Clocks, calendars and cognition

Associate Editor for **Conference reports** FIONA JONES introduces our coverage of the 1999 London Conference.

THE final conference before the year 2000 featured the appropriate theme of 'The psychology of time' — a theme that attracted a range of contributions encompassing clinical, cognitive and neuropsychological approaches. A flavour of the variety of approaches to the topic is given in the reviews published here, including Peter Coleman's talk on reminiscence and John Wearden's on time and the brain.

For those less interested in time, there was plenty more to attract the attention, including papers by James Hartley and Susan Jory (Keele University) on PhD vivas (reported in this issue) and Robert Sternberg (Yale University) on intelligence (an article based on this is to be published in *The Psychologist* soon). More reports will appear in next month's issue.

The Institute of Education was once again the venue. A large number of delegates attended, so that many sessions on the first day were overflowing. The publishers' stands, always a strong feature of the London Conference, were once again well attended — especially those offering champagne as well as books!

Internal clocks and human timing

In his keynote lecture on the psychology of time, John Wearden from the University of Manchester gave a whirlwind tour of research into the human internal clock. KATE CAVANAGH *reports.*

THIS lively and engaging presentation started with the story of how internal clock theories began. The idea that our estimations of time may be driven by an internal clock was pioneered in the 1930s by the American physiologist Hudson Hoagland. He noticed that events seem to take longer when our temperature is raised, for example with the flu.

On the basis of this observation, Wearden explained that our subjective estimates of time might be driven by an internal biological clock. Like other biological and chemical reactions, the reactions of this internal clock would be speeded up when heated; this could account for the distortions of time experienced in a fever.

Testing this early internal clock theory gave rise to the development of a number of dangerous experimental methodologies. Research relied on heating people up or cooling them down by methods such as sitting in hot rooms, wearing hot hats and cycling in cold water, and then asking them to make estimates of time intervals. Whilst often supporting internal clock theories, the

ethical problems of this kind of research, coupled with the rise of behaviourism, placed internal clock theories on the back burner for the first half of the 20th century.

Professor Wearden went on to outline information-processing models of the internal clock that have driven research in this field since the 1960s. One theory proposes that our internal representations of time have two properties.

Firstly, we are generally very accurate. That is, our mean judgments of time lapses are very similar to real time. Secondly, the accuracy of our time estimations is proportional to the length of time we are trying to estimate. In other words, it is much easier to judge the difference between one and two seconds than between 10 and 11 seconds, which in turn is easier than judging the difference between 99 and 100 seconds. This theory of human timing has been supported by a number of studies published by Wearden and his colleagues.

The extent to which our estimations of time are informed by the actual length of time being estimated is known as 'fuzziness' — the greater the inaccuracy with increasing intervals of time, the more fuzzy the temporal memory is said to be.

Wearden discussed some recent research looking at individual differences in fuzziness across the life course. This found that both older adults and those with lower general intelligence gave more fuzzy estimations of time than their younger or more intelligent counterparts.

In the second part of his lecture, Wearden asked whether the pace of the human internal clock could be altered. He argued that increased clock speed should make events seem longer, but intervals seem shorter. This means that with a faster clock we would overestimate the time events take, but conversely be more hasty when producing intervals intended to match a given time lapse. A review of research into this phenomenon indicated that humans do behave as though they have some kind of internal clock that works in this way.

One example of this kind of increased pace effect is seen in reports of the experience of time during extremely arousing events such as car crashes. Following this kind of life-threatening event, people often report that time seemed to slow down and that events in the external world seemed to occur in slow motion.

Wearden hypothesised that the massively increased pace of the internal clock during stressful events may have adaptive advantage. The perceived slowing of external events might provide a valuable opportunity for fight or flight decisions to be made.

However, laboratory studies of the effect of arousal on human timing have not wholly supported this theory. Experimental manipulations designed to moderately increase physiological arousal have no effect on subjective time estimations.

