanation

- Teachers who have invested their time in the development of ICT as a means of learning could be expected to more ambitious for its use than those who have been pressed into ICT use or even those who have not yet taken the first systematic steps

Why are long serving teachers a bit keener on attitudinal development?

What was observed

Teachers with over 20 years teaching experience gave a slightly warmer welcome to the measures associated with attitudinal development than others. The average rating from teachers with over 20 years teaching experience was 1.92, compared with 2.05 from teachers with under 10 years experience and 2.12 from teachers with between 10 and 20 years experience

Positive explanation

- As experience grows, teachers become more certain that there is no single solution to the challenges of education. This may be reflected in the tendency to feel that their young charges need to develop skills in “planning and audience awareness” as well in established practical skills
- Having developed their own criteria over the years for judging the value of educational resources, they may be aware of the need for “growing awareness of criteria by which digital information is assessed”

Common sense explanation

- Having experienced the miseries associated with inappropriate learning of ICT skills, they are keen to ensure that young learners are able to empathise, understand and communicate

Why are the old and the young keener than the middle group on continuing professional development?

What was observed

Older and younger teachers appear to be slightly more favourably disposed to continuing professional development in ICT than those in their 30s and 40s. The overall averages for the continuing professional development group of measures was as follows for the different ages of teachers [with the proportion of each age group in the total sample]

Under 30	1.63	[17.6%]
30 to 39	1.85	[20.6%]
40 to 49	1.82	[33.1%]
50 or over	1.58	[28.7%]

On the other hand, teachers aged under 30 appear to be less keen than those aged 50 or more about the draft measures associated with creative activity, with the under 30s returning an average of 2.00 against an average for the 50+ teachers of 1.85 (and with teachers in their 30s at 1.92 and teachers in their 40s at 1.90 in the middle)

Positive explanations

- Young teachers are relatively fresh from their training and are more open to continuing to learn
- Older teachers are professionally established and may have time and interest to develop their skills further, compared with colleagues in their 30s and 40s who may still be inured in day-to-day matters within the school. They may also be more willing to trial new 'creative' ways to use ICT to enhance learning

Common sense explanations

- Teachers in their 30s and 40s may have demanding domestic duties which make attendance at staff development events, or even private study at home, more of a challenge than for the carefree young and the middle aged with their independent children
- Younger teachers may be more concerned with continuing their own development (just coping) and less enthusiastic than their more experienced colleagues when it comes to encouraging creative activity using ICT in the classroom
- Older teachers may be thinking of others when they warmly welcome the need for training

Why are early stages teachers keener than others?

What was observed

Several differences on the part of primary teachers in the early stages (P1 to P3) compared with others were observed

- Perhaps higher expectations of children - the average for the group of draft measures associated with high expectations was 1.72 for the P1-P3 teachers, compared with 1.85 for all primary teachers (and 2.16 for those primary teachers covering all or most stages)
- Perhaps keener on aspects of attitudinal development - the average for the group of draft measures associated with attitudinal development was 1.90 for the P1-P3 teachers, compared with 2.04 for all primary teachers (and 2.25 for those primary teachers covering all or more stages)
- A slightly warmer reception for the draft measures associated with continuing professional development - the overall average response from the P1-P3 teachers was 1.69 compared with 1.75 for all primary teachers (and 1.91 from P4-P5 teachers)

Positive explanations

- Teachers in the early stages remain hopeful about the paths which their young charges will tread as they pass through the educational system
- It is almost an axiom that the pace of learning in the early stages will never be matched. Perhaps teachers in the early stages are generally more optimistic and more receptive to measures of quality than careworn colleagues in the later stages, and - perhaps therefore - keener to develop their own skills through continuing professional development

Common sense explanation

- Interviewers reported that many teachers in the P1-P3 category (more than others) articulated separation between their direct experience and what would impress them if they saw it *up the school* and so they were less constrained by the need to make it happen

Why are there differences in the reactions of different secondary subject teachers?

What was observed

Several differences were noted between secondary subject groups

- Higher expectations on the part of social subjects/RE teachers and lower expectations on the part of teachers of maths/science/technology. The averages for the draft measures associated with high expectations were as follows [with the proportion of each subject group in the overall sample]

Languages	1.83	[25.6%]
Maths/science/technology	1.99	[39.0%]
Social Subjects/RE	1.72	[14.6%]
Creative & Aesthetic	1.82	[20.7%]

- A warmer welcome for routine activity on the part of creative & aesthetic teachers and less of a welcome for routine activity on the part of maths/science/technology teachers. The averages for the draft measures associated with routine activity were as follows (same proportions as above)

Languages	1.80
Maths/science/technology	1.85
Social subjects/RE	1.74
Creative & Aesthetic	1.53

- Creative and aesthetic subjects teachers also gave a warmer welcome to creative activity than others. The averages for the draft measures associated with creative activity were as follows (same proportions again)

Languages	1.94
Maths/science/technology	1.97
Social subjects/RE	1.89
Creative & Aesthetic	1.71

- Creative and aesthetic subjects teachers also returned a more favourable response to measures of attitudinal development than others, especially teachers of social subjects and RE, which might be thought to have a clear focus on attitudinal development. The averages for the draft measures associated with attitudinal development were as follows (same proportions again)