Wearden suggested that the relationship between subjective time and arousal may be non-linear. Changes in the pace of the internal clock may only be seen at extremes of arousal which are difficult, not to mention unethical, to induce in laboratory conditions.

Professor Wearden ended his keynote lecture with an enthusiastic introduction to the conference symposia related to the psychology of time. He also noted that the London Conference was one of the largest meetings of psychologists of time ever held.

Lest we forget: Remembering in time

ERICA BROSTOFF *reports on the talk by invited speaker Peter Coleman of the University of Southampton.*

PROFESSOR Peter Coleman characterised time as the carrier of memories and reminiscence, both for the individual and for society. Transmission of values and information from older to younger generations depends on these memories. However, there can be either continuities or discontinuities in this transmission — a feature that is particularly important and problematic in relation to war memories.

The aim of the talk was 'to stress that bad memories when left unhealed, not only have negative personal consequences for the individuals themselves and their close families, but also negative social consequences … (probably) we underestimate just how much of our national, racial and ethnic attitudes are formed in these ways, and how deep and subterranean they run'.

His review of reminiscence work showed that in the 1950s, reminiscence in older people was characterised by sociologists as part of 'entertaining oneself' during the natural withdrawal from society. In the 1960s reminiscence was sometimes regarded as a sign of dementia, in the 1970s as a need to assert identity, and in the 1980s as a normative life task.

At least three theoretical frameworks for reminiscence now exist. Firstly, identity maintenance; secondly, life review — including the attempt to integrate difficult life experiences; and finally, social aspects.

Psychologist David Gutman researched the role of older members of several traditional societies, who act as mouthpieces of the culture, morality and traditions of their society. Following this research, he challenged the notion of reminiscence as social withdrawal, suggesting this is a Western concept. Intergenerational disintegration is a price he believes we seem to be willing to pay for other 'liberal and egalitarian values'.

Taking up this theme, Coleman wished to illustrate three postulates. Firstly, he suggested that in addition to intrapsychic benefits, the optimum effects of reminiscence are in transmission of cultural values; secondly, that this 'generativity' requires personal integration of life experiences; thirdly, that this is now a neglected role for the older person. We need to be reminded of this valued role in traditional societies, the loss of which we seem too ready to accept in the West.

At the personal and intrapsychic level, he summarised his own and other recent research as showing that life review, whether in real-life settings, laboratory, or longitudinal studies, is not necessarily associated with (initial) well-being. Life review may correlate with depression or early lack of self-confidence, but also with creativity, generativity and problem solving.

Specific types of reminiscence that have negative personal effects have been identified by Paul Wong and Lisa Watt, as 'obsessive reminiscence', and by Jeff Webster as 'bitterness revival' linked with the planning of revenge. A link between studies of persistent intrusive memories in depression and in post-traumatic stress disorder (PTSD) has been noted by Chris Brewin.

However, Coleman believes gerontology

has been impoverished by overfocus on individual well-being. Research by Dan McAdams in 1997 identified an important constellation of attitudes in adults, which he termed 'generativity' after Erikson. This consists of a commitment to the next generation with the aim of contributing a positive legacy that will outlive the self.

It is in the sequencing of life events that highly generative adults differ from others. Their narrative transformation of bad episodes into good outcomes and setting of goals to benefit society is contrasted with the 'contamination' sequencing of events from good to bad of less 'generative' adults.

Transmissive reminiscence and the display of such wisdom has been more difficult to encourage in university laboratory studies. Coleman also found that one third of those on elderly care wards had transmissive stories they wanted to tell, but 'no one who would listen'. Here the internet may be of value to older people in creating an audience.

Coleman referred at various points to his own and others' research with war veterans. In his earliest reminiscence research, he found much variation in personal integration of war experiences among First World War veterans; some were still struggling to find something meaningful to say from their narratives. He quoted verbatim the moving statements of a veteran, who could not avoid talking about the war though he tried to forget it, saying that 'war destroys men'and 'some never get over it'.

KATE GREY

Coleman and colleagues are now involved in research on the long-term effects of Second World War memories. He argues that only certain narratives are socially permissible, and that these rarely include stories of chaos, futility, insurrection or atrocities. While the long-established study of memory in psychology has shown it is not so easy to control what we remember, it can also be impossible to forget distressing experiences.

In PTSD, not fully recognised in relation to war experience until Vietnam, unpleasant experiences are relived in repetitive ways out of the control of the individual. The popularity of Pat Barker's recent best-selling novel *Another World*, which addresses the unresolved war memories of a 101-year-old, shows this is currently an active issue in our society.

Coleman concluded by discussing his research with intemational colleagues in Finland, Russia and Germany, which revealed a range of differences between countries.

Finnish veterans seemed most integrated into society and valued their war roles in terms of positive achievements of their country. While objectively their war experiences were very unpleasant, survivors seemed able to share memories that indicated a complete working through and personal well-being. These war veterans were honoured and reintegrated, partly through public response to activities of their strong veterans'associations.

British veterans often felt current Britain did not fully justify their war

Does time really go more quickly as you

C. DAMIAN LAW *hears about the effects of age on the dating of public events.*

SUSAN Crawley presented a conference paper that had her whisked off to the BBC radio studios within a couple of hours. On the way to the waiting car, she brandished a list of programmes she'd been booked to appear on. This presenter was apparently not used to the limelight — 'This usually happens to my collaborator,' she said before disappearing into her 15 minutes of fame. Time, it would seem, was moving very rapidly for one social scientist at least.

Ever travelled through time? You just have. When did Margaret Thatcher resign? To answer this second question you have to place yourself in a temporal frame, and your recall may well be affected by variables that you've never heard of — such as 'forward-telescoping bias'.

We might not have the technology to travel forward through time any faster than one second per second, but sometimes we feel that we do. To find out why, Susan Crawley and Linda Pring (both of Goldsmiths College) have explored the recall of historical events.

Crawley began her presentation with the common observation that the years seem to go faster as you grow older. Crawley and Pring had carried out two experiments to investigate whether there would be an effect of age on the dating of public events.

In earlier research, Skowranski and Thompson (1990) detected a gender difference in that women are slightly better at dating personal events. Fraisse (1964) believed that the subjective acceleration of time with age has been observed so often that it is probably true, but would not be reflected in objective time judgements.

This is where Crawley and Pring step in. They aimed to look for evidence that age would affect the ability to date events, and further, to see if there were any gender differences. Their first experiment investigated memory for public events over a seven-year period (1990–1996) and compared three age groups (18–21, 35–50 and 60 plus); the second took the two older groups and looked at an earlier period (1977–1989) to see if the effects of age became apparent only with longer retention periods.

A tendency to overestimate how recently events took place — a bias known as forward telescoping — was observed in the youngest age group when asked to date recent events. However, this tendency lessened with increasing age. When recalling events further back, although the 35–50 age group were still dating too recently, the over-60s now dated too distantly. These findings did not support Fraisse who believed that subjective time acceleration would not be reflected in objective dating performance.

sacrifices. For research into transmission of memories, Russian students are being encouraged to interview grandparents about the massive war losses experienced there. German researchers have concentrated on studying suffering caused by the Nazis, and have tended to avoid studying the effect of war on their own veterans and civilians.

Overall, Coleman makes the point that reminiscence may have an important function as a means of transmitting experiences across generations. Holding on to bitterness does not make for harmonious relations, as we see in Ireland, the former Yugoslavia and elsewhere. At the same time, despite belated memorials, some present holocaust survivors fear that the new millennium will be an excuse to 'forget'.