Languages	2.00
Maths/science/technology	2.03
Social subjects/RE	2.28
Creative & Aesthetic	1.79

- There appears to be more enthusiasm for continuing professional development in ICT on the part of language teachers and creative and

aesthetic subjects teachers. The averages for the draft measures related to continuing professional development were as follows (same proportions again)

Languages	1.66
Maths/science/technology	1.83
Social subjects/RE	1.92
Creative & Aesthetic	1.54

Positive explanations

- Some subjects - including those in the individual subjects in the social subjects/RE group - see a (self) selected group of relative enthusiasts (at least from S3 on). Higher expectations may be one result, in comparison with those subjects (including English, mathematics, science) which are undertaken by all
- While it is perhaps not surprising that creative activity is welcomed by teachers of the creative and aesthetic subjects, their espousal of the measures associated with more routine activity and with attitudinal development may be less obvious. One explanation may be that teachers of essentially creative subjects, such as art or music, may despair that they will unearth the truly imaginative learners and may settle for those who can 'cope' and can benefit from a 'routine' approach to the challenges of learning
- Teachers of creative and aesthetic subjects are surely keen to ensure that "planning and audience awareness in exploratory activity" (one of the draft measures associated with attitudinal development) is built into the learning experiences they structure for their charges
- It is not uncommon to find that the distribution of ICT resources and personal skills around subject departments is far from uniform. Teachers in the languages and creative and aesthetic groups of subjects may feel that they have more to learn in many schools than colleagues in other (better off) departments

Common sense explanation

- The results are the outcome purely of the serendipity factor

Are teachers in smaller secondary schools more ambitious than those in larger secondary schools?

What was observed

There were several (consistent) differences on the part of teachers in secondary schools with a roll under 600 (28.9% of the sample) compared to those in secondary schools with a roll of 601 to 1200 (71.1% of the sample) - there were no schools with a roll over 1200 in the sample, as it happened

- Higher expectations of learners - the average for the group of draft measures associated with high expectations was 1.60 for teachers in smaller schools, compared with 1.98 for teachers in larger schools
- A warmer reaction to creative activity using ICT - the average for the group of draft measures associated with creative activity was 1.70 for teachers in smaller schools, compared with 1.96 for teachers in larger schools
- Slightly more favourable to attitudinal development - the average for the group of draft measures associated with attitudinal development was 1.86 for teachers in smaller schools, compared with 2.07 for teachers in larger schools
- Apparently keener on continuing professional development - the average for the group of draft measure related to continuing professional development was 1.62 for teachers in smaller schools, compared to 1.80 for teachers in larger schools

Positive explanations

- The smaller number of specialist colleagues in a smaller secondary school gives each teacher a broader range of experience and may lead to a 'broader' view than a teacher who is a 'cog' in a large subject department in a large school
- The relatively more generous provision of (ICT) resources in smaller schools - both for learners through specialist rooms and in departmental resources - may lead to a greater resourcefulness in the use of ICT than in the more formalised environment of a larger secondary school

Common sense explanation

- Many smaller secondary schools serve distinct (rural) communities with a tradition of a more positive set of expectations from the whole process of schooling than the anonymous 'education factories' of Scotland's urban areas, and this is reflected in the optimism of individual teachers

Are teachers in urban schools more interested in quality than those in suburban or rural schools?

What was observed

There were several small but consistent differences on the part of teachers in schools in urban areas compared with teachers in suburban and rural areas. The following summarises the average for the measures associated with the several analyses undertaken by the MIICE project for teachers in urban, suburban and rural areas

<i>Group of measures</i>	<i>Urban</i>	<i>Suburban</i>	<i>Rural</i>
High expectations	1.80	1.94	1.87
Routine activity	1.63	1.71	1.68
Creative activity	1.83	1.96	1.92
Attitudinal development	1.86	2.17	2.01
Continuing professional development	1.67	1.75	1.83
[Proportion of the total]	[36.0%]	[44.4%]	[19.6%]

Positive explanation

- Schools in urban areas may find it easier to make collaboration with teachers in other schools a reality, with the broadening of horizons which might be expected to result from this sort of professional engagement

Common sense explanation

- The differences are small and not meaningful in a relatively small sample, but this might be worthy of more systematic research

Are male teachers more pessimistic than female teachers?

What was observed

There were several clear differences between the responses of male and female teachers, who represented 30.5% and 69.5% of the sample respectively

- Female teachers made more favourable returns about high expectations than male teachers. The averages for the group of draft measures associated with high expectations were 1.78 for female teachers and 2.09 for male teachers
- Female teachers appear to be keener on routine activity using ICT than male teachers. The averages for the group of draft measures associated with routine activity were 1.62 for female teachers and 1.83 for male teachers
- Female teachers gave a warmer welcome for creative activity using ICT than male teachers. The averages for the group of draft measures associated with creative activity were 1.85 for female teachers and 2.04 for male teachers

Non explanations

- An explanation of this is well beyond the scope - and nerve - of this paper. Colleagues are invited to consult John Gray's *Men are from Mars and Women are from Venus ...*
- This may be an important issue which should be the subject of closer examination