Psychologists know that memory is selective, and Coleman argues for balance between remembering and forgetting. Otherwise the examples of the former Yugoslavia, Ireland, and even of the sack of Constantinople by the Crusaders eight centuries ago, with its effect on present schisms and political attitudes, may be repeated in the next millennium. The concept of 'generativity' needs to come into play. One was left feeling that knowing about how this can be achieved more constructively is very important.

ow older?

The researchers argue that the subjective perception of time may have serious practical implications in the fields of law or medicine when older people are asked to date events.

The next surprise was that the expected greater dating accuracy by females was not produced. This could have been because Crawley used public events as opposed to the personal events used in Skowranski and Thompson's study.

Of course, the most interesting finding was that the results indicated that older people really do believe more time has passed than is the case. Which is why the years seem to fly by as we get older.

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Applied and dev elopmental studies of timing

A symposium report by SIAN WILLIAMS .

IT seems a little ironic that nearly all of the speakers in a symposium on time perception had either to skim over or omit part of their talks because of time constraints. Intentional or not, it was a good illustration of some of the points being made.

Dan Zakay (Tel Aviv University) opened the symposium with a presentation entitled 'Human timing as adaptive behaviour', which was based on speculation rather than empirical evidence. He argued that we do have some sort of internal timing device, are constantly attentive to time and that this has adaptive utility. Mostly, this is at an unconscious or pre-attentive level, but when we become aware of the relevance and uncertainty of temporal issues we allocate resources to timing.

To illustrate the point, he gave the example of conversation. Generally, we do not consciously attend to temporal issues when talking to another person. However, if someone takes a few seconds too long in responding to a simple question we become aware of the time gap. We 'know' the usual duration time of events, and if we feel that it is too long or too short we believe that something is wrong.

Furthermore, Zakay proposed that people overestimate time duration when time is relevant and uncertain. For example, when standing in a queue that doesn't appear to be moving, time will be thought to be passing slower than it actually is. He argues that these two factors, of time awareness and overestimation of duration periods, have adaptive utility — bringing time awareness to a conscious level allows us to allocate attentional resources and do something about the situation.

Following this, Andre Vandierendonck (University of Ghent), discussed the role of working memory in time estimation. He argued that in making prospective time estimations of short intervals people use counting techniques. When this strategy is suppressed, time estimation becomes impaired and people overestimate the length of time. However, this was not the case for longer intervals. This suggests that while time estimation is possible without a counting technique, it may serve as a strategy to improve time estimation.

The next speaker, Teresa McCormack (University of Warwick), took a more developmental approach and spoke about older adults and children in relation to time estimation. She proposed that distortions in judgements about time may be due to distortions in memory representations in long-term memory.

McCormack presented some results suggesting that children remember time intervals as shorter than they actually are and older adults remember time intervals as longer than they actually are. She explained these findings as the result of developmental changes across the lifespan in the amount of 'noise' in temporal encoding. As we get older, there is more information in the memory to interfere with new information.

HAL ROACH/PATHE EXCHANGE (COURTESY KOBAL)

Uncer tainty of temporal issues

Staying with children, Sylvie Droit-Volet (Blaise Pascal University) presented a paper that sought to provide extra empirical data on children's performance on certain temporal tasks. She asked children aged three, five and eight to estimate the length of time a blue circle was visible on a computer screen. After training, all age groups showed an ability to perceive lengthening in duration times, although the youngest age group needed more training.

Poorer performance in the younger age groups was suggested to be a result of random responding and variability in the temporal representations in memory,

supporting the ideas put forward by McCormack.

The symposium's final talk was given by Jacques Montangero (University of Geneva). Montangero looked at the ability of seven- to twelve-year-olds to evoke past and future stages and transformations of a present state. He found younger children tended to change the size (but not the shape) of objects when asked to draw them in the past and future. For example, a tree was drawn in increasing size when imagined over time.

Eleven-year-olds, however, drew more complex quantitative and qualitative transformations, such that the pictures went from seedling to chopped down tree.

While the ability to think in this way was found in children, Montangero suggested that it is not always evident in adults. He proposed that developmental psychologists are a good example of this, in that they neglect the successive links in cognitive ability and remain in the here and now when describing an ability.

Unfortunately, no discussant was provided for this symposium and there was only a short time left at the end for questions. Nevertheless, it was a fascinating review of current research into the development of time perception — and it didn't seem to last half as long as I thought it was going to.

Levels of inclusion: Time in, time out

A symposium convened by Pam Maras of the University of Greenwich and Gillian Evans of North Somerset Psychological Service on behalf of the Division of Educational and Child Psychology. ANNA IWASCHKIN *reports.*

PRACTICAL ideas for making education at classroom level relevant and accessible to more pupils were a key feature of four diverse papers presented during this symposium.

Ann Phoenix (Open University) gave the first presentation, entitled 'Contradictions of exclusion and inclusion: Masculinities and racialisation in 11- to 14- year-old boys'. This examined 78 boys' sense of masculinity, and how this linked with attitudes to school achievement.

Constructions of masculinity included maintaining a sense of difference from girls, toughness, sporting prowess, 'coolness', and casual treatment of schoolwork. Black boys of African Caribbean descent were seen as 'super masculine'. Ann Phoenix argued that boys' investment in a racialised masculine identity, which places them in a contradictory position in relation to school achievement, needs to be taken into account if education policies are to be successful.

Peter Kutnick's (University of Brighton) paper 'Promoting the traditional classroom: A recipe for exclusion and low attainment' raised questions about the current drive for the 'traditional' approach, including whole-class teaching, in primary schools.

Studies of traditional primary school practice in the Caribbean island of Trinidad showed that teachers, in question and answer sessions, generally worked with high attainers, selecting those who would answer correctly and moving to the next teaching point when they did so. Low attainers were not drawn in and did not participate. High attainers handed work in first and received more feedback than low attainers who handed work in later. Low attainers (especially boys) adopted withdrawal strategies.

Professor Kutnick's vivid working example shows the need for wider discussion about the relationship between teaching practice and inclusion.

In 'Reintegrating permanently excluded primary aged pupils', Peter Parkhouse reported on his and Jean Osmond's (North Somerset Educational Psychology Service) evaluation of mainstream schools' perceptions of a reintegration programme for pupils with severe emotional and behavioural difficulties. The reintegration process for a pupil attending a Pupil Referral Unit (PRU) typically featured close co-operation among agencies and parents prior to reintegration to mainstream school, gradual increase in a pupil's attendance at school, and continued support from the PRU for pupil, family and school staff.

Mainstream schools rated the

individualised programmes of reintegration very highly: the behaviour of the pupils compared favourably in some situations with that of mainstream peers and all the reintegrated pupils had maintained their mainstream school places. On top of that, the programme proved very cost effective for the local education authority!

Brahm Norwich (University of Exeter) and Ann Lewis (University of Warwick) in 'Mapping a SEN pedagogy' focused on teaching approaches for pupils with special educational needs (SEN). As part of a British Educational Research Association's national initiative, they investigated whether SEN pupils are taught in distinctive ways.

A review of the literature related to the areas of specific, moderate and severe/ profound learning difficulties in the areas of literacy, numeracy and motivation/ attitudes found surprisingly little evidence of SEN-specific pedagogies. The review indicated that while common teaching approaches were relevant to the subgroups above, so too were intensive approaches that were matched to individuals' needs.

In the light of this, Norwich and Lewis propose a reframing of thinking about SEN pedagogy. It has always been found useful to consider SEN pupils'needs (whatever the 'category') in terms of continua of attainment and cognitive abilities, which are matched along a continuum of provision (different settings, staffing provision). They propose that the notion of continua of provision be extended to include continua of teaching approaches, adaptations of teaching strategies and procedures which could be applied to a greater or lesser degree to individuals in response to data from regular assessment.

In concluding the symposium, Gillian Evans noted that together the papers gave a strong message: if the goal of pupil inclusion is to be realised, challenges lie ahead for those in education in linking identification of individual differences with appropriate teaching and learning styles.

Making a visual impact

FREDERIC STANSFIELD *takes a look at the conference posters and considers their value for presenting research.*

THERE is more to a conference than listening to speakers and, in the breaks between sessions at the London Conference, there was a range of competing attractions. People could meet up with friends and colleagues over coffee and lunch. They could do some more networking at wine receptions. At this conference, even more than most, they could browse the latest books offered at a discount by publishers and other conference exhibitors. Finally — they could inspect the poster presentations. So, did the posters get their message across in competition with the other attractions available between and after conference sessions?

Well, to some extent they did not. The 16 poster presentations were in the Jeffrey Hall along with the tea and coffee. But all those tempting bookstalls were between the refreshments and the posters. Half the presentations were facing nothing but the bare back wall of the stage.

For those who made it past the books, some of the posters did little to make an impact. Several were effectively written papers stuck on boards. And if you read a poster with lengthy introduction, method and results sections, you are down to floor level by the time you get to the conclusions. I did not see many people get that far during the short time available between conference sessions.

But some of the posters did attract attention. One of the best-presented got half-page write-ups, complete with photographs, in the national broadsheets. Lea Williams (University of Sydney), Carl Senior (Institute of Psychiatry) and their colleagues found that when looking at a smiling face, people focused longer on the wrinkles at the corner of the eye (known colloquially as 'crow's feet') than was the case with neutral or sad faces. This indicated that these wrinkles may be important signs for assessing the genuineness of a smile.

The press speculated that famous people who have crow's feet, such as the actors Martin Clunes and Judi Dench, may therefore have more appeal than those who have had face lifts.

Two other posters caught the eye by reporting studies of faces. Graham Pike (University of Westminster), Richard Kemp (University of Leicester) and colleagues compared live police identification parades with a new video system,VIPER. They found that the frequency of identifications was similar for both types of parade, but that video could save money because fewer parades were cancelled.

NEW LINE (COURTESY KOBAL)

Are views of scientists changing?

Jim Turner and Graham Pike (both of University of Westminster) with colleagues found that 'e-fits'produced better likenesses of suspects if minimal faces were used rather than the current more detailed face images, which can include similar but incorrect face context.

Pictures are not the only way in which a poster presentation can make a visual impact. Geraint Price and Susan Grey (Institute of Psychiatry), together with Andrew Matthews (MRC Cognition and Brain Sciences Unit, Cambridge), evaluated a protocol to reduce anxiety

Dr Fiona Jones is a principal lecturer at the University of Hertfordshire
Kate Cavanagh is a research at the University of Sussex
Sian Williams is a research student at the University of Sussex
Erica Brostoff is a member of the Society's Division of Counselling Psychology
C. Damian Law is a mature student at University College Northampton
Frederic Stansfield holds an MSc in occupational psychology from the University of Sheffield
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during clinical magnetic resonance imaging. They showed in diagram form how procedures had been changed. One such change was that people were given an audio tape demonstration of the scanner noise, and visited the control room before their scan. The study enabled anxiety about the scanning procedure to be reduced at minimal cost.

Quotations can draw attention to posters. Helen Haste, Kevin Rice and Yionnia Zachariou (University of Bath) used discourse analysis to study adolescents' perceptions of scientists, who are no longer seen as 'crazy cranks', but as rich people who can change the world.

For instance, the researchers were told that to be a scientist 'would be well-paid, and if you made an amazing breakthrough, it would give you a sense of achievement'. By looking at a poster, I found that I make my own connections between excerpts, whereas my personal experience is that lengthy quotations during spoken presentations of discourse studies can easily become tedious.

I have concentrated on posters that grabbed my attention visually, but the content of several others had important messages, particularly on issues relating to crime.

Kevin McKee and Caroline Milner (University of Sheffield) found that poor physical health increases the fear that older people have of crime. Sarah Henderson (University of Aberdeen) presented data from experiments suggesting that individuals may repress memories of a crime they have committed because of the trauma involved.

In a study of homophobic attitudes, Michelle Davies (University of Central Lancashire) found that men blamed male victims of hypothetical sexual attacks more when the victim was portrayed as homosexual. Victims were also blamed more when assaulted by a member of the sex they are normally attracted to.

Posters at a conference can provide variety in the way we communicate developments in psychology. As several presenters in London demonstrated, visual display is often a more appropriate way of showing results than word of mouth. But I was left with the suspicion that, for conference organisers, posters were a way of giving room for more papers than could be included in the main sessions.

In my view, posters should be used positively to display information that is passed on better visually than orally. Other means of visual presentation, such as videos, should also be used. Posters should be displayed in manageable numbers where people will see them and there should be proper arrangements for literature accompanying the presentations (not just piles on the floor).

People reporting their work in poster form also need to think out how to get their message across. Good posters take time to plan and prepare, but few readers will spend more than a minute or two reading them. So the most important finding must stand out immediately, which will not happen if the 'poster' is just a copy of an academic paper. A picture is worth a thousand words, and even more if it is of somebody's face. Psychologists have found out quite a lot about visual attention. We should be able to transfer this academic learning to the practical task of preparing posters.

Most of all, do look at the posters if you are at a Society conference. They report interesting, and often important, findings. Orally presented papers are crucial to the success of a conference, but you will miss out badly if you do not watch out for the other information around you.

PhD vivas

FIONA JONES *reports on a talk about how far the Society's guidelines for the assessment of PhDs are being observed.*

IT is now four years since the Society (jointly with the Universities' and Colleges' Staff Development Unit) published its *Guidelines for Assessment of the PhD in Psychology and Related Disciplines*. But little is known about the experiences of students undergoing vivas and how they compare with the practices recommended by the Society. James Hartley and Susan Jory (Keele University) sought to remedy this by surveying 100 students who had completed PhDs in psychology between 1997 and 1999.

The sample was roughly equally divided between those who thought the viva was a positive experience (44 per cent) and those who thought it was negative (39 per cent). Perhaps inevitably, the main differences in perception of vivas was between those who passed outright (who viewed the viva positively) and those who had to make substantial changes (who thought the whole situation was dreadful).

However, some findings raise concerns about the extent to which the Society's guidelines are being implemented. For example, the Society recommends that the viva be held within three months of the thesis being submitted, but half of those surveyed reported a longer wait than this.

Furthermore, the Society recommends that attention be paid to the gender balance of examination teams, but the study found the situation was far from ideal. Both men and women are more likely to be examined by men — fortunately there is no apparent difference in results because of this. Fifty per cent of vivas were also longer than the recommended two hours.

The guidelines also recommend that there should be an internal examiner, an external examiner and a chairperson present at the viva. They suggest that candidates should be warned of the examiners' concerns before the viva, but should not be told about the outcome of the viva in advance. However, examiners should make efforts to put the student at ease at the start of the viva.

The reality described by Hartley falls short of meeting all these recommendations. Many vivas were conducted with just an internal and external examiner. Only 20 per cent of candidates were told of the examiners' concerns in advance, but 30 per cent were told the outcome at the beginning of the viva; 15 per cent of candidates felt the examiner had not tried to put them at ease.

Hartley and Jory argue that if the guidelines were followed or even made compulsory this would reduce much of the variation in the present system.

However, as a PhD examiner myself, I wonder if a certain amount of variation may also have benefits. An insistence on standard times, for example, may have costs for students who need a longer period to get into their stride and adequately defend their theses. Other regulations are likely to clash with university regulations that are designed to ensure fairness and lack of variation across subjects within a particular institution —- a factor which militates against compliance with Society guidelines